Rajat Kathuria · Neetika Kaushal Nagpal
Editors

Global Economic Cooperation

Views from G20 Countries

Springer

Global Economic Cooperation

Rajat Kathuria · Neetika Kaushal Nagpal
Editors

Global Economic Cooperation

Views from G20 Countries

Springer

Editors
Rajat Kathuria
Indian Council for Research
on International Economic Relations
New Delhi
Delhi
India

Neetika Kaushal Nagpal
Indian Council for Research
on International Economic Relations
New Delhi
Delhi
India

ISBN 978-81-322-2696-3 ISBN 978-81-322-2698-7 (eBook)
DOI 10.1007/978-81-322-2698-7

Library of Congress Control Number: 2015952995

Springer New Delhi Heidelberg New York Dordrecht London

Printed on acid-free paper

Springer (India) Pvt. Ltd. is part of Springer Science+Business Media
(www.springer.com)

Foreword

With Turkey assuming responsibility for the G20 Presidency on 1 December 2014, it is worth reflecting on the 5th Annual ICRIER-G20 conference held in September 2013. The theme of that conference was 'Governance and Development', both prominent issues during Australia's hosting of the G20.

Australia sees the G20 as the right group to deal with twenty-first century issues. Its membership, which includes the right balance of advanced and emerging market economies, is broad enough to be relevant, but narrow enough to be effective. For us, it is extremely important that the G20 works effectively to provide political momentum on key issues facing the global economy.

In the past few years, some have expressed concerns about the G20's status as the world's premier economic forum. There has been a perception that, with threats from the global financial crisis receding, the incentives for cooperation had diminished, the agenda had grown cumbersome as successive presidencies added to the G20's work program, and Leaders, Finance Ministers, Central Bank Governors and the general public had found discussions less engaging and relevant.

To counter this perception, the Australian Presidency took a number of important steps during 2014. We streamlined the agenda and ensured Leaders, Ministers and Governors focused on a small number of key issues where they could make a real difference. We also sought to strengthen personal relationships and genuinely engage business and community members on our agenda. We focused on producing shorter communiques that better convey to our citizens what the G20 has achieved. We also introduced innovative formats to G20 meetings, designed to deepen personal relationships amongst the members and ensure they were comfortable with the forum. The importance of this cannot be underestimated. It underpinned greater interaction and the opportunity for genuine dialogue and personal reflection by Ministers and Governors on key policy issues. It also ensured that Ministers and Governors had built the trust needed to tackle the big global issues as they arose.

In terms of the G20's work during 2014, we focused on concrete actions to lift global growth and shore up the resilience of the global economy.

It was clear that the G20 as a group needed to focus on a handful of practical outcomes to catalyse private sector led growth, given the continued weak global outlook and the limits of macroeconomic policy levers. This led to the development of comprehensive growth strategies from each G20 member, which focused on well-calibrated macroeconomic policy and productivity-enhancing structural reforms. The IMF and the OECD estimated that these growth strategies, containing nearly 1,000 measures, will boost the collective GDP of G20 economies by 2.1 % by 2018. This equates to an injection of an additional $2 trillion into the world economy and the creation of millions of jobs.

As part of the growth strategies, there was a strong focus on investment and infrastructure. Members agreed to a range of individual and collective actions to improve domestic investment environment, better intermediate global savings to productive investments, facilitate stronger and deeper capital markets, better leverage multilateral development bank capital and public finances, and improve project design, planning and privatisation. A Global Infrastructure Hub, to be headquartered in Sydney, will be a key vehicle to help implement a number of the G20's collective actions in 2015.

Australia also focused on a number of measures to strengthen the resilience of the global economy. In particular, progress was made in substantially completing work in four core areas of financial regulatory reform (better capitalised banks, addressing too-big-to-fail, addressing shadow banking risks and making derivatives markets safer). In addition, work under the tax agenda saw completion of 7 of the 15 action items under the two-year G20/OECD Base Erosion and Profit Shifting (BEPS) Action Plan. In addition, members endorsed the new Common Reporting Standard on the automatic exchange of tax information.

On the theme of development, the Australian Presidency viewed this as a cross-cutting issue, recognising the contribution of developing countries towards achieving our objectives of promoting growth and quality jobs, and supporting the resilience of the global economy.

In line with this approach, we progressed work on five priority areas identified by G20 Leaders at the Saint Petersburg Summit. We welcomed a new G20 Financial Inclusion Action Plan and adopted a G20 Plan to facilitate remittance flows. Within the tax agenda, we focused on ensuring that low income and developing countries reaped the benefits from the work on BEPS and automatic exchange. We also made progress towards addressing key factors inhibiting the supply of quality infrastructure projects, adopted a Food Security and Nutrition Framework, and advanced work on human resource development to match employment gaps with skills.

To ensure a coherent agenda, Australia worked closely with officials across both the Sherpa and Finance Tracks. This ensured that a whole-of-G20 view was reflected in the outcomes delivered to our Leaders at the Brisbane Summit.

Throughout its Presidency, Australia developed and refined its G20 agenda with input from a wide range of stakeholders, including business and community leaders. The papers included in this volume offer a snapshot of the ideas that were

presented by the high-profile and well-regarded participants at this conference. I hope you find them as useful as I did, and I would like to thank ICRIER for hosting this conference.

H.K. Holdaway
A/g Executive Director (International) Australian Treasury

Prologue

Governance and Development: Views from G20 Countries

It is a time for reflection. I have had the advantage of having been associated with the G20 as a Sherpa and therefore have been privy to how the G20 is evolving. I will focus on some of the issues and maybe address the question of what are its challenges as it goes ahead. There was recognition that the G7 and later the G8 had become too restrictive a grouping to be dealing with all kinds of economic issues given that a large number of developing countries—China being the largest and some of the others like India—were not only growing in scale but given the growth differentials were going to become a much more important part of the global economy. So it just didn't make any sense for the G7 to be deciding international economic issues amongst themselves. That was the original idea and I think one might ask how the group has done and whether that self-image will survive. I also think there is general agreement on the part of many people that in the initial period of coping with the crisis of 2008 was when the G20 at the summit level was set up. The G20 at the finance ministers' level existed since 1999 and was put together by Paul Martin of Canada. But it was President George Bush who put together meetings of the heads of government of the G20 membership and then it became institutionalized as a permanent thing in Pittsburgh. So it was brought together effectively to manage or handle the crisis and I would say it handled it quite well because when it happened there were any number of people saying this is going to be like the Great Depression. After 1 year, in 2009 the Financial Times invited me to contribute to a series of op-eds on the question "Is Capitalism Dead?" I had a pretty shrewd suspicion that it wasn't dead but I really didn't want to contribute to the series. So I think if you view it from the perspective of the uncertainty that was pretty rife in 2008 and most of early 2009, the G20 did very well. I think the 2009 summit in London basically brought the heads of government to take decisions which the finance ministers by themselves would not have been able to take. I was a witness to this and at that time the basic proposition that you had to put aside the normal conservatism of fiscal policy and resort to some

kind of stimulus was not something which was actually acceptable at the finance minister level. Many European finance ministers had quite genuine doubts about it and also there was a lot of unwillingness to contribute to creating a large enough pool of resources with the IMF. That logjam was really broken in the London Summit where the IMF got an extra 500 billion SDRs. And that's not small change and thereafter it wasn't like the Great Depression. Actually the economies of the world rebounded rather well and then of course got caught with the euro zone crisis and the sovereign debt crisis. It's absolutely true that the world hasn't done a good job of recovering from the sovereign debt crisis, but I would say that they did quite well getting out of the first hole into which they found themselves and not that well getting out of the second hole. Maybe it is quite difficult to get out of two holes if you are unlucky enough to get into one soon after you have got out of one. But looking back what has been achieved, I just want to comment very lightly on a few things.

The first thing is that the work of the G20 is now pretty sharply divided between what is done under the finance track which is everything that leads up to the finance deputies then goes to the finance minister's level. The heads of government track is managed primarily by the Sherpas and then the heads of government and includes everything else. The finance track is kept under very effective control by the finance ministries. They get together with the Sherpas one day before the summit and the whole thing goes forward. The pure finance track part of the whole process has three very broad areas of work—one of them is clearly the whole business of creating an environment in which the major countries of the world can achieve a degree of macroeconomic coordination of policy. This is under the mutual assessment process and the framework for strong sustainable and balanced growth. The basic idea is that countries should all get together and come to some agreement on how their policy should move. The second is the entire business of reform of the global financial system, including the banks and the quasi banks and shadow banks. And the third is reform of the international financial system, meaning the IMF and the World Bank and the regional development banks. So these are three partitioned sort of windows. It has been much more difficult I think to actually achieve serious coordination of policy at the macroeconomic level but having said, it is also relevant to recognize that this is not child's play. Sovereign governments sometimes have intense differences and each of those democratic governments take a position in the context of considerable domestic controversy. In the UK for example, the whole issue of whether the fiscal consolidation strategy was a good strategy to follow or whether it would lead to a little bit of an arresting of growth was intensely debated. Some people said it was the wrong thing to do and others said it was right. So, in the backdrop of this political process, the UK government decided to adopt a sort of fiscal conservative strategy. The leaders in Toronto along with the Germans at that time had moved away from fiscal expansion. They acknowledged that there would be short-term problems but it was time, according to them, to get back into a virtuous cycle. Many of us had some doubts because there was so much private sector deleveraging taking place. Was it really feasible or desirable to reduce public sector demand? Would that not lead to

too much of slowing down? The answer to that actually was a focus on structural reform. So the structural reforms will enthuse the private sector. Even though on the consumption side private-sector deleveraging would be taking place, on the fiscal side there would be some conservatism. The structural reforms were expected to revive investment spirits and lead to a great revival of demand. In my judgment that didn't happen. One can go into why it didn't happen, was it too optimistic, maybe they didn't do too much of reform which is also true. In practical terms, when these things were being discussed, the countries were not collectively behaving like the IMF vis-a-vis each country. The kind of luxury of dictating your view exists if you are the lender of last resort and the country is on its knees. That's typically what happens in an IMF negotiation. You have to go with the judgment of the IMF because you need their money and that's reasonable. In this case it's a whole group of sovereign countries talking to each other and I feel we must recognize that the value of this is as much the rethinking that each country does having heard the other country, and the impact of that rethinking. The impact is not actually felt in the meeting where this is taking place. It's felt in the next meeting 6 months later because then everybody has a little bit more flexibility to have thought about it.

If one looks at the global economy in the last 3 or 4 years, it's quite clear that the IMF has had to scale down its projections. I keep telling the Indian media when they criticize us that we are not the only ones who are doing this. I feel that it reflects the fact that the recovery is not as easy as it was after the first crisis. It is infinitely more complicated. On the whole the process has been useful because what doesn't work gets thought about and reconfigured and spoken a little bit differently. For example if you look at the sequence after Toronto circa 2010, it was decided to give the signal that the time had come to do fiscal consolidation. In Saint Petersburg and even a little bit in Los Cabos last year but certainly in Saint Petersburg the dominant message was fiscal consolidation over the medium term. In other words, nobody was recommending fiscal expansion but that gung-ho business of going for fiscal consolidation as quickly as possible may not be the right thing. Some countries are better placed for more expansion than others and so I think in a 2-year period there has been a mutually agreed change of posture. How much you think this is valuable you have to judge for yourself.

Another example comes from the Chinese experience. The change of perception of economic policy of China has been actually very good. When the whole thing began, the Chinese with a lot of justification felt that they were being blamed for being the source of the imbalance as if the rest of the world was fine and it was just the Chinese government's determination to run surpluses that was mucking up the system. One can find lots of articles in 2008 that made that sort of argument. Our view at that time was that there are lots of imbalances but one of the issues was that the Chinese exchange rate should actually appreciate. The Chinese were not very willing to accept at that time but over the last few years it has actually appreciated. Secondly, the argument that pushing for high growth is not very sustainable if others can't run the large deficits also got reflected in Chinese slowdown—they are projecting seven-and-a-half percent from levels that were in the

ten-plus percent levels. So I think that over time this process of discussion has led to—on the part of each country—a better understanding of how the world is going to evolve and what other countries are going to do but it's wrong to call it coordination. For example, not everybody will sit down and say I am going to expand, you are going to deflate, etc., but merely a sort of broad understanding of how the world is moving. And it's better to have it than not to have it at all. If one tries to get the same outcome by doing it in the General Assembly of the UN, I don't think you would get anything like a comparable meeting of minds. These are the 20 countries which constitute 75 % of the world's GDP and it is quite useful for them to be getting together. So much on the policy coordination.

On the question of how to make the financial sector more stable, I think a lot of work has been done. The financial stability forum which used to be a somewhat select group of countries that didn't include any developing countries was expanded into the Financial Stability Board which now has all the G20 countries as members and they have actually laid out quite an extensive programme of financial sector reform beginning with Basel III and a number of other initiatives. This is largely a work in progress, it's not finished. And no one is saying it's not the right way to go. One of the things we in India and other developing countries are saying is that while we agree to this on the way forward, it has to be done in a manner that doesn't become discriminatory. The new rules should not operate to the disadvantage of developing countries which they easily could. These are issues being discussed at the Financial Stability Board to lay out a longer-term path for financial sector reforms. Another area of course is the reform of the international institutions—the IMF and the World Bank. There is some sort of agreement of the need to improve the voting shares of the developing countries. If the 14th quarter review actually got implemented, there would be a change of seats that the Europeans have on the IMF Board. Everybody except the US has ratified it. Therefore the moment the US ratifies it, it goes into effect. I am no forecaster; in the Saint Petersburg meeting the leaders said it must be ratified as soon as possible so that we can get on with the 15th quarter review and complete that by January. But if you read the American newspapers, the chances of congressional ratification for that are very low at the moment. So basically this is something where the G20 will miss a deadline—not that the US Administration doesn't want it—but primarily because they say that realistically we can't get it through Congress. While there's a delay, the restructuring is happening.

The last area on the economics side is the development issue. In Seoul people looked at the agenda and said all of this is being driven by the instability that has been caused by the 2008 crisis. But a much bigger issue is that of development and several areas related to development were identified. I feel that is like giving really good advice to countries about things they have to do themselves—all that advice is good, transparency, strengthen your own agriculture, have more rational energy prices and so on—but really the question that one has to ask oneself is that the G20 can only add value if it brings international collaboration to bear in pushing an agenda. Else we are just sitting around and telling each other what a good Economics 101 course would teach us. There is one item on the agenda that India

and Indonesia among other countries have been pushing in a world which is lacking global demand. It's a no brainer and a win–win situation for everybody if we can promote investment in infrastructure in developing countries. That will generate global demand and lots more import. So it's not as if the developing countries would be the only ones benefiting from the demand. It would increase supply capabilities in the medium run and give a boost to growth at a point when it is very difficult to identify good demand items to push. This seems to be a somewhat obvious one and here the debate within the G20 is really about what the international community can do. Everybody agrees with this and in Saint Petersburg even the industrialized countries said we must spend more on infrastructure. President Obama said the United States must spend more on infrastructure. Of course developing countries must spend more. The real question was regarding what the international community can do and here the discussion focuses on two different kinds of paths. One relates to attracting foreign private investment in infrastructure. By all accounts there's a lot of private money but for that you have got to get your own policies right. Of course that's correct. It is true that there is a lot wrong with policies but our view has been that developed countries ought to do something to bring international financing through the multilateral development banks into infrastructure. In our view that would leverage a lot more private sector money, including for PPP projects. Here the debate is that there is no willingness to increase the capitalization of these institutions. Therefore a strong case can be made for a big expansion of new kind of lending to support infrastructure in developing countries, not necessarily public sector infrastructure. Most developing countries, certainly India, are experimenting big time with public–private partnerships in virtually every area you can think of. The government's approach is to invite organizations like the World Bank to expand their lending to infrastructure in the PPP space. This requires them to behave quite differently from the way they do for normal public sector infrastructure projects. There is not enough willingness to expand the base of these institutions. Here one has to look at what is the size of these institutions now and how does that compare with total capital flows. Now one view of course is that we don't need these institutions. There is a capital market and if you are credit worthy, you can go out there and borrow. However, if there's one message post 2008 it is that the so-called efficient markets hypothesis in the world of international capital markets doesn't hold. The idea that the international capital market will finance any good investment is just not true and this is an unresolved issue. Many developing countries talk about it. At the moment we have a working group co-chaired by Germany and Indonesia which is going to look at these issues and hopefully by the time of the summit in Australia come up with concrete recommendations of what is it that they are actually willing to do.

There are at least two other issues which from an economic point of view are very important and which need to be distinguished from the finance track—climate change and trade. The difference between these two and the finance track is that the finance track has a finance minister's parallel. So whatever has to be done, the G20 finance ministers have an identity. They have a chance to discuss things among themselves and when there is agreement the Summit just puts a seal on

it and everyone feels good. Where there are differences, it gives the Summit an opportunity to try to resolve issues which have not been resolved at the finance ministers' level. That's not true of either trade or climate change. Everybody knows that trade is very important but there's no G20 trade ministers doing shadow preparatory work. So every now and then the G20 discusses trade but they are not really able to get to grips with what the difficulties are. Essentially what they have been doing is to embrace a sort of voluntary holding back from additional protectionist measures and making a call for early successful conclusion of the Doha Round. That's about it. They do not actually go to the Doha Round and say look these are the three areas that are problematic and we the leaders decide to sit with our trade ministers or commerce ministers and see if we can hammer out a consensus. The propriety of the discussions invariably means that the G20 leaders meeting amongst themselves but trade negotiations go on in Geneva with 185 other countries. Much the same thing is happening on climate change. G20 leaders are aware that climate change is a big issue but the position of every one of them is that the forum for climate change discussion is the UNFCCC. So other than wanting cooperation and wanting an early resolution it doesn't actually move the discussion forward. I am over simplifying but to summarize I believe that on the finance side while there are lots of problems and unresolved issues it is genuinely possible to identify areas where progress is being made. The presence of the leaders as an additional ad referendum forum enables one to do more than would just be possible with finance ministers. The one silver lining in these other areas is that after the talks at G20, the discussions hopefully filter back to their relevant ministers. That would be a reasonable judgment to make as of now. Whether this can change in the future is something that one has to think about.

One issue that always comes up therefore is—is the G20 working? Or will it just degenerate and go back to the G7 and forget about the G20? Some people would say maybe it will become more G2—the US and China forget about all the others. Thus there are lots of scenarios being talked about. I think that international institutions have an amazing capacity to perpetuate themselves. So I do not expect the G20 to disappear until it has comprehensively discredited itself. It has not done that yet. There is an opportunity to try and move this process further forward, although there are some tensions. One is the usual elite tension, but the G20 is larger than the G7 and everybody who wasn't in the G7 is quite pleased that it has been democratized to that extent. But then the issue arises about the G193. The G20 is unable to resolve this issue and even the membership is a little flexible. Each presidency invites two other countries. I personally feel that the addition of numbers is not a good idea. 20 is a pretty large number to get any kind of chummy interaction with, but the demand for legitimacy always pushes the group into trying to do a little bit more. Another aspect of the same thing is the belief in having outreach. The G20 is always aware that we are just 20 guys, as opposed to the Security Council. Although the Security Council is a small group, it has an international legal stature. A vote in the Security Council makes international law. The Security Council is not an equal body—some countries have veto and some don't but that's all enshrined in the international system. The G20 doesn't have

any comparable international stature, so nobody has to necessarily listen to the G20. If however it were really true that all the countries of the G20 were absolutely convinced on what they had set and all the leaders voted that way in all the fora in which they operate, it would obviously make a huge difference. There is a sort of ambivalence but to get over the ambivalence they do outreach. So what is outreach? IT means that along with the G20 meetings they have meetings of the B20 which is a group of business people from the G20. They meet separately for one hour or so and interact with the leaders. They have the L20 which is the labor leaders from the same group that also meet separately and then interact with leaders. And they also have the T20—the think-tank 20. The T20 has researchers expressing all kinds of views but that's an attempt to gain legitimacy, to gain a broader interest in whatever work they do. That's roughly I think where things stand. So with those words let me thank you for listening to me so patiently and I would be happy to answer questions if you want to delay your dinner even longer than you really should.

September 2013 Montek Singh Ahluwalia

Contents

About the Editors

Rajat Kathuria is Director and Chief Executive at Indian Council for Research on International Economic Relations (ICRIER), New Delhi. He has over 20 years' experience in teaching and 15 years' experience in economic policy, besides research interests on a range of issues relating to regulation and competition policy. He has worked with the World Bank, Washington, DC, as a Consultant and carried out project assignments for a number of international organizations, including ILO, UNCTAD, LirneAsia, World Bank and ADB. He has published in international and national journals, besides in popular magazines and newspapers. He has served on the Board of Delhi Management Association and is currently an independent director on the Microfinance Institutions Network (MFIN) and on several government committees. He has an undergraduate degree in Economics from St. Stephens College, a Master's from Delhi School of Economics and a Ph.D. degree from the University of Maryland, College Park.

Neetika Kaushal Nagpal was a consultant with ICRIER and a senior consultant with Ernst & Young in its tax policy and controversy practice. She holds a postgraduate degree in Economics and Finance from Warwick Business School and an undergraduate degree in Economics from Delhi University. She has published in areas of international trade and tax policy. She is currently pursuing a Juris Doctor from University of New South Wales, Australia.

Chapter 1
Introduction

Rajat Kathuria and Neetika Kaushal Nagpal

The global financial crisis, triggered by the collapse of Lehman Brothers in September 2008 in the United States, started a contagion that pushed the world economy into deep recession. Not since the Great Depression of the 1930s, had the world economy witnessed such a massive reduction in gross domestic product (GDP) and a sharp drop in real growth.[1] The proximate cause of the crisis lay in the US sub-prime housing market, whose collapse led to a run in shadow banking, debilitating confidence in financial institutions in the US and across the world. To combat the gloom enveloping the world economy, advanced and emerging economies of the world showed unprecedented urgency and agreed on the need for coordinated action to restore economic order. The G20 acquired a sense of purpose.

Although the G20 was formed in the aftermath of the Asian financial crisis, its true test arrived in 2008. As a body responding to a crisis, the G20 played a central role in providing the political momentum for strong international cooperation that ensured greater policy coherence and helped overcome a situation that could have been decidedly worse in its absence.[2] During the crisis, the agendas of G20 encompassed short-term but critical issues of economic recovery, the sovereign crisis of Europe, high unemployment and financial sector regulation. But after

[1]Real GDP for Advanced economies declined from 2.7 % in 2007 to (3.8) % in 2009. Growth in Asian economies declined from 5.7 % in 2007 to (5.6) % in 2009. World GDP growth has remained steady at 3–3.5 % since 2011–14 (IMF, World Economic Outlook, October 2014).

[2]The G20 declared victory over the crisis at their third summit at Pittsburgh in September 2009 (Callaghan et al. 'Global Cooperation Among G20 Countries').

R. Kathuria (✉) · N.K. Nagpal
ICRIER, New Delhi, India
e-mail: rkathuria@icrier.res.in

N.K. Nagpal
e-mail: neetikakaushal@gmail.com

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_1

moderate stabilization in the global economic environment, the focus of the Group has shifted to long-term areas of governance and development. In 2014, the finance ministers of the G20 adopted the goal of increasing world GDP by 2 % points over the next 5 years, over and above current trends.

The idea of coordinated macroeconomic policy at a global level has many supporters. The principle argument in favour of coordinated multilateral action is that governments are often tempted to implement sub-optimal policies in the absence of it. Unilateral policy action causes cross border spillovers resulting in Pareto inefficient outcomes, necessitating coordination. But like in the prisoner's dilemma, securing International policy coordination is hard. It has been compared to the Loch Ness monster—much discussed but rarely seen (IMF 2013). The rare periods of coordination are witnessed during turbulence, the 2008 crisis being the most recent instance. In times of calm coordination is atypical, although not impossible—the Louvre and Plaza accords are examples.[3]

While the worst of the global financial crisis is behind us, it is nobody's case that policy coordination is superfluous-in fact if there is a role for unconventional policies like quantitative easing (QE) then there ought to be a role for coordination even during peacetime. It is widely believed that spillovers from such policies fuel currency and asset-price volatility in both the home economy and emerging countries. Greater coordination among central banks could contribute substantially to ensuring that monetary policy does its job at home, without excessive adverse side effects elsewhere (Raghuram 2014). It is important to recall that one of the aims of the International Monetary Fund (IMF), set up in 1944 as part of the Bretton Woods institutions, was to help revive global trade while forestalling "beggar-thy-neighbour" exchange rate policies that characterized the inter-war years. A similar risk with respect unconventional monetary tit for tat exists today and world leaders must recognise that to ensure stable and sustainable economic growth, international rules for monetary engagement must be re-examined (Rajan op cit).

The magnitude of capital flows and size of cross-border policy spillovers underscore the fact that we now live in an interconnected world. Contemporary evidence suggests that these are sizeable due to increased trade and financial integration (IMF 2013). What's more, spillovers are generally larger in turbulent times. There is no doubt that financial markets around the world are closely tied together, and shocks in one part of the global financial system can and often do have large and immediate effects on other parts of the system. The world economy remains one of interdependence, in which business cycles travel across borders. In 2012 global growth declined reflecting macroeconomic and financial sector management issues rather than long-term supply-side factors. It is a fact that emerging and developing economies are now growing considerably faster than advanced economies, mainly due to supply-side factors such as long-term capital accumulation, technological catch-up, and demographics. But cyclical movements around trends linked

[3]Louvre Accord 1987; Plaza Accord 1985.

to shorter-term demand-side factors remain strongly correlated. Thus, despite the delinking of long run growth trends there remains a strong cyclical link between advanced and emerging economies (Davis 2012). From the perspective of international macroeconomic policy coordination, this is an issue of considerable import.

How difficult is it to achieve coordination? Coordination is realised, but only on occasion. The global fiscal stimulus endorsed in the early days of the financial crisis is a case in point. Thereafter, there have been cases of coordination in policies such as the pursuit of tax havens, and the commitment to eschew protectionism but these have been episodic (Blanchard et al. 2013). At the same time Bird (2012) argues that coordinated outcomes do not necessarily guarantee Pareto efficient outcomes since countries may perceive that they would lose by surrendering their sovereignty to run independent domestic policy in favour of an anticipated jointly superior outcome. The concerns of developing countries get further exaggerated due to unequal bargaining positions in securing the coordinated outcome.

International policy coordination is admittedly a daunting task. An example of the complexity in coordination in general comes from Europe, where tensions within multiple coalitions are manifest. It is claimed that European democracies are run by insiders representing the interests of pensioners, trade union leaders, public sector workers and big farmers. Outsiders—the small numbers of immigrants, young people and small private entrepreneurs—have relatively little say (Banik 2014). This sort of Insider-Outsider conflict, including conflict between coalitions that represent different interest groups is an enduring theme in the public choice literature. In his classic work "The Logic of Collective Action", Mancur Olson (1965), examines the incentives that lead people to group together and collude for advantage. The conclusion is remarkable. Narrow, self-serving groups have an inherent advantage over diffused ones that worry about the well-being of society as a whole.

There is a deep-rooted view that the global financial architecture is loaded against emerging markets. In May 2013, evidence of the deleterious impacts of Quantitative Easing (QE) on India, China, Indonesia, Argentina, Turkey and Brazil was palpable. Sudden increases in cross-border capital flows affect the exchange rate, credit volumes and asset prices depending upon the openness of a country's capital account. For example India witnessed massive outflows of capital following the announcement of the Fed taper leading to excessive and undesirable volatility in exchange rates. Even earlier in the run up to the global financial crisis, excess leveraging in the US had led to stock market and exchange rate volatility in emerging markets. India's Central Bank Governor Raghuram Rajan has been making a strong and persuasive case that major central banks, particularly the US Federal Reserve, should account for the spillover effects of their ultra loose monetary policies on emerging economies. In ordinary circumstances this might be possible but when economic growth is weak and unemployment in OECD economies remains high, it is a less than likely prospect. Despite the evident benefits of expanding central banks' mandates to incorporate spillovers, it is difficult to implement at a time when domestic economic worries are politically paramount. A more modest approach would be to persuade source country central banks to

account for the medium-term impacts on recipient countries' policy responses, such as sustained exchange-rate intervention. Central banks could thus recognize adverse spillovers explicitly and minimize them, without overstepping their existing mandates (Rajan op cit). Be that as it may, emerging economies are increasingly wary of running large deficits, and are placing a higher priority on maintaining a competitive exchange rate and accumulating large reserves to serve as insurance against shocks.

Many economists argue that monetary policy is a blunt instrument and can at best stabilise the business cycle rather than address structural weaknesses such as those relating to jobs and growth. Can monetary policy be the only tool to support growth without supply-side reforms that might raise productivity and induce firms to invest? Besides, the record on coordination of monetary policy has been patchy so far and questions are bound to arise whether it should be on the G20 agenda at all. If coordinated effort fails due to self interest in the conduct of monetary policy by the Fed (and other goals), alternative defence mechanisms by affected economies to strengthen resilience to macro-economic shocks will naturally surface.

The redoubtable economist Jagdish Bhagwati in a paper in 1998, The Capital Myth, had powerfully stated that the case for free capital mobility was weak and could in no way be considered a simple extension of the argument in favour of free trade in goods and services (Bhagwati 1998). "The claims of enormous benefits from free capital mobility are not persuasive. Substantial gains have been asserted, not demonstrated, and most of the payoff can be obtained by direct equity investment" (Bhagwati 1998).[4] He highlighted the crisis-prone nature of freer capital movements, a view that even the IMF later accepted. While individual countries can maintain careful quantitative or market based restrictions, unless these are coordinated their effectiveness is likely to be dampened.

So what has been the response by countries such as India? In July 2014 leaders of the BRICS countries (Brazil, Russia, India, China and South Africa) announced an agreement to establish a New Development Bank (NDB) and a Contingent Reserve Arrangement (CRA) with capital of $100 billion for each. The agreement reflected dissatisfaction with the role of the dollar in international transactions, lack of funding support for infrastructure needs of Emerging economies and the sluggishness in international institutional reform.

The logic for the NDB is undeniable. Infrastructural bottlenecks are a major hurdle in India and other EMEs to achieve sustained economic growth. Long gestation projects and low returns are barriers for private sector, while fiscally strapped governments are struggling with high levels of public debt inhibiting the ability to finance infrastructure. In the G20 meeting of Sherpas in Ottawa, India highlighted the huge infrastructural requirements for EMEs and the need for channelizing global savings through Multilateral Developmental Banks (MDBs) for infrastructure finance. However, given the low representation in International

[4]Ibid.

Financial Institutions like World Bank (and IMF), BRICS countries found it difficult to push their agenda. Instead of competing with the World Bank, the NDB along with others that exist namely the Inter-American Development Bank, the Asian Development Bank and African Development Bank will most likely cooperate with the World Bank.

While it is unlikely to threaten the Bretton Woods institutions, the creation of the NDB signals frustration over the slow pace of governance reform in existing IFIs. For example, between them BRICS account for about 20 % of global GDP, yet possess just 11 % of the votes in IMF. IMF governance reforms are stuck in the US Congress. It is the only G20 country that has not yet ratified the reform. The credibility of the institution suffers since the paradox is not lost on other members. How can the IMF credibly recommend structural reform to its member's countries if it is unable to implement its own governance reforms? For the G20 to remain credible and relevant, reform of IFIs is a litmus test.

Since 2009, Indian Council for Research on International Economic Relations (ICRIER) along with its partner institutions has been organising an annual conference with a delegation involving key policymakers, academicians from G20 countries and International Financial Institutions (IFIs) to deliberate on issues and provide inputs to policymakers. The previous four conferences in this series were held prior to the Toronto, Seoul, Cannes and St. Petersburg G20 summits.

ICRIER's fifth G20 conference was held on 17–19 September 2013 in New Delhi in partnership with the World Bank, Asian Development Bank (ADB), International Monetary Fund (IMF), and Kondrad-Adenauer Stiftung (KAS). The conference was centred around the key question of how the G20 can act as a catalyst to make a tangible and significant difference in peoples' lives through an agenda of inclusive growth. It was structured around six thematic areas:

1. The Global Financial Crisis—Revisiting global governance
2. Achieving global food security—How can the G20 help?
3. The road to energy sustainability—Towards a third industrial revolution
4. Reforming the Global Financial System—Implications for long term investment finance
5. Trade and Protectionism—What can the G20 do?
6. Growth and employment

The conference opened with remarks by Dr. Montek Singh Ahluwalia, India's former G20 Sherpa, outlining the major achievements of G20 and its agenda ahead, especially in core areas of development. The conference also included a keynote address by the then Honourable Finance Minister P. Chidambaram and a special session by Dr. Osamu Tanaka of the Ministry of Finance, Government of Japan who spoke on global growth prospects with special reference to Europe and Asia. A special address was delivered by Ms. H.K. Holdaway, Australia's deputy Sherpa, charting the agenda for the Australian Presidency. Overall, the overarching idea of the conference was to evaluate the G20 objectives of reducing risk and volatility in the global financial market, provide a framework for global governance, contribute to economic growth and job creation, enhance open trade and

investment regime, and promote inclusive, sustainable and resilient growth. In addition, other issues around the broader development themes of food security and energy sustainability were also discussed. Participants unanimously agreed that after its initial success in overcoming the financial and economic crisis through prompt action, an existential challenge for the G20 is to shift from a crisis-management task to a crisis-prevention role and provide guidance through its global steering committee (Mistral 2011).

Invited contributions from the participants in the conference are organised under six thematic areas, mirroring the conference agenda. The volume begins with an introductory chapter by the editors outlining the scope of the content presented in the volume as well as summarising the discussion during the conference. The following sections contain a brief on the content of papers under each thematic area.

1.1 The Global Financial Crisis—Revisiting Global Governance

The success of coordinated policy response to the global financial crisis has resulted in the designation of G20 as the premier forum for international economic cooperation. However, questions are now being asked of the G20 if it can graduate from a crisis-management to a crisis-prevention committee by establishing international standards for global governance. Undoubtedly, the disparate group of member countries in G20 gives it the potential to become a standing world economic governing board. But a general consensus amongst the participants revealed the difficulty in translating its success in crisis-management to joint crisis-prevention. A case in point is the failure of the Group to formulate global standards for regulating financial markets to make the international financial system stable and more resilient to future crisis. Another example is the progress of Transatlantic Trade and Investment Partnership (TTIP) by the USA and EU, two most important players in trade policy, thus undermining the future viability of multilateral trade regime. Such developments present an opportunity to the G20 to revisit the debate on global governance.

In the lead chapter titled “Revisiting Global Governance”, Soumya Kanti Ghosh and Bibekananda Panda state that the global financial crisis (GFC) provided an opportunity for G20 to revamp the global governance structure, including monetary and risk governance. The rationale for Global Monetary Governance rests on jointly achieving price stability, restoring employment and sustaining rapid economic growth through mutual cooperation. Since the global monetary system creates imbalances and generates volatility, participating countries need to collaborate their actions and identify reform areas thus paving the path for a more stable monetary system. The G20 is well suited for this responsibility because it can assist by helping promote transparency and accountability of global monetary institutions.

Major participants in the process of achieving Global Monetary Governance include governments and central banks, and multilateral institutions such as the World Bank and IMF. The prevailing relative economic strength of economies is not reflected in the quotas of a member country in the IMF. At present, the industrialised economies (IEs) account for 60.52 % of total quotas and 57.8 % of total votes. Emerging market economies (EMEs) account for only 19.7 % of total quotas and 19.01 % of total votes. With a shift in global economic power towards EMEs, there is a need for altering the representation of these economies in management of the Breton Woods institutions to spearhead multilateralism in monetary governance.

On the other hand, in the chapter titled "The G20 and the dilemma of asymmetric sovereignty: Why multilateralism is failing in crisis prevention?" Heribert Dieter argues that the attempt of 'super-national' regulation of financial sector should be reversed with national or regional approaches to reduce the risk of future global financial crisis. In his view, the inability of the G20 to establish global rules for global finance presents an opportunity rather than a problem. This is commensurate with findings of the Warwick Commission (2009) that the benefits of an 'unlevel playing filed' would enhance, rather than weaken, the long term stability of the international financial system. A fundamental reason for this is the asymmetric sovereignty of nations in financial regulation. The global integration of financial markets has led to a precarious situation. Although countries can only indirectly influence international negotiations on financial regulation, they are individually held liable for failure of their financial market in the event of crisis.[5] This is both politically ungratifying and threatening to the legitimacy of governments.

The willingness of countries to settle for a global minimal consensus in financial regulation is largely determined by the size of its financial sector. For countries with a large financial sector, sometimes larger than the real sector, economic crisis and shocks can prove to be traumatic. In such a case, the fiercer the crisis and the closer the country is to an abyss, the stronger is the willingness to not settle for multilateral regulation. This situation, however, overturns in periods of boom. Prior to the crisis, the idea of prudent regulatory policy had only handful campaigners. Countries engaged in competitive regulatory arbitrage, such as banks moved across jurisdictions seeking liberal financial supervision. Moreover, previous global financial standards with stricter regulations, such as Base I and II, have not contributed to the stability of international financial system. They rather fell short in preventing the recent crisis.

In the wake of such experiences, implementation of tailor-made national reforms for financial sector regulation but global rules for international trade is perhaps a more appropriate policy response. As long as business cycles continue

[5]An example is the experience of bankruptcy of Iceland's banking system that collapsed when three major Icelandic banks growing rapidly overseas slipped into insolvency and Iceland was unable to honour the obligations of its banks.

to be structurally divergent between economies, nationally designed and administered regulation would provide greater stability than a uniform global approach. While it may not be able to prevent the crisis, it will mitigate the effect by stabilising complex systems. To achieve this, taxation of capital flows could be an instrument to provide policymakers with the necessary policy space to develop customised solutions.

1.2 Achieving Global Food Security—How Can the G20 Help?

A part of the Seoul Development Consensus and the Russian Presidency, the issue of global food security came to the fore in G20. Despite a fall in the number of people suffering from hunger and malnutrition, about 925 million people are yet unable to meet their daily food requirements. Of these, about 98 % live in developing countries. By 2050, the global population is expected to reach 9 billion. This implies that agricultural production must increase by 50–70 % globally and by 100 % in developing countries to meet the growing food demand.[6] In the absence of socially responsible and environmentally sustainable investment in agriculture complemented with measures to ensure transparency and efficiency in the commodities market, this task is well nigh impossible. In order to address these issues, G20 leaders agreed to a number of steps at Los Cabos to address food security,[7] which included the launch of the "AgResults" initiative aimed at increasing private and public investment in agriculture innovation, commitment to Rapid Response Forum to manage and prevent crisis, ensure sustainability in agricultural production, adapt to climate change and improve nutrition by supporting the 'Scaling Up Nutrition' movement targeting pregnant women.

There is no doubt that India faces huge food-security challenges. According to the World Food Programme India is home to one-quarter of all the undernourished people worldwide and nearly half of all children and one-third of adults aged 15–49 are malnourished. In this background and after much debate in Parliament, India adopted the National Food Security Act (NFSA) in 2013. The program promises 5 kg per month of subsidized rice, wheat or coarse grains to 75 % of Indians in rural areas and up to 50 % of those in urban areas that are near or below the poverty line (about 67 % of the total population). An important characteristic of the program is that it is based on a 'life-cycle' approach embedded in a 'rights based entitlement' framework. In terms of its size and commitment, it is an

[6]G20 Factsheet on Food Security, G20 Civil Process in Russia accessed on November 19, 2014 available at http://www.g20civil.com/documents/195/944/.

[7]The World Food Summit (1996) states that "food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life".

extension of the Targeted Public Distribution System (TPDS). The Antodya Anna Yojana (AAY or poorest-of-poor) beneficiaries and their entitlements of 35 kg per family per month (implying 7 kg per person per month) have been retained as under the TPDS. The Act also envisions providing free meals to children between the age group of 6 months to 6 years, and to pregnant and lactating mothers at *anganwadis* along with a cash transfer of not less than Rs. 6000 to pregnant women as maternity benefits.

This scheme reflects the commitment of the Government of India to ensure food security for all and to create a hunger free India. Reform of the Public Distribution System is also part of the overall design so as to better serve the poorest of the poor in rural and urban areas. There is irrefutable evidence that volatility in agricultural and commodity prices places a disproportionate burden on people without savings or safety nets across the world. Both developed and developing country governments subsidise their agriculture and subsidies have been a central target among negotiators in the Doha Round. But severe disagreements over agriculture and food security have blocked progress. India's concerns with regard to food security proved compelling enough for the WTO to agree to allow developing countries to provide potentially trade-distorting subsidies to farmers if they are part of a public stockholding scheme.

The WTO Agreement on Agriculture (AoA) does not have tight disciplines on consumer subsidies as it has on producer subsidies. The provision of foodstuffs at subsidized prices with the objective of meeting the food requirements of urban and rural poor in developing countries on a regular basis at reasonable prices is considered to be in conformity with the provisions of the Agreement. Eligibility to receive subsidies has to be subject to clearly defined criteria related to nutritional objectives.

On producer subsidies there are stricter disciplines. The requirement is that the annual level of subsidies, whether product-specific or non-product-specific, must not exceed 10 % of the annual value of agricultural production in developing countries. The problem for developing countries relying on market price support has been compounded by the requirement in the Agreement that for calculation of the subsidy level in a particular year the benchmark external reference price is of 1986–88. The Agreement does provide that due consideration must be given to the influence of excessive rates of inflation but some Members are not willing to give the benefit of this provision to developing countries on an automatic basis. The issue has blown up into a huge controversy. A temporary solution has been found in giving developing countries immunity from disputes until a permanent solution has been found. At present the WTO Members are addressing the task of finding a permanent solution.

While India scored points in the WTO, there have been concerns at home on the approach used to subsidise farmers and the poor consumers. Thus internal pressures got created to reform an expensive and relatively inefficient PDS. A high-level committee appointed by the government found that food procured for distribution to the poor was being lost to mismanagement and corruption. Besides, the Committee confirmed that only 6 % of farmers receive support

from procurement at government determined prices. Buffer stocks are larger than needed, leading to high storage costs and wasted food. One recommendation of the committee that resonated with government is to gradually replace in-kind transfers with cash. Several estimates of losses exist, the most recent cited in the Economic Survey (2014–15) claiming that as much as 15 % of the rice and nearly half of the wheat is not reaching intended beneficiaries.

The lead paper in this section by Ashok Gulati and Shweta Saini, 'Ensuring Food Security: Challenges and Options' closely examines provisions of the NFSA (2013) and the related challenges. The paper deals with the measures taken by the Central Government over the past few years to expand the PDS while at the same time substantially increasing consumer subsidies for basic staples in the diet of the population. Food security for the population s sought to be enhanced by increasing the availability of and increasing economic access to food grains. The authors however express doubts over the economic viability of the program. They argue that NFSA in its current form is based on some contentious assumptions. For example, while the average per capita consumption for cereals in India is 10.6 kg per month,[8] NFSA promises an allocation of only 5 kg per month. This leaves the poor exposed to market prices to meet more than half of their cereal demand. Moreover, NFSA incentivises small and medium farmers, who otherwise retain a third of their produce for personal consumption, to bring a larger percentage for their produce to the government for procurement and then receive a part of it at subsidised prices. This results in overloading of an already leaky system.[9] Another criticism of the NFSA is the provision of *force majeure*, which implies that the government renounces its responsibility during extreme events of nature. This undermines the value of the legislation since it fails to ensure food and nutrition during trying circumstances.

The authors argue that the NFSA is an attempt to meet the objective of equity using price as the policy instrument instead of income. When price policy is used to address equity, there is a high probability of failure due to the excessively high cost of delivery. The attendant efficiency losses may exceed the welfare gains. In such a scenario, conditional cash transfer using a standard platform can improve efficiency, reduce leakages as well as enhance income in the hands of the poor. The scheme also ensures greater efficiency in the domestic grain market by reducing government intervention as well as allows the consumer to diversify consumption to include non-staple items.

In the following chapter, Reetika Khera provides an alternative point of view while debunking some common misconceptions regarding the NFSA. The overwhelming focus on the PDS scheme in all debates around the NFSA is unnecessary and distracts attention from the fact that the scheme can contribute to better nutrition. The NFSA according to the author includes maternity entitlements (Rs. 6000 per pregnancy for women) which could go a long way in ensuring better

[8]NSSO consumption survey (2011).

[9]NSSO data shows leakages in states like Bihar as high as 71 percent in 2009.

nutrition in utero. Two, it includes supplementary nutrition benefits for children under six through the Integrated Child Development Services (ICDS) scheme, including children in the 0–3 year age group, a crucial period for battling under-nutrition. Finally, even the PDS (which will be expanded to include 75 and 50 % in rural and urban areas respectively) can contribute to better nutrition. There is also provision to supply more nutritious grain, for example millets and maize, instead of wheat and rice. Some states (Andhra Pradesh, Chhattisgarh, Himachal Pradesh, and Tamil Nadu) already provide nutritious items such as pulses and oil and the NFSA may inspire others to follow. Further, households may use the "implicit transfer" from buying cereals at cheap prices to diversify diets and buy more nutritious food items. What remains true is that the NFSA is only a step ahead, and much more will need to be done to reduce rates of under-nutrition. This includes providing access to safe drinking water, better sanitation and health.

A prime concern for most opponents of the NFSA has been the fiscal ability of the government to support the program. The 2012–13 budget estimates a combined expenditure on all three schemes—PDS, ICDS, and Mid-Day Meal (MDM)—of around Rs. 1.5 lakhs crore (Rs. 1500 billion). According to the author the NFSA is not inexpensive and it is also useful to put the cost in context: in 2012–13, tax revenues foregone amount to more than Rs. 5 lakh crores and the increase in the food subsidy (Rs. 30,000 crores) is less than the subsidy given to the gold and diamond industry (Rs. 60,000 crores). She asserts that the government's fuel subsidy is much higher than the food and fertilizer subsidy. It is also reasonably well accepted that the fuel and fertilizer subsidy do not go to the poorest. Clearly, therefore some fiscal space does exist. Viewed in this manner, the affordability of the food bill is ultimately a question of political commitment and priorities.

The claim that import of grains will rise and the NFSA will inflate the price for non-beneficiary households doesn't ring true for the author. The government currently procures 30 % of the total production while the remaining 70 % is sold in the private market. Even with NFSA, the government has to continue to do so. The arrangement also benefits the farmer as it provides him the choice of sellers—private market and the Food Corporation of India (FCI). Moreover, the additional food grain requirement under the NFSA is around 63 metric tonne, only 5 metric tonne more than the current commitment to procurement. The PDS is frequently criticised for being leaky. However, statistics for 2011–12 show that leakage in the system has declined to less than 40 %. A case in point is the experience of Odisha and Chattisgarh. However, undoubtedly there are states where leakage is much higher than the national average.

In the following paper, Simrit Kaur and Harpreet Kaur examine the determinants of food security in Sub-Saharan Africa, South Asia and Latin America. Analysing the various correlates such as availability, access, utilisation and stability, they find that while there are significant regional variations, broad conclusions can be drawn about the determinants. Based on the definition of World Food Summit (1996), the authors identify four main determinants of food security—physical availability of food, economic and physical access to food,

food utilisation, and stability of the other three determinants over time. Physical availability of food refers to the "supply-side" of food security and includes the level of food production, stock levels and net trade. Scientific advancements have led to growth of food supplies faster than the population in developing countries allowing rise in dietary energy supplies and higher levels of energy adequacy. But physical availability in itself doesn't guarantee access to food. The ability to access food is based two factors—economic and physical. Economic factors comprise of disposable income, food prices and the provision of and access to social support. Physical access is the availability and quality of infrastructure that ensures movement of food as well as consumers. Food utilisation is a combination of other important factors that ensure absorption of food nutrients by the body. These are factors beyond nutrition and encompass food quality and preparation, health and hygiene conditions, handling and storing of food, access to clean water, etc. Stability of these dimensions overtime is imperative to ensure that the individual is food secure for the future as well, eliminating economic or political risk of deteriorating nutritional status. The fulfilment of the food security objective requires that all four dimensions are satisfied simultaneously.

While the belief that economic growth will resolve the issue of food security was a myth, recent studies have shown that the solution lies in a combination of factors that include income growth, direct nutritional interventions, and investment in health, education, and water. Thus factors such as GDP per capita, growth, improvement in infrastructure, food production, and access to better drinking water reduce under-nutrition and depth of food deficit considerably. But at the same time, food inflation and its volatility have an adverse effect on food security. Given that access to healthy and nutritious food is a basic human right, domestic and international organisations must take steps to build resilience of the poor against food insecurity. This can be through addressing four concerns related to agriculture-productivity, subsidies and safety nets, surge in bio-fuel demand and variations in food grains stocks-to-use ratio.

The last paper of the section builds on the previous one to address the linkage between food security and food price volatility. The author, Jörg Mayer, classifies the reasons behind the food price spikes in 2007–08 and 2010–11 into two sets of factors. First are those that are not directly related to the food sector. These include the diversion of food crop into production of biofuels, the adoption of restrictive trade policies (such as export bans), the depreciation of the US dollar and speculative influences from the commercialisation of commodity trading (i.e. the increased interaction between commodity markets and the wider financial markets). While these explanations are critical to explain considerable price volatility in the specified period, the longer term trend towards high food prices is a result of the factors of supply and demand. Population growth and increased per capita income, especially in developing countries, combined with sluggish supply growth due to declining productivity growth has led to low levels of food inventories. This shortage was aggravated by poor harvests, particularly in Australia in 2008. There is widespread expectation that the situation of high food price and food price volatility will continue to persist in years to come in the wake of increased demand but

uncertain supply caused by low productivity growth and extreme weather events due to climate change.

The impact on food security of resultant high food prices and high food price volatility has both a short term emergency and a long term availability dimension, which could manifest itself at the national or household level. At the household level, food security is often a distributional issue, which can be resolved by the government through enhancing targeted domestic safety net policies. However, at the national level, the government relies partially on food imports to meet short-term gaps in food availability. But to guarantee long-term food security, governments need to employ broader range of instruments including stabilisation of public inventories, stimulate investment and improve delivery of public goods. Further, making the related financial instruments available to a larger pool of people as well as regulating commodity exchanges to reduce the adverse effect of financial investors on price signals is essential to manage price volatility.

The author concludes by corroborating the empirical wisdom that most green revolutions have been accompanied and facilitated by food prices stabilisation schemes. A case in point is the success of East Asian economies that included use of moderation in food price volatility as a policy instrument to enable advance in agricultural productivity. This allowed them to initiate and sustain the process of structural transformation as well as economic growth. Lessons for G20 governments are clear-to prevent erratic and extreme price changes to achieve the objective of coherence between food security, agricultural productivity and sustainability. While a permanent solution to the issue of food price volatility is difficult, use of broader policy instruments to foster food security is a practical alternative.

1.3 The Road to Energy Sustainability—Towards Third Industrial Revolution

The discovery and subsequent development of fossil fuel energy resources of coal followed by hydro carbons and later their transformation for electricity generation led to the first and second industrial revolutions. However, excessive use of these resources for economic development and upliftment of society has led to an alarming build up of unabsorbed waste and pollution, resulting in global climate change inimical for nourishing the earth's ecosystem.

The cost of using conventional energy sources has constantly increased with their depletion while the cost of using green energy sources has declined due to technological advancements and economies of scale. The combination of these factors has set the foundation for a Third Industrial Revolution (TER). It is envisaged that TER would replace fossil fuels as primary sources of energy generation with more climate-friendly options such as renewables and hydrogen. It would also ensure greater access to electricity, especially for almost 1.5 billion people globally

who at present lack access to this resource (IEA 2009).[10] This is about equivalent to the number of people who gained access to energy services in the last 20 years.

There are significant variations in electrification rates across and within regions. The combined energy demand of nineteen of G20 member countries (excluding the European Union) represents over 70 % of global energy demand.[11] While OECD and transition economies have close to universal access, South Asia has electrification rates of 60 % and Sub-Saharan Africa only 29 %. The latter also has among the lowest urban electrification rate of 58 %. Estimates provided by IEA indicate that universal electricity access could be achieved with an additional investment of US$ 35 billion per year during 2008–2030, roughly equivalent to about 6 % of global spending on fossil-fuel consumption subsidies in 2008.[12]

Against this backdrop, energy sustainability was one of the top agendas during the Russian Presidency. For the duration of the Presidency, the Energy Sustainability Working Group (ESWG)—comprised of experts from the G20 countries along with representatives of selected international organisations—was entrusted with the task of driving the efforts to realise four key objectives.

- Improving transparency and predictability in the energy and commodity markets.
- Promoting energy efficiency and green growth.
- Proposing sound regulation for energy infrastructure; and
- Ensuring global protection of the marine environment.

In the G20 Communique (2013) signed in St. Petersburg, the G20 leaders welcomed efforts made by ESWG on promoting sustainable development, energy efficiency, inclusive green growth and clean energy technologies. The commitment towards the effort was reinforced by the World Bank report 'Towards a Sustainable Energy Future for All', which aims to promote access to reliable and affordable energy in developing countries, especially through production and use of modern bio-energy. In this regard, the Global Bio-Energy Partnership (GBEP) that brings together private, public and civil society stakeholders is paramount.

With the expanding need for modern energy services that have limited bearing on the environment, the vision of TER is an important goal for the G20. However, progress on this has so far been much below expectations. In the single paper included under this session, the author outlines the vision of TER and explains how it remains a critical but elusive goal for the G20, especially India. It draws attention on the current energy scenario of India with reference to energy efficiency and fuel mix, potential for domestic renewable resources and the state of its cumulative realisation. It also offers long-term projections of the extent to which India's economic growth can become low-carbon by utilising such opportunities until the period ending 2031–32. The paper concludes by indicating the potential challenges that India and the global

[10]Almost 85 % of these 1.5 billion people dwell in rural areas.

[11]IEA Database.

[12]'Analysis of the Scope of Energy Subsidies and Suggestions for the G20 Initiatives', IEA, OPEC, OECD, World Bank Joint Report prepared for submission to the G20 Summit Meeting in Toronto (Canada), June 2010.

community are likely to face in case the goal of TER is to be achieved in a more compressed timeframe. Undoubtedly, according to the author, the G20 would play a key role in facilitating the transition to the new revolutionary era.

For India, TER is laden with possibilities since it has already indicated that around 15 % of its energy demand will be sourced from renewable energy by 2020. Currently, about 35 % of rural households in India do not have access to reliable supply of electricity and more than 80 % are dependent on unclean polluting biomass for meeting their cooking fuel requirements. The energy supply mix shows that India is still extremely reliant on traditional sources such as coal, oil and natural gas. While India has been moving along the low carbon growth trajectory, the pace of progress has been slow. The Twelfth Five Year Plan sets a target capacity of 30 GW of renewable based electricity energy by 2031–32. The National Action Plan on Climate Change (NAPCC) also mandates certain share of renewable sources in total annual electricity supply to meet the requirements over 2009–10 to 2016–17 starting with 5 % in 2009–10 and ending with 12 % in 2016–17. However, the actual capacity addition from new renewable sources is falling short of the target required to implement the mandate.

Recently India has announced ambitious targets for renewable energy growth. India aims to install 60 GW of wind power capacity and 100 GW of solar power capacity by 2022, which is roughly six times the current installed capacity of approximately 22 and 3 GW respectively. Financial constraints notwithstanding, renewable energy is considered more expensive than the fossil fuel energy it would replace. From the point of view of global concerns about climate change, India's new government has stated that instead of focusing on emission cuts alone, there is a need for a broader perspective on progress in clean energy generation, energy conservation and energy efficiency.

According to the author, the energy saving potential for India through higher energy efficiency in both end use and energy conservation is substantial. India has made some progress in conserving energy by raising end-use efficiency thereby reducing the energy intensity of GDP. It is also a reality that India consumes a relatively small amount of energy in both absolute and per capita terms compared to other major economies such as the OECD or China. At the same time energy consumption is growing rapidly, at 4.6 % CAGR during 2000–13, which represents a doubling in 15 years. Going forward, energy demand growth in India is likely to remain robust not only because of fast economic growth but also because structural trends such as industrialization and urbanization also tend to boost demand. Domestic energy production has however not kept pace with quickly rising consumption, so there has been greater dependence on imports raising questions about the trade imbalance and rising energy insecurity. India's energy fuel mix is also far from socially optimal, once the harmful spillovers from coal and other fossil fuels are taken into account, for example air pollution damages and growing energy insecurity. India's supply side has steadily become more carbon intensive as the share of fossil fuels has risen, in particular with growing use of coal for electricity generation, and diesel and gasoline for transport.

As a consequence of the high risk involved in sole-dependence on coal to meet energy demands, unreliability of geological estimates of resource deposits, slow

rates of mine development and an uncertain coal import environment, an emphasis on a strategy of energy conservation, enhancement of supply side efficiency and diversification of energy resource mix in favour of renewable energy resources is necessary to continue on low carbon growth trajectory. There are several directions in which India's mission to enhance energy efficiency and achieve a cleaner fuel mix can be intensified and broadened in scope.

Recognizing the inefficiencies embedded in the system of fuel subsidies, the government has been willing to replace blanket fuel subsidies with cash transfers. The recent oil price decline provides an excellent opportunity to accelerate the removal of remaining fuel subsidies. India's electricity also suffers from extraordinary transmission and distribution losses, some 21 % of electricity output in 2011, compared to just 6–7 % in China and the USA.

On the supply side, India needs to attend to its bottlenecks and increase supply of modern clean energy. To achieve the goals of the TER, India needs to identify the constraints in substituting fossil fuels by carbon free or carbon neutral energy resources. While the price of renewable energy has seen unexpectedly rapid cost declines in recent years, a major issue in this regard is the cost effectiveness of the transition to the new industrial order. This is due to the highly knowledge-intensive nature of new technologies. Given the imperfect and monopolistic nature of the patented knowledge market, a high capital cost may impede transition to the new order. The role of G20 in ensuring inclusiveness is therefore critical. The G20 can facilitate cooperation among member countries for joint research in science and technology and sharing and transfer of technology.

The author predicts that the process of transitioning to the TER through development of renewable energy sources would need innovation in fuel cell technology, IT based energy internet for energy sharing, digitization of manufactures and capital mobilisation for infrastructure operations. A combination of state policy initiative and international cooperation are essential to meet these challenges. So far, India's interventions in tariff fixation, poor governance, lack of legal order and lack of political will have led to slow and poor-paced transformation in the energy sector. A transition to TER requires an enlightened vision coupled with political enthusiasm and robust institutional capacity.

1.4 Reforming the Global Financial System—Implications for Long Term Investment Finance

The tidal waves set off by the global financial crisis revealed the gaps and deficiencies in the international financial architecture, which ultimately brought about a fundamental shift in global economic governance. The G20 took on the task of addressing these gaps through establishing an improved financial regulatory system, the main aim of which is to pre-empt the next crisis. A lesson from 2008 is that a water tight case can be made for a safer and resilient financial system that promotes long-term investment finance. Shadow banking was a key cause

of the crisis and in order to reform the global financial system, the G20 formulated a comprehensive approach spanning four broad areas—regulatory reform, improving regulatory cooperation and supervisory oversight of the global financial system, establishing orderly resolution structures to avoid taxpayer bailouts and periodic measurement of risk assessment and implementation of new standards in major financial jurisdictions.

Absorption of assets of failing banks by existing banks and consequently concentrating greater risk in the balance sheets of a lesser number of banks has raised the issue of systemic risk within the financial system. There are 2 primary aspects to the issue of systemic risk. The first relates to the need to develop a comprehensive macro prudential framework to deal with systemic risk while the second points to the need to build a suitable model for measuring systemic risk. Multilateral institutions along with the governments of advanced and emerging economies crafted several initiatives to inspire confidence in a system that had been shaken in 2008. Thus BASEL III norms, formation of the Financial Stability Board (FSB), modifications in the regulatory and accounting framework for institutional investors, policy measures for globally systemically important financial institutions (G-SIFIs), regulation of OTC derivatives market through International Organization of Securities Commissions (IOSCO) were enacted to combat systemic risk. In addition, there were also a number of national initiatives such as the monumental Dodd-Frank Act (USA), the Vickers Commission (UK), and the Liikanen Reports (EU) that formed a part of the global reform agenda.

While significant progress has been made on some of these measures (Basel III, FSB), it is patchy in others. In the first paper of the section, the authors Alok Sheel and Meeta Ganguly evaluate the critical regulatory reform initiatives under the aegis of G20, namely BASEL III, macro-prudential regulation and shadow banking, the Volcker Rule and those relating to financial institutions deemed too big to fail. They approach it from an emerging market perspective.

Sheel et al. indicate that while the crisis began in advanced market economies (AME) and later spread to emerging market economies (EME), its primary characteristics and drivers of leverage were strikingly different across the two sets of economies. They claim that financial panics are in some way invariably preceded by escalating leverage with maturity mismatches. The primary driver of leverage in AMEs was the desire to raise the return on capital through increased trading of claims on real economy assets in an environment of low returns. This led to a rapid expansion of financial assets as a proportion of their GDP through a relatively unregulated shadow banking system which had none of the liquidity buffers of commercial banking. On the other hand, high credit growth in EMEs, like China and India, was primarily to finance high rates of investment and growth through the commercial banking system. Since their economies are far less financialized, intermediation in EMEs held up even as the western financial system with its growing reliance on shadow banking froze.

Indeed, EME financial systems were made more resilient in the aftermath of the Asian Financial Crisis of 1997 even though some of these economies, such as China and India, were not directly in the line of fire. There was reduced

dependence on wholesale banking for funding credit and leverage was under control. As a result, losses related to subprime write downs were almost negligible. According to the authors, the chief concerns of EMEs relating to their financial systems remain developmental rather than regulatory: increasing financial savings to accelerate growth and development, and deepening their financial system to develop long term funding instruments for infrastructure financing, absorb large inflows of capital to counter the uphill backwash from EMEs to AMEs, reduce the cost of capital and reduce the leads and lags in monetary policy transmission. AMEs, on the other hand, need major regulatory changes that inoculate them more effectively against the new risks their financial systems face. They need to roll back more extreme forms of financialization that exposes them to greater risk without commensurate impact on growth. Therefore, while financial regulatory reforms are expected to be implemented across all jurisdictions, the immediate impact of most of them would mostly be felt in the relatively lightly regulated AMEs, rather than in the more tightly regulated EMEs.

The one exception is the new Basel III capital adequacy norms. Its impact will almost be equal across both AMEs and EMEs, although via different channels. Tightening of capital adequacy norms due to the heightened systemic risk will drive change in AMEs, while the reforms in EMEs will tend to focus on an assured flow of credit to keep pace with growth of the economy. For EMEs this holds the unfavourable possibility that implementation of Basel III may divert savings away from investment to covering for non-existing risks. Given the high cost of capital in EMEs, this might conflict with economic growth in EMEs.

Relating to shadow banking, there is recognition in the G20 that simply immunizing the formal regulated banking system against excessive exposure to shadow banking through mild alterations in risk weights and leverage-liquidity ratios will be insufficient for ensuring a safer financial system. This makes a case for bringing shadow banks also under the aegis of regulatory umbrella like the other formal banking institutions. The Volker Rule in the USA, Liikanen proposals in the EU and Vickers Commission in UK are propositions to break the entanglement between formal banks and shadow banks.

There is agreement amongst governments about the need for tighter control of shadow banks because of the absence of the liquidity buffers to prevent panic. However, the G20 initiatives on shadow banking are still underway. Simultaneously USA, EU and UK are taking steps at the national level to separate commercial banking from shadow banking through national legislation. While there are subtle differences between the approaches of the three countries, a commonality is that they are aiming to re-instate a ‘Glass-Steagall’ type firewall that existed prior to the era of universal banking between conventional deposit banking and financial institutions reliant on capital market funding and speculative activities. A widely held notion is that the collapse of the firewall between commercial and investment banks was responsible for the crisis. But would Glass-Steagall have prevented the 2008 turmoil? For example, institutions such as Bear Sterns, AIG, Merill Lynch that only engaged in investment banking (and not commercial banking) fell in trouble. The risky assets in the form of illiquid subprime mortgage backed securities held by these institutions would not have changed

even if Glass-Steagall Act were in existence. While the Volcker Rule, Vickers Commission and the Liikenen proposals do attempt to make commercial banking safer, they do not address the underlying flaw in the Act in safeguarding the financial system in totality. The latter is being attempted by FSB through its initiative on shadow banking.

Overall, it can be said that the loci of financial sector reforms has been strengthening capital buffers and resolution mechanism to avoid taxpayer funded bail-outs. However, it is questionable if these buffers are sufficient to deal with systemic risks that most financial downturns pose on global economies. It stands true that during such period, markets are dysfunctional to an extent that taxpayers have to step-into salvage the economy. During the period of recession, most policymakers attempted to stimulate the economy through easing money supply even as deleveraging continued. This failed to uplift the economy and rather re-inflated the credit bubble. It implies that financial stability requires reformation of monetary policy alongside financial regulation. In the absence of this brew, all new regulatory structures and macro-prudential norms may prove to be inadequate to shield the financial system from destabilising bubbles.

The paper by Kinkyo probes whether ongoing reforms will make the global financial system more resilient to financial shocks through carefully collected empirical evidence on cross-border spillovers of financial stress shocks. Financial stress is not just detrimental to real economic activity but it also has severe cross-border spillover effects. Kinkyo identifies three key features of financial stress. First, it causes an increase in cost of funds for firms and households, due to aggravating information asymmetries between borrowers and lenders. This exacerbates the existential problems of adverse selection and moral hazard in financial markets. Second, it triggers a decline in investor risk appetite leading to shift of quality and liquidity. This widens the rate of return between risky and safe assets as well as liquid and illiquid assets. Third, it creates a state in which volatility of asset prices increases due to the greater uncertainty about future economic outlook and the fundamental values of assets. Greater uncertainty tends to push investors to alter their actions based on actions of other investors popularly known as 'herd behaviour'. Thus financial stress is a serious disruption to the normal functioning of financial markets and is associated with greater volatility in asset prices, higher funding costs and reduced availability of bank credit.

A consequence of financial stress is that it has spillover effects to other countries through various channels depending on the strength of trade and financial linkages as well as shared vulnerabilities between countries. The results of an econometric exercise reveal that the macroeconomic impact of the US financial stress shock on six European and Asian countries were significant and comparable with those of the US real activity shock. Second, the cross-border spillover effects of the financial stress shock on these countries' stock prices are relatively persistent. Finally, the financial stress shocks could have asymmetric impacts on real exchange rates across countries. A key policy implication derived from the analysis is that financial regulatory reforms in major financial markets must address market failures arising from spillover effects and thus internalise such externalities. This reinforces a sentiment being felt increasingly in emerging markets about

the impact of ultra loose monetary policies. Another important implication is that financial reforms aimed at mitigating the impact of financial spillover need to be tailored in accordance with the underlying economic and financial structures that could affect the pattern of spillovers.

In respect of a potential role for the G20, Kinkyo asserts that timely and consistent implementation of Basel III proposals and monitoring the progress of reform on shadow banking regulations of all members is necessary, besides developing a guideline for an adequate sequencing of financial reforms.

1.5 Trade and Protectionism—What Can the G20 Do?

Following the 2008 global economic downturn, G20 countries committed to holding their protectionist impulses at bay in order to avoid undermining the fragile global recovery (European Parliament 2015). Since 2009, the G20 in all its summits has condemned protectionist actions by repeatedly committing to renounce trade and investment measures, extending its 'standstill agreement' to the end of 2016. The standstill agreement enjoined members to refrain from "raising new barriers to investment or to trade in goods or services, imposing new export restrictions, or implementing World Trade Organization (WTO) inconsistent measures to stimulate exports". In the immediate aftermath of the crisis there was some restraint, but there is mounting evidence that the standstill agreement has been ignored. While a number of measures have been rolled back, global institutions monitoring protectionism in the G20 have confirmed the accumulation of new trade-restrictions. The 'Twelfth Report on G20 Investment Measures' states that of 1244 restrictions recorded since the onset of crisis, only 282 have been removed. Thus, the total number of restrictive measures still in place stands at 962—up by 12 % from the end of the reporting period in November 2013. Continued addition of new restrictive measures coupled with relatively slow removal rate runs counter to the G20 pledge to roll-back new protectionist measures (Evenett 2013).

The charge of growing protectionism is therefore not exaggerated. In addition it's acquiring new form and is being seen in more countries. Behind the border measures-technical, taxation and local content requirements–are replacing the traditional border measures such as tariffs and quotas. The avowed objective of the trade protectionist measures adopted by all countries, developed and emerging is to boost domestic markets. BRICS countries (Brazil, Russia, India, China and South Africa) have gained the dubious distinction within the G20 group, as those introducing the highest number of new trade-restrictions during 2013–14. The growing assertiveness of emerging economies in global governance implies that they are able to respond with measures of their own, either unilaterally or when faced with discrimination in developed markets. The adverse consequences of such beggar-thy-neighbour policies should not be overlooked or underestimated. Although protectionism was not responsible for the global economic turmoil, the significance of open trade and investment regime especially at the current juncture of slow global growth cannot be overemphasised. Protectionism through any

means shifts the pain of economic adjustment on trading partners, masking competitive deficiencies instead of fixing them.

In the first paper of the section, Anwarul Hoda assesses the performance of G20 with respect to eliminating restrictive trade practices. According to him, the commitments of G20 members were unique in a way that they were both WTO consistent and inconsistent. While the WTO Agreement safeguards against any protectionist measures that infringe its obligations, the intention of G20 was to go a step further encompassing all trade distorting measures. But it is questionable if such 'political commitment' of the G20 has delivered its promise. Recent reports evaluating the performance of the G20 have concluded that the trade related commitments have failed to deliver in full measure. Despite dedicated efforts on its part, the G20 has failed to keep the markets open, members lapsing into protectionist measures from time to time.

Statistical evidence however shows that the impact of such trade restrictive measures has been rather modest. Moreover, the average number of disputes per year declined from 28 during 1995–2007 to 17 from 2008–12. So if trade friction is treated as the barometer for protectionism, then it can be said that protectionism has decidedly not increased post-financial crisis. This holds true for investment measures as well. OECD-UNCTAD reports that the majority of investment specific policy measures were directed at eliminating restrictions and to facilitate investments. On the whole, the author asserts that declarations on the issue of resisting protectionism should be seen as of the 'best endeavour' kind where leaders have shown a keenness to address instances of protectionism and a commitment to redress the situation.

At the same time, it is also worth acknowledging that world trade did not spiral downward despite the protectionist and trade distorting measures spawned by the crisis. This was due to some underlying factors. First, the framework for rules of the WTO Agreement supported by effective dispute settlement machinery creates deterrence. Second, protectionist pressures in agriculture had to confront the sustained burden of high commodity prices. Third, interdependence between countries due to vertical integration or production sharing arrangements that creates an inherent safeguard against protectionist measures.

However, the author states that success of G20 in keeping protectionist measures at bay should not make the national governments complacent. The impasse of the Doha Round has resulted in stymied efforts at further multilateral liberalisation.[13] In order to avoid resurgence of restrictive trade practices, G20 members must reaffirm their determination to withdraw or terminate protectionist actions that they have taken since the outbreak of the crisis. Another critical requirement is to renew efforts towards multilateral trade and investment liberalisation. The emergence of mega trading blocs such as the TPP, TTIP and the RCEP is a consequence of geo-politic dynamics as well as failed multilateral negotiations. While these are likely to be advantageous for the countries within the trading bloc, those left out will be disadvantaged. Multilateralism therefore is a better option.

[13]Joint UNCTAD-OECD Reports on G20 Investment Measures.

Developing on the theme of mega trade blocs, Nagesh Kumar considers their rise as a real threat to the multilateral trading system. The division of global trade into two large but non-exclusive regions (TPP and RCEP) operating on a preferential basis will further erode MFN and impact non-member countries adversely. The author contemplates the options for India and other Asian developing countries in the wake of G20, multilateralism and emerging mega-trade blocs. He asserts that emergence of mega-trading blocs by advanced countries has major implications for developing countries such as India and reinforces the need to strengthen intra-regional trade within Asia-Pacific. For India, to realise trade potential with East and South East Asia it is necessary to address the non-tariff barrier constraints, including lack of connectivity of national and cross-border infrastructure, rationalise trade related logistics processes that reduce trade costs, besides removing digital and regulatory barriers.

While intra-regional trade in Asia and Pacific has expanded rapidly over the last decade, especially after the onset of the global financial crisis, it holds vast potential. Enhanced trade facilitation will provide a further boost. Multiple sub-regional and bilateral trading agreements have dominated trade in the region, creating an Asian 'noodle bowl' of sorts. High trading costs and barriers to trade in services and investments have also stymied intra-regional trade. The author suggests an architecture that advances regional economic integration alongside consolidation of sub-regional cooperation that leads to a pan-Asia market encompassing a larger number of countries, comprehensive sectoral scope and deeper liberalisation, facilitation and cooperation. In this context, the RCEP can prove to be a valuable starting point as it combines 16 of Asia's most dynamic economies, accounts for almost half of the world's population and together accounts for US$20 trillion in market size. Apart from trade, the region holds the potential to cooperate on connectivity, finance, and in addressing the risks and vulnerabilities in food and energy security, disaster risk reduction, and for enhancing environmental sustainability, among others. Deeper cooperation and strengthening of south-south trade would enable the region to play its part in global economic governance and exploit the synergies for mutual benefit.

A factor underlying growth of trade and investment as well as of mega trading blocs is the formation of global production networks and supply chains. The fragmentation of production has dramatically changed the structure of international trade and integrated emerging Asian and African economies in manufacturing networks. This has rendered the traditional trade policy irrelevant and ineffective not only because of preference erosion and decline of tariffs but also because of the business model of global supply chains. Such global production sharing arrangements also have serious implications on framework of mega-trading blocs.

In the paper titled 'Global Production Sharing and Asian Trade Patterns: Implications for the Regional Comprehensive Economic Partnership (RCEP)', the author Prema Chandra Athukorala analyses global production sharing and emerging trade patterns in Asia in the background of RCEP. Compared to Europe and Americas (which are also in the process of negotiating mega-trading agreements—TTP and TTIP), the degree of dependence of RCEP countries on this new form

of global division of labour is much larger. Network trade has fortified economic interdependence amongst countries in the region, with the People's Republic of China playing a key role as the premier centre for final assembly. China's import of components from East Asian developing countries and Japan has witnessed a rapid increase, in tandem with its expansion of manufacturing exports to North America and EU.

Global production sharing is an arrangement that offers opportunities to countries to develop specialisation at different levels of the manufacturing value chain depending on their relative cost advantage and other relevant economic fundamentals. Consequently, this leads to a flow of parts and components across borders in the region at a faster rate than the final good itself. While emergence of such global production networks has multiplied intra-regional trade within Asia, it has not contributed to lessening the dependence of the region on the global economy. Rather, the region's growth dynamism based on vertical specialisation is deeply dependent on its extra-regional trade in final goods.

With such trade expansion through fragmentation-based division of labour, the most appropriate policy choice is the non-discriminatory multilateral and unilateral liberalisation. The process of production fragmentation into multiple sections with each being conducted at different locations has strengthened the case for global instead of regional approach to trade and investment policymaking. Thus, an effective policy response for addressing the complexity created by 'spaghetti bowl' of FTAs involves a two-pronged approach of systematically harmonising several FTAs into the WTO system and reducing the distortionary preference margins crated by web of FTAs through multilateral tariff reductions. At its present stage of negotiations, the author asserts that the proposed RCEP might fall short of achieving this objective.

1.6 Growth and Jobs

The final article fittingly focuses on growth and its relationship with jobs, an issue that is politically significant and at the same time challenging for economic policy especially in the background of what technology can do to jobs. The world has witnessed a rapid rise in unemployment after the global financial crisis especially amongst youth in developed as well as developing countries. Naturally it has emerged as a critical economic and political agenda. For the G20 as well, unemployment has remained at centre stage ever since it forced its way into the Seoul Development Consensus in 2010. It is estimated that over the next 15 years, an additional 600 million new jobs will be needed to absorb burgeoning working-age population, mainly in Asia and Sub-Saharan Africa.

Until recently, it was widely held by policymakers that growth is the driver of jobs. The World Bank Development Report (2013) however argued that jobs are the actual drivers of development and poverty reduction. They are the cornerstone of social and economic development that allows people to claim a stake in

the society through better livelihoods. Furthermore, jobs also minimise gender inequality by financially empowering women. Through their broader influence on living standards, productivity and social cohesion, jobs have a higher value to society than just an individual. It is no surprise then that jobs are atop the development agenda for any country.

This has led to the policymakers ask difficult questions of whether countries should build their development strategies around growth or rather focus exclusively on jobs? Instead of taking a deterministic view, it might be useful to frame the development discourse around three distinct yet related themes. First and foremost, the policy environment must be fundamentally conducive to growth. This necessitates attending to macroeconomic stability, creating an enabling business environment, allowing for human capital accumulation and the rule of law. Second is labour policy. While it is essential in facilitating job creation and enhancing development payoffs from jobs, it should be structured in a way that avoids distortionary interventions that constrain employment. Third, economic ecosystem must stress on the types of jobs with highest development payoffs. Thus there should be focus on removing market imperfections and institutional failures that result in too few of such jobs being created. One can argue that jobs are the cornerstone of development and development policies are needed for job creation.

In developing countries like India, the issue of jobs needs greater attention due to two additional reasons. First, unlike most countries (including China) that are grappling with an ageing population and rising dependency ratio, India has a potential demographic dividend. Over 60 % of the population is in the working age of 15–59 years. A quarter of the projected increase in global working age population between 2010 and 2040 is expected to occur in India, reflecting the addition of 300 million working age adults. A large workforce, however, translates into more workers only if there are adequate jobs. Second, almost 92 % of India's workforce is currently engaged in the informal sector. Thus, the challenge facing India is not just of productively absorbing the incremental labour force but also of transferring masses of workers from less than full time engagement in low productivity activities to full time employment in high productivity activities. While the structure of institutions and labour policies is critical to creation of jobs for development, the constraining elements lie outside the scope of the labour market such as those that make cities work better, help farmers access and apply appropriate agricultural techniques, or allow firms to develop new exports.[14]

In the wake of this increased attention on jobs, the importance of growth as fundamental to stimulating investment and also employment cannot be overemphasised. Pronab Sen evaluates India's growth model and concludes that the recent growth trajectory confirms the benefits of a market-driven economy vis-a-vis a government controlled economy. In 1990s, India unleashed powerful economic reforms that, among other things, steadily reduced barriers to trade and eased restraints on corporate investments and production. This led to a period of high

[14] 'Jobs' World Bank Development Report (2013).

economic growth from 1991 to 96 but was followed by static to declining growth during 1997–2002. However, this unveiled two characteristics of relatively open market economies that India had not witnessed before. First was the emergence of a proper peak-to-peak endogenous business cycle. Second was increased sensitivity of the domestic economy to global economic developments.

Economic growth turned positive during 2003–09 attributed to increased corporate participation. Government revenue inflated resulting in high public infrastructure spending. But when the global financial crisis hit the Indian market in 2008–09, corporate sector reacted by cutting back its investment activities sharply. The government swiftly reacted by altering its monetary and fiscal policies to balance growth and inflation. During the boom and bust cycle between 2003 and 2012 a unique pattern of the Indian economy emerged. Interestingly small and medium enterprises (SMEs) continued to significantly increase their investment as a percentage of GDP despite adverse economic conditions. This implies that the resilience of the Indian economy to global turmoil owed almost as much to SMEs as to fiscal stimulus of the government. This pattern was also observed during the cyclical slowdown in India during 1997–2002 where corporate investment fell sharply and the economy continued to register reasonable growth on the strength of an increase in SME investment. Thus, the counter-cyclical behaviour of SMEs in India seems to be a 'stylised-fact' of the economy.

This pattern can be attributed to two factors: (a) the increase in credit through formal financial channels to SMEs when corporate credit demand declines; and (b) the nature of the markets primarily catered by SMEs are less cyclically sensitive compared to those by the large enterprises. The role of the SME sector in India, especially during the recent crisis, has been severely underplayed. In spite of minimalistic focus on economic reforms directed at improving the business climate for SMEs, the sector continued to grow at a rate of around 4.5 % and performed better than the large corporates during the Asian as well as global financial crisis. This reinforces the dynamism of the sector which must be leveraged and promoted so that it becomes the core of the Indian growth story.

However, this would require concentrated efforts towards providing a conducive policy environment for this sector. A part of the process is the steady correction of government's fiscal balance. Usually, SMEs have relatively low savings potential and a low marginal savings rate compared to larger enterprises. A reduction in government's fiscal deficit, a measure of public draft on household savings, and subsequent increase in investments of the SME sector can generate a positive virtuous cycle of SME investments. A lower revenue deficit will also push infrastructure investment, which has slowed down. This can thus be revived without crowding out of the private sector. In terms of capital efficiency also, it is observed that SMEs tend to have low capital-to-labour ratios as well as low value added per unit of capital. However, this can be addressed through suitable policy structure aimed at improving the quality of available labour, propagating innovation and risk-taking behaviour, and ease of credit.

Endowed with rich entrepreneurial talent, India has seen an increase of 1 million net increase in the number of non-agricultural establishments per annum. By

bolstering growth in the SME sector and creating financial space through government fiscal correction, the author envisions that a return to growth rates of more than 7 % per annum might be plausible even in the absence of any considerable improvement in global cues. This growth strategy will give the added benefit of job creation as compared to corporate-led growth strategy.

The development agenda of the G20 got a push during the Korean Presidency in 2010. Since then there have been several pillars reflecting a proliferation of items appearing on the G20 agenda-Infrastructure, Private Investment and Job Creation, Human Resource Development and Skill Creation, Trade, Financial Inclusion, Growth with Resilience, Food Security, Domestic Resource Mobilization and Knowledge Sharing, Climate Change, Base Erosion and Profit Shifting, Gender issues and so on.

These are no doubt all very important in different degrees for G20 members. The litmus test for the G20 ought to be—in which of these areas can international cooperation help? Because there is a growing feeling that if you bite off too much, then nothing gets accomplished. The Finance track is where the G20 has enjoyed most of its success and it will continue to dominate. Another area that holds promise especially from India's point of view is infrastructure. International cooperation can be brought to bear through multilateral development banks (MDB) to leverage private money into infrastructure. Trade and Climate Change are both extremely important, but these are also areas where negotiations are legally and formally taking place in different fora. The expectation is that the G20 can somehow give a lead on issues being negotiated elsewhere since negotiations between 190 odd countries are not only gruelling but more often than not, inconclusive. Therefore the idea is to somehow use the G20 to arrive at a consensus and then wait for it to drive the rest of the system. Let's hope that is indeed the case, else a narrowing of the agenda is certainly desirable especially if the aim is to achieve practical and useful outcomes.

References

Banik N (2014) The G20: Challenges and Opportunities Ahead. The Australia India Institute, Chanakya Papers

Bhagwati J (1998) The Capital Myth. Foreign Affairs, available at https://www.foreignaffairs.com/articles/asia/1998-05-01/capital-myth-difference-between-trade-widgets-and-dollars. accessed on 11 October 2015

Blanchard O, Ostry J, Ghosh A (2013) International Policy Coordination: The Loch Ness Monster, 15 December, available at http://blog-imfdirect.imf.org/2013/12/15/international-policy-coordination-the-loch-ness-monster/. accessed on 11 October 2015

Davis K (2012) Convergence, Interdependence and Divergence. Finance Dev 49(3), available at http://www.imf.org/external/pubs/ft/fandd/2012/09/dervis.htm. accessed on 10 June 2015

Evenett (2013) What Restraint? Five Years of G20 Pledges on Trade, Global Trade Alert

Mistral J (2011) Multilateral Surveillance and Macroeconomic Policy Coordination: Designing the Appropriate Policy Framework, Brookings Institutions

Olson M (1965) The Logic of Collective Action. Harvard University Press

Raghuram R (2014) Rajan warns of policy breakdown as emerging markets fall. Bloomberg, January 31, http://www.bloomberg.com/news/articles/2014-01-30/rajan-warns-of-global-policy-breakdown-as-emerging-markets-slide. accessed on 11 October 2015

Part I
The Global Financial Crisis—Revisiting Global Governance

Chapter 2
Revisiting Global Governance

Soumya Kanti Ghosh and Bibekananda Panda

Global Governance is currently at crossroads. With the spectre of the 2008 financial crisis still haunting us, perhaps there is no better opportunity for the G20 to refocus on the Governance debate. The negotiations around the current international monetary system are a matter of paramount importance for the future of the global economy (Strange 1998).

Global Monetary Governance is an arena where interests clash and these interests must be addressed in order to avoid a mutually destructive scenario (Carr 1939). As the global monetary system embeds major imbalances and generates risks and volatility, there is a need for key countries to work together and identify a reform path ushering in a more stable monetary system. The G20 is well-suited for this task and could ideally focus the historic mission of bringing reform to the international monetary system to increase the transparency and accountability of global monetary institutions including IMF (Seoul Summit press release 2010).

Establishing a more stable global monetary system in the future is one of the major objective towards a more stable international monetary system over the long-term. These avenues include a stronger role for the IMF, the development of Special Drawing Rights (SDRs) as a reserve currency, and a broad diversification of the current unipolar international monetary system toward a tri-polar or quadri-polar system (USD, Euro, RMB, and SDRs).

The structure of the rest of the paper is as follows. Section 2.1 discusses the objective of Global Monetary Governance. Section 2.2 describes the major players in the current system of Monetary Governance. It also describes briefly how the current international monetary system operates. Current forms of Global Monetary Governance are mentioned in Sect. 2.3. Section 2.4 talks about the set of reforms

S.K. Ghosh (✉) · B. Panda
State Bank of India, Mumbai, India
e-mail: soumya.ghosh@sbi.co.in

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_2

required in the Global Monetary Governance system. Section 2.5 presents changing Governance of international monetary and financial architecture. Ongoing financial contagion and hence the case for broader Governance structure that also encompasses risk governance are discussed in Sect. 2.6. In particular, one of the recommendations of the Financial Stability Board in G20 has been building resilient financial institutions that include implementation of robust risk management systems in banks. Subsequently, Sect. 2.7 talks about effective Risk Governance system and major lessons learned from the recent crises. Section 2.8 concludes.

2.1 Objective of Global Monetary Governance

Global Monetary Governance is based on the objective of achieving price stability, increasing employment, output and economic growth. In a broader sense it refers to achieving monetary and financial stability across the economies. Moreover, with growing integration of economies, crisis in one country is relevant to all the region or world as a whole. Increasing integration results in more cross border activity, international trade, cross-border banking and financial flows that may be a source of financial instability, threat to national security etc. A nation's Monetary Governance will necessarily have international dimensions, since policy actions of a country could impact other countries' economic performance by virtue of integration of real and financial activities across countries. Practically it is not easy for each nation to monitor the issues of Global Governance on a daily basis and the conflict associated with each decision may often lead to chaotic situation at the end.

The emergence of Global Monetary Governance was badly felt only after the outbreak of great depression of 1929. Subsequently, the two major multilateral institutions, the International Monetary Fund (IMF) and the World Bank (WB), have been created to address the problems of the post-World War II economies of the world.

2.2 Main Players and Operation

Major organisations required for the specified services would include Governments and Central banks of countries and multilateral institutions like World Bank (WB) and International Monetary Fund (IMF). In the case of the IMF, which now is the core institution for functioning of the international monetary and financial system, the first major amendment was in 1960s after the introduction of the special drawing rights (SDRs) and the second one was after the breakdown of the fixed exchange parity system in the 1970s. IMF executive board works with International Monetary and Financial Committee (IMFC) and Development Committee (DC) on various issues related to global financial system. The IMFC which has been in existence since 1974 is chaired generally by Minister of Finance elected by the members. IMFC is responsible for advising and reporting

Table 2.1 Current quota and voting shares in IMF (in percent)

Calculated quota share			GDP blend share[a]		Quota shares		Voting shares	
			Pre-Singapore	Post second round[b]	Proposed	Pre-Singapore	Post second round	Proposed[c]
Advanced economies	58.2	60	61.6	60.5	57.7	60.6	57.9	55.3
Major advanced economies (G7)	42.9	48	46	45.3	43.4	45.1	43	41.2
United States	17	21.6	17.4	17.7	17.4	17	16.7	16.5
Other	25.9	26.4	28.6	27.7	26	28.1	26.3	24.7
Other advanced economies	15.3	11.9	15.6	15.1	14.3	15.4	14.9	14.1
Emerging market and developing countries	41.8	40	38.4	39.5	42.3	39.4	42.1	44.7
Developing countries	34.1	33.2	30.9	32.4	35.1	31.7	34.5	37
Africa	3.1	2.9	5.5	4.9	4.4	6	6.2	5.6
Asia[d]	17.7	17.3	10.3	12.6	16.1	10.4	12.8	16.1
Middle East, Malta and Turkey	6.2	5.2	7.6	7.2	6.7	7.6	7.3	6.8
Western hemisphere	7	8	7.5	7.7	7.9	7.7	8.2	8.4
Transition economies	7.7	6.8	7.6	7.1	7.2	7.7	7.6	7.7
Total	100	100	100	100	100	100	100	100

Source Finance Department, http://www.imf.org/external/np/sec/pr/2010/pr10418.htm

[a]GDP blended using 60 % market and 40 % PPP exchange rates, compressed using a factor of 0.95

[b]Includes ad hoc increases for 54 eligible members that are not yet effective; also includes Kosovo and Tuvalu which became members on June 29, 2009 and June 24, 2010, respectively. For the two countries that have not yet consented to, and paid for, their quota increases, 11th Review proposed quotas are used

[c]Basic votes are calculated using the agreed percentage of total votes, 5.502 % of total votes (provided there are no fractional votes) as in the Proposed Amendment to Enhance Voice and Participation, which has not yet entered into effect

[d]Including Korea and Singapore

to the Board of Governors as it manages and shapes the international monetary and financial system. In addition, it deals with issues of global liquidity, transfer of resources to developing countries and proposals of the executive board for amendments to the Articles of Agreement. However, the IMFC views are arrived not by voting but by consensus (Table 2.1).

As the Global Monetary Governance is a forum or collective body of representative of many countries, it is designed to ensure coordination of actions of governments and central banks. The institutional setting for sound Monetary Governance however cannot be laid down as universally applicable.

2.3 Current Form of Global Monetary Governance

The major decision makers on Global Monetary Governance in IMF are the members of the executive boards. The relative economic strength of economies is reflected in the quotas of a member country in the IMF. The G-20 group of countries that includes European Union has a sizeable proportion of total quotas. The eight G-20 industrial countries of the Group-Australia, Canada, France, Germany, Italy, Japan, United Kingdom and United States, command 46.77 % of the total quotas. The rest of IEs (including Israel which generally votes with the IE group) has 13.75 % of the total quotas. Together, the IEs thus have 60.52 % of the total quotas. In terms of votes, they command 57.88 % of the total votes (Table 2.2).

However, with the economic development in the current system, it became apparent that there are emerging market economies that are as important industrialised ones. Over time, the G-20 has assumed a powerful voice in the debates on economic and financial matters at the international level. It is now an important forum for international economic cooperation since 2008 at the peak of the global economic and financial crisis, The Group has therefore spent considerable time discussing policy issues of IEs relating to international financial stability, international liquidity, capital flows, debt sustainability and currency developments, among others (Table 2.3).

2.4 Reforms in the Global Monetary Governance System

Reforms in Global Monetary Governance system have cantered around the IMF in post crisis period. Developing countries' allegation of centralised power with IEs in the executive board of IMF and most of the decisions in favour of developed

Table 2.2 Quota and voting share within IMF

Economy	Total IMF quota (%)	Voting share (%)
Industrialized	60.52	57.88
Emerging market	19.78	19.01

Source IMF

Table 2.3 IMF quota and voting right vis-a-vis contribution to global GDP

	% Share to global GDP (PPP current US)	IMF quota (% of total)	IMF voting right (% of total)
USA	16.5	17.7	16.8
China	15.9	4.0	3.8
India	6.6	2.4	2.3
Japan	4.5	6.6	6.2
Germany	3.4	6.1	5.8
Russia	3.4	2.5	2.4
Brazil	3.0	1.8	1.7
France	2.4	4.5	4.3
Indonesia	2.3	0.9	0.9
UK	2.3	4.5	4.3
Italy	2.0	3.3	3.2
Mexico	2.0	1.5	1.5
Korea	1.6	1.4	1.4
Saudi Arabia	1.5	2.9	2.8
Canada	1.5	2.7	2.6
Spain	1.5	1.7	1.6
Turkey	1.4	0.6	0.6

Source IMF, World Bank

economies have driven some of the reform initiatives in the board. However, the matters relating to quotas as well as the voting requirements have now taken the centre stage. Reform in IMF executive board was discussed in London Summit in April 2009 and in Pittsburgh in September 2009. However, the 14th General Review of Quota did not meet the expectations of EME in November 2010. It only helped to developing countries to have some marginal allocation in quota. Industrialized economies lost 2.8 % of combined quota from 60.5 % in April 2008 to 57.8 % in 2010.

Some of the gainers were US, Japan, Spain and Italy. However, India has gained only 0.31 % quota. China gained the maximum of 2.4 % points over the April 2008 level followed by Brazil of 0.53 % points, India of 0.31 % points, and Mexico of 0.35 % points. Russia gained only marginally whereas Saudi Arabia had some erosion in its share. However, it is worth noting that despite being the second largest economy in the world and a major contributor to global growth, China has been given third place in the quota shares in the IMF. India, yet another emerging country with the second highest contribution to global growth occupies only the eighth position in the overall IMF quota share. The US still retains the veto power on crucial issues such as the quota dispensation.

The redistribution of power is acknowledged by IEs. The shares of a few emerging economies have indeed improved in the latest quota dispensation. However, as the IMF publications (2008) and (2010 and 2010b) show, there is very little shift in the balance of governance of the international institutions from the traditionally classified IEs to the group of emerging and developing countries.

The discussion in 2010 executive board suggests that in general there has not been a radical departure from the formulas that underlie quota calculations over the last 50 years.

In our view, Global Monetary Governance should additionally encompass the unconventional monetary policies that the developed countries have been pursuing since 2008. The financial sector dominated the overall GDP of advanced economies by very large margin since 2000. If balance sheet (BS) size of banks is taken as proxy, their BS size has grown dramatically in relation to underlying economic activity over the past century. For example for the US, there has been a secular rise in banks assets from around 60 % in 1950 to over 100 % of GDP by 2008. For the UK, at around 50 % of GDP in the early 1970s, banks assets in relation to national income have risen tenfold to over 500 % of GDP. The return on equity of financial sector companies outpaced those in non-financial sector by factor of two.

The disproportionate higher growth in the financial sector has reduced real growth, dampens the long-run productivity. In other words, financial booms are not, in general, growth enhancing probably because the financial sector competes with the rest of the economy for resources, particularly labor and distorts the allocate efficiency of the economy. Such unconventional monetary policies cannot address these structural imbalances which are fundamental in nature. In fact, such policies do not acknowledge build-up of debt particularly in household sector as threat to financial stability and therefore do not try to counteract the build-up of debt in their monetary policy decision. This has led overall global debt growing by 40 % since 2007. End result of this policy has been that it is difficult to reconcile QE-type measures with inflation targeting, with inflation continuing to fall amidst debt buildup and unabated expansion in base money (Chart 2.1).

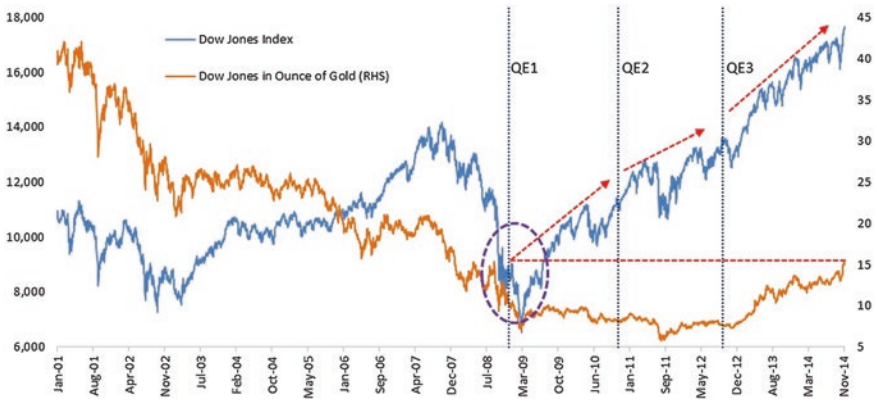

Chart 2.1 Impact of QEs on asset prices. *Source* SBI Research, Bloomberg

2.5 Changing Governance of International Monetary and Financial Architecture

Economic development has resulted in gradual shift in power to some of the developing countries. Today, the BRICS account for nearly 30 % of global GDP, 35 % of total international reserves, 25 % of total land area and around 42 % of the world's population. However, despite their economic weight, the BRICS have a major power gap in global economic governance. Their representation, voting power, participation in management in the Bretton Woods institutions (IMF, World Bank, WTO, and IFC) and others like the BIS, displays a major deficit of 'voice' and influence. The IMF's voting reforms approved in 2010, ratified by more than three-quarters of the Fund's member governments are still to be ratified by the US.

With regard to representation in the group in the Global Monetary Governance, Saudi Arabia represents the Middle East and South Africa represents Africa while the East Europe has no representation. These regions have a fairly large population. The entire continent of Africa, numbering 54 countries, is represented by only two chairs. A number of countries in these regions as well as in the highly populated Asia are likely to demand representation in the group by virtue of their growing economic performance.

2.6 Financial Contagion and the Case for Broader Governance

With increased globalization, international capital flows have registered massive growth in last decade. The magnitude of the international financial flows was very high in 1990s and 2000s with surge in volatility. Several big crisis episodes affected some economies and spread to others.

The occurrence of currency crisis in mid-1990s and its spread to other financial segments and to real sectors of emerging economies, ranging from Mexico to East Asia, with Russia and Brazil as major cases shows how quickly the contagion can damage the fundamental of the global economic system.

In 2002, after a flurry of colossal accounting frauds surfaced globally, the US government has quickly enacted the Sarbanes-Oxley Act ("SOX"). A key belief at the time was that holding senior management more formally accountable for accounting disclosures and related controls, and forcing external auditors to form an independent opinion on whether accounting controls are "effective", would fix the problem. The crisis of early 2000s that started in the US quickly spread to other advanced economies in Europe and also coincided with financial disruptions in emerging economies like Argentina, Turkey and Ecuador.

In 2008, the world suffered another corporate financial crisis. The collapse of the US financial sector took the real economy down to a deep recession and the US financial and economic turmoil quickly developed into a global crisis, the reverberations of which are still being felt (Table 2.4).

However 2008 was different from the earlier crisis. One inevitable consequence of this global financial crisis was exposing a number of risk governance

Table 2.4 Chronology of financial crises date back to 1929

Risk category	Year	Crisis	Country of origin	Industry	Impact ($ billion)
Credit risk	1929	Banking crisis	USA	Financial services-banks	50.0
Credit risk	1974	Bank herstatt failure	Germany	Financial services-banks	1.5
Credit risk	1978	Banking crisis	Spain	Financial services-banks	50 banks impacted
Market risk	1984	Savings and loan crisis	USA	Financial services-banks	160.0
Credit risk	1988	Banking crisis	Norway	Financial services-banks	193 banks impacted
Credit risk	1991	Banking crisis	Sweden	Financial services-banks	9.4
Credit risk	1991	Banking crisis	Japan	Financial services-banks	0.5
Market risk	1994	Orange county-interest rate	USA	Municipal institution	1.6
Market risk	1998	Long Term Capital Management	USA	Financial services-hedge funds	3.5
Operational risk	1999	Prudential—class action suit	USA	Financial services-insurance	2.0
Market Risk	2000	Equitable life	UK	Financial services-Insurance	3.5
Operational risk	2001	Enron and world-com-accounting	USA	Manufacturing	60.0
Operational risk	2001	Swiss re-external events	USA	Financial services-insurance	3.5
Operational risk	2004	Choice point-data theft	USA	Data brokerage	1.1 lakh people affected
Operational risk	2005	AIG-accounting	USA	Financial services-insurance	1.6
Operational risk	2005	Citigroup-AML violations	USA	Financial services- banks	NA
Credit risk	2008	Credit crisis	USA	Financial services-banks, insurance, hedge funds, investment bank	15000.0

Source Collated from several other sources and author's estimates

weaknesses that resulted in firms' failure to understand the risks they were taking. In particular, there were numerous reports that narrated the utter failure of risk governance frameworks at financial institutions.

In May 2009, the Economist Intelligence Unit (sponsored by KPMG and ACE) surveyed 364 executives around the world across a range of regions and industries on their approach to risk management and corporate governance. The key findings were;

1. Companies recognise the need for greater risk expertise but there is a reluctance to recruit it in some areas
2. Financial constraints are hampering necessary investments in risk management
3. Compliance, controls and monitoring are consuming a disproportionate amount of time but risk managers recall priorities lie elsewhere
4. More needs to be done to ensure that the right risk information is reaching the right people
5. There is a window of opportunity for chief risk officers to take on a more strategic role

In a October 2009 report (Risk Management Lessons from the Global Banking Crisis of 2008—Senior Supervisors Group, FSB) identified four root causes for such a crisis. All were linked to deficient risk management and risk management oversight:

- The failure of some boards of directors and senior managers to establish, measure, and adhere to a level of risk acceptable to the firm
- Compensation programs that conflicted with the control objectives of the firm
- Inadequate and often fragmented technological infrastructures that hindered effective risk identification and measurement
- Institutional arrangements that conferred status and influence on risk takers at the expense of independent risk managers and control personnel.

A central finding in the study indicated deficient senior management and board risk oversight was a major cause of the collapse.

2.7 Effective Risk Governance

An effective Risk Governance framework can provide reasonable assurance that the organization's strategic objectives can be achieved. Building an effective framework requires a number of interrelated components including:

- A strong risk governance structure
- A clearly articulated risk appetite
- A clear risk strategy aligned with strategic objectives and key value drivers
- A strong risk management culture and capability
- Ongoing review of the risk framework, tolerances, and settings

Table 2.5 Financial crisis (September 2008 onwards): key learning

	Key findings	Key learning
Risk governance	Risk management systems were informal	• Board must establish and oversee the risk management structure
		• Internal control framework should be structured, formal, risk-based and working effectively
	Boards did not understand their risk profile	• Defined risk appetite
		• Regular meetings of risk committees
		• Risk management functions have adequate stature
		• Regular actions and follow-up
	Strategies delinked from risks	• Alignment of corporate strategy with risk appetite and the Internal risk management structure
		• Risk management framework/ structure should effectively with ample "Risk Dialogue"
Remuneration and alignment of Incentive Structures	Large variance between chief executive and non-executive compensation policies	• Remuneration must be established through an explicit/transparent governance process, where roles and responsibilities of those involved are clearly defined and separated. Significant role should be given to NED members in the process
	Misalignment with long-term shareholder value and CEO/ Chairman's personal wealth	• It should be considered good practice that remuneration policies are submitted to the annual meeting and as appropriate subject to shareholder approval
Board professionalism	Erosion in independent/ objective oversight role of boards	• Clearly establish the objectivity of the Board
		• Solid leadership by the Board chairman and the CEO
	Combined chairman/CEO (US) Boards were less independent than they appeared	• Functions of Chief Executive Officer and Chair of the Board of Directors in unitary boards should be separated (In UK, nearly 95 % of FTSE 350 companies has adopted this practice. However, in US, the corresponding % age is 20 %)
	There may have been too few executives on the board	• Appoint experienced NEDs
	Technical Expertise may have been inadequate	• Assigning key tasks to board committees composed of a majority of NEDs
		• Board should develop specific policy for identification of NED

Source Corporate governance and financial crisis, IFC (2009)

- A common risk language and criteria
- Clear risk prioritisation and Coordination
- Clear line of responsibility and Accountability
- A strong compliance focus Continuous risk monitoring and review
- Efficient and effective processes, with appropriate tools and technology
- A commitment to continuous improvement, training and learning

In a peer review report in 2013, FSB came out with some significant findings regarding the risk governance structure at financial institutions. These were:

- National authorities do not engage on a sufficiently regular and frequent basis with the board, risk committee and audit committee.
- The Chief Risk Officer (CRO) should have a direct reporting line to the chief executive officer (CEO) and this needs to be supported by the involvement of the risk committee ensuring that the CRO has access to the board and risk committee without impediment (including reporting directly to the board/risk committee
- More work is needed on the part of both national authorities and firms on establishing an effective risk appetite framework (RAF).
- Supervisory expectations for the independent assessment of internal control systems by internal audit or other independent function are well-established prior to the crisis.
- Nearly all firms have an independent chief audit executive (CAE) who reports administratively to the CEO. However, there is still room for improving the CAE's access to directors beyond those on the audit committee.

Drawing on the experience of governance failures, there could be important lessons from the last crisis in relation to the Risk Governance include (Table 2.5).

2.8 Conclusion

The broad based financial crisis including the latest one of 2007 has given enough scope to the global economy to revamp the Global Governance structure, that encompasses monetary and risk. Global financial crisis has facilitated strengthening inadequate risk governance processes through ensuring an existence of a governance structure adequately structured, formal, risk-based, and working effectively. It is imperative that the G20 forum is effectively used to accord primacy to risk governance. In fact, it may be noted that the key G20 recommendations on implementation of an overhaul in global financial architecture with respect to building resilient financial institutions have been mostly completed in national regulation or supervisory guidance. However, in the own words of FSB, more work is needed to lead to more effective risk taking behaviour.

The objective of the Global Monetary Governance in achieving price stability, increasing employment, output and economic growth and in a broader sense

achieving monetary and financial stability across the economies is only possible through mutual co-operation among economies. A nation's monetary governance necessarily has international dimensions, since policy actions of a country impact other countries' economic performance by virtue of integration of real and financial activities across countries. The outbreak of the past financial crisis is a good example in this case.

Major players in achieving effective Global Monetary Governance include governments and Central Banks of countries and multilateral institutions like World Bank (WB) and International Monetary Fund (IMF). As the Global Monetary Governance is a forum or collective body of representative of many countries, it is designed to ensure coordination of actions of governments and central banks. The major decision makers on Global Monetary Governance in IMF are the members of the executive boards. The relative economic strength of economies is reflected in the quotas of a member country in the IMF. Together, the IEs thus have 60.52 % of the total quotas. In terms of votes, they command 57.8 % of the total votes. On the other hand the EME members of the G-20-Argentina, Brazil, China, India, Indonesia, Korean Republic, Mexico, Russia, Saudi Arabia, South Africa and Turkey-command only 19.7 % of the quota and 19.01 % of the total votes. This clearly shows the dominance of power by IEs in decision making in the executive board of the IMF.

The reforms in Global Monetary Governance system have cantered around the IMF in post crisis period. Developing countries' allegation of centralised power with IEs in the executive board of IMF and most of the decisions in favour of developed economies have driven some of the reform initiatives in the board. However, the 14th General Review of Quota did not meet the expectations of EME in November 2010. It only helped in developing countries to have some marginal increase in quota.

This apart, while high debt continues to plague the major economies, the initial response to the situation in 2008 was a massive injection of liquidity, reducing interest rates close to zero bound and in some cases altering the slope of the yield curve. The measures may have restored peace in financial markets, but with the benefit of hindsight, one must look into the possible externalities such measures have created. Artificially lower interest rates have distorted investment decisions and made risk pricing arbitrary. At lower rates, an otherwise unviable project must have been judged viable. As central bank tries to exit exceptional measures, the ensuing rise in long yield can make those very viable projects unviable. There needs to a broader agreement and synchronization of such policies across G20 group.

Economic development has resulted in gradual shift in power to some of the developing countries. Today, the BRICS account for nearly 30 % of global GDP, 35 % of total international reserves, 25 % of total land area and around 42 % of the world's population. However, despite their economic weight, the BRICS have a major power gap in global economic governance. Their representation, voting power, participation in management in the Bretton Woods institutions (IMF, World Bank, WTO, and IFC) and others like the BIS, displays a major deficit of 'voice' and influence.

With increased globalization, international capital flows have registered massive growth in last decade. As we know, the higher the integration the higher is the risk of contagion. The crisis in the past suggests a formation of strong global governance structure that can help the global economy to come out of the crisis with effective co-operation.

References

Ahearne A, Von Hagen J (2006) European perspectives on global imbalances. In: Paper prepared for the Asia-Europe economic forum conference European and Asian perspectives on global imbalances. Beijing, 13–14 July 2006

Allen WA, Moessner R (2010) Central bank co-operation and international liquidity in the financial crisis of 2008-9. In: Bank for international settlements Working Paper 310

Amable B (2003) The Diversity of Modern Capitalism. Oxford University Press, Oxford

Bossone B (2008) The design of the IMF's medium-term strategy: a case study on IMF governance, IEO Background Paper (BP/08/09). Washington, DC: Independent evaluation office of the international monetary fund (IEO)

Carr EH (1939) The twenty years' crisis, 1919–1939. Harper and Row, New York

Cohen BJ (1977) Organizing the world's money: the political economy of international monetary relations. Basic Books, New York

Cohen BJ (2006) The macrofoundation of monetary power. In: Andrews D (ed), pp 31–50

Financial Stability Board (2013) Thematic review on risk governance, 12 Feb 2013

International Monetary Fund (2000), External review of the quota formulas—Annex, IMF document—EBAP/00/52, Supplement 1 (Washington, DC: IMF, 1 May)

International Monetary Fund Executive Board Approves Major Overhaul of Quotas and Governance, 5 Nov 2010. http://www.imf.org/external/np/sec/pr/2010/pr10418.htm

Strange S (1998) Mad money: when markets outgrow government. The University of Michigan Press, Ann Arbor

Vasudevan A (2012) Monetary governance in search of new space; emerging market economy perspectives, 1st edn. Academic Foundation, New Delhi

Vasudevan R (2009) Dollar hegemony, financialization, and the credit crisis, review of radical political economics 41(3):291–304 (Sept 2009)

Wilczyński R (2011) Global financial governance: a perspective from the international monetary fund. Contemp Econ 5(1):4–16

Chapter 3
The G20 and the Dilemma of Asymmetric Sovereignty: Why Multilateralism Is Failing in Crisis Prevention

Heribert Dieter

3.1 Introduction

Supranational regulation of a range of issues has been on the agenda of international politics for more than two decades. "Global Governance", particularly in economic affairs, was considered a promising concept. The development of shared norms and standards in finance should have helped to reduce risks and prevent future crises. This concept is embodied in the foundation of the Group of 20 in 1999 as a reaction to the financial crises of the late 1990s. While at the beginning limited to the finance ministers, the G20 first met at the level of heads of state and government in November 2008. This was deemed a breakthrough by some observers: Finally the problems of increasingly interdependent economies would have been solved at the global level.

Initially, the G20 fulfilled the expectations. The global economic and financial crisis was managed without a relapse to protectionist trade policies or harmful competitive devaluations. In the years 2008 to 2011, the G20 was able to implement some significant steps, for example in the modernization of the International Monetary Fund. At the G20 summit in Cannes in November 2011 the development of shared rules for the financial markets was still high on the agenda. But only non-binding memoranda of understanding were agreed upon.

In fact, the evaluation of the G20 to date suggests the group has been a success in managing the global financial crisis that originated from the USA, but it has failed to advance global economic governance. Most recently, the two most important players in trade policy, the USA and the EU, are undermining the future

H. Dieter (✉)
The German Institute for International and Security Affairs, Berlin, Germany
e-mail: heribert.dieter@swp-berlin.org

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_3

viability of the multilateral trade regime by creating an exclusive trade agreement, the Transatlantic Trade and Investment Partnership (TTIP). Repeatedly, the G20 has been unable to provide more than lukewarm support for the most important institution of global economic governance, the World Trade Organisation WTO. The Doha Round is a failure, and the main culprits are not the emerging economies, but rather the USA, which have been unwilling to give up subsidies for agriculture in general and cotton subsidies in particular (Stiglitz 2013).

In the following three years since the G20 summit in Cannes, some countries have chosen to go their own way and it has become evident that there will be no joint approach to the regulation of financial markets. Notably the U.S. has not only enacted unilateral reforms of its financial markets but has also given up one of the established pillars of financial regulation. Authorities in the United States no longer accept the so called home country principle and have shifted unilaterally to the host country principle, according to which banks operating in the U.S. must also hold capital in the U.S. The U.S. terminates the former consensus of the OECD countries by implementing the host country principle in banking supervision: Financial institutions are being supervised where they operate, not in the country where their headquarters are located. This has far-reaching consequences and will lead to a segmentation of markets. In the future, Deutsche Bank for instance will have to hold capital in New York for its American business—rather than in Frankfurt as was the case up now. The USA has been embracing the principle of "host country regulation". However, this "balkanization of finance" (The Economist) may not be a bad thing.

Just like the U.S., ever more countries choose individual national paths for their financial policies. For example, right from the beginning of the crisis, Brazil had raised a tax on capital inflows at rates of 2–6 % and has only abandoned this measure on June 5, 2013—due to a considerable drop of the Brazilian Real's exchange rate. Switzerland has chosen special capital requirements of its two large banks UBS and Credit Suisse, thereby deviating strongly from the standards of the Basel Committee of Banking Supervision. While large banks have to hold 13 % capital by the end of the current decade, according to the set of measures known as Basel III, the Swiss banking supervision has enforced much higher capital requirements and is demanding 19 % of risk-weighted assets from its two largest banks.

In contrast to the majority of analysts that lament the inability of the G20 to come forward with global rules for global finance, I advance the heretical suggestion that this development in regulation represents an opportunity rather than a problem. Diversity in financial regulation and what the Warwick Commission (2009) identified as the benefits of an 'unlevel playing field' would enhance, rather than weaken, the longer term stability of the international financial system. Financial regulation should and will remain principally the preserve of states.

In the past, policy makers and regulators have all too often permitted the financial sector to dominate the debate and pursue its own, interest driven agenda. The high level of influence of the financial sector has contributed to a weakened support not just for market economies, but even for the concept of democracy. Societies have experienced that under-regulated financial sectors can cause

enormous cost to taxpayers. Iceland, Switzerland and the United Kingdom are examples for the high costs that incur to societies that permit the unfettered growth of their financial industries. In order to both reduce the risk of global financial crises and to re-embed responsibility for regulation in the national political sphere, the search for global regulation of finance should be replaced by national or regional approaches.

What are the reasons for such a proposal? Why do countries seem to lose faith in multilateral approaches, not only, but also in the regulation of financial markets? One important aspect is the largely dissimilar experience with financial crises. For the societies of countries with very large financial sectors—Switzerland, but also Great Britain—the crisis of the years 2008 and 2009 was a traumatic experience, which the affected societies do want wish to repeat. The fiercer the crisis and the closer the abyss, the stronger is the willingness of these societies not to settle at a global minimal consensus in financial regulation.

Of course, a set of rules for financial markets in particular is not only about the implementation of internationally agreed upon regulations, but also about the liability for adverse developments. In the event of a crisis, governments are at least partly responsible for the mistakes of their banks. The crises of the last years have shown this very clearly. Whether in Ireland or in Spain, in the U.S. or in Belgium, everywhere governments have taken great financial risks to prevent the collapse of their financial systems. In some cases—such as Ireland and Spain—the rescue operations had impaired the state budget in such a way that, without help from abroad, not only the banks would have faced bankruptcy but also the states themselves.

For numerous governments, the internationalization of financial markets has led to a peculiar as well as precarious situation: While countries possess only indirect influence on the international negotiations on financial regulation, they are individually liable in the event of a crisis. Their sovereignty is thus asymmetric: So far, the governments of sovereign states were lacking the instruments to reduce the risks that come along with their bank's business; still, they were held accountable. The resulting situation has become both politically unsatisfying and threatening the legitimacy of governments. Some G20 States have responded with the unilaterally implemented measures sketched above.

In principle, individual states would indeed have had the ability to tighten their financial market regulation well before the recent crises in the USA and in Europe. Thereby, they would have lowered the risks for their public finance. However, before the outbreak of the crises it was politically difficult to find support for a prudent regulatory policy. Banks successfully referred to the competitive environment in which they have to operate and pointed to the liberal banking supervision in other countries. So prior to the crises, we saw a leveling of the supervision on the lowest common level, which however—as we know today—was highly inadequate.

A second reason for the growing interest in the re-nationalization of financial politics is the experience from the bankruptcy of Iceland's banking system. The three major Icelandic banks were initially growing rapidly abroad, implementing

daring business models. Equally quick was their demise, and all three banks slipped into bankruptcy just as quickly. The assumption that a state will guarantee for the liabilities its insolvent banks have in other countries was plausible until Iceland failed to honor the obligations of its banks. The events in Iceland have weakened this expectation. The faith in guarantees of national governments—a central element of the home country principle in banking supervision—is fundamentally shaken. The bankruptcy of Cypriot banks, although somewhat different in detail, has fuelled further doubts. That is one more reason why the U.S. is shifting towards the host country principle.

Thus, nation states could and should move on and implement their own, tailor-made reforms. The explanation for this approach, developed in section one of the article, is to be found in the impact of globalisation in general, and financial crises in particular, in shaping attitudes towards the state and what I understand to be the concept of sovereignty in the modern era. The political dimension of regulation and the importance of the domestic polity, primarily for legitimizing regulatory issues, are yet to be fully acknowledged in the current reform debate, which is largely driven by a group of financial experts, including central bankers, which do not seem to feel accountable to democratic institutions.

Section two follows with a brief analysis of the evolution of past crises. One reason for the growing frequency and depth of crises has been the comprehensive dismantling of restrictions on capital flows and the globalization of finance. The third section addresses what might be called the 'structural limits' to economic regulation of finance. Whilst critical of the global approach to financial regulation, I am very much in favour of a functioning multilateral trade regime, which I discuss briefly in section four. Whilst not without faults, the existing trade regime has been indeed been beneficial for the poor, and the current trend of segmenting markets for trade in goods is both reducing aggregate welfare and socially unjust.

3.2 Financial Crises and the Collateral Damage Caused by Globalized Finance

3.2.1 Global Governance Revisited

Many observers continue to assume that globalization has led to the emergence of a level of governance above the nation state that is both necessary and efficient. Necessary, because the increasing level of, say, capital flows across borders result in the functional need for supranational regulation, and efficient because only global approaches were considered to close loopholes that inevitably arise as a result of national regulation.

To this day, academic observers and policy makers continue to use this approach when they try to explain the need for global financial governance. National approaches, for example a financial transaction tax, are considered impossible because they would only result in the relocation of financial transactions to other,

less regulated financial centers. In essence, globalization results in the need to globalize decision making.

But the recent crises have resulted in a renewed debate on sovereignty—primarily because of the costs of the crises. Both in the USA and in Europe, domestic taxpayers have been confronted with enormous bills for the rescue operations. In Iceland and elsewhere, citizens have had to accept responsibility for their country's reckless bankers. The increase of cross-border financial transactions has not resulted in risk being transferred to the global level: In the end, risk ends up in a sovereign state.

Similarly, in Europe citizens of economies that have been implementing sustainable fiscal policies are asked to bear responsibility for irresponsible governance elsewhere. Supranational governance has often not resulted in sustainable development. In Europe, the Greek borrowing binge was ignored by the European Commission and the European Central Bank for years. Supranational governance did not result in a reduction of risk, but instead permitted the unchecked rise of debt in Greece, Ireland, Spain and other economies that are now faced with the need to adjust their economies quickly.

Sovereignty in the 21st century has therefore become a surprisingly asymmetric concept. It is suggested that societies have lost the ability to regulate, but they continue to be held liable if supranational regulation—whether regional or global—fails. Not surprisingly, policy makers struggle to explain the utility of asymmetric sovereignty to their constituencies.

Given this dilemma, the debate in Europe has oscillated around the need to further reduce sovereignty. Greek society is of course already exposed to this new approach, although the conditionality that the International Monetary Fund, the European Commission and the European Central Bank have been impose on Greece have not resulted in any improvement of the economic situation of the Greek economy yet.[1] But the call for further integration is in essence a call for the transfer of sovereignty to supra-national authorities that will implement the appropriate policies. Deep integration of fiscal policy in the European Union beyond the fiscal pact would reduce the sovereignty of participating nation states.

Nevertheless, what kind of accountability does the supranational authority command? One yet to be fully explored issue of the recent crises is the weak level of accountability of institutions above the nation state. The European Central Bank, for instance, for been implementing a type of crisis management that exposes societies to enormous risks, but the accountability of the European central bankers is limited. The failure of the European Commission in the run-up to the debt crisis is acknowledged, and the oft-criticized re-nationalization of the European crisis management is probably the inevitable consequence of this failure.

[1]Despite the comprehensive conditionality of the Troika, Greece continues to be a state that exercises paramount authority. When Greece defaulted in March 2012, it changed the conditions for bondholders ex-post and added so-called collective action causes. Of course, only a sovereign country can unilaterally alter contracts.

If one accepts that liberalizing capital flows and financial deregulation have not resulted in the ultimate transfer of risk away from sovereign societies, the consequence is that nation states have to be much more prudent in their approach to regulation. Of course, supporters of a global approach to regulation would not deny the need for prudent regulation, but they would suggest that the most promising avenue for regulation is a uniform, global approach. In the following section, we will analyze the short history of global financial regulation and will particularly examine its failures.

3.2.2 Building Regulation on False Assumptions

With hindsight, the development of global standards in finance has not resulted in a more stable international financial system. For example, the main standard, Basel II, has not prevented the two most recent crises—the sub-prime crisis and the crisis in Europe. Rather, both crises were fuelled by ill-designed rules. For instance, whilst Basel II required banks to set aside capital according to pre-defined risk criteria, it failed to consider the potential need to have liquidity available in the event of panic. Thus, after the Lehman shock in September 2008, solvent banks fund themselves in an illiquid position due to their inability to sell assets into collapsing markets (Levinson 2010, p. 81).

In addition, Basel II was rather lenient towards mortgage lending. Before 2007, lending to home owners had been a low-risk business. Regulators around the world were assuming that lending to medium-sized and large corporations was riskier. With hindsight, the regulators' judgment was of course inaccurate. Furthermore, regulators were not discouraging the so-called securitization of loans, i.e. the bundling of individual loans into tradeable securities. In many countries, this process was actively encouraged. In the end, many financial institutions choose to opt for securitization rather than following prudent banking procedures and setting aside additional capital for new loans.

Basel II and III specifically try to develop a rule-book that ensures a global level playing field. But the drawback has been that all players followed the same, or at least similar, strategies. Haldane suggest this amplified the crisis.

> The level playing field resulted in everyone playing the same game at the same time, often with the same ball. Through these channels, financial sector balance sheets became homogenised. Finance became a monoculture. In consequence, the financial system became, like plants, animals and oceans before it, less disease-resistant. (Haldane 2009, p. 18)

Whilst the failures of regulation prior to the US crisis are now by and large acknowledged, there appears to be too little reflection on the appropriate path of future regulation. Time and again, in the aftermath of financial crises policy makers vow to get it right this time. This is a well-known pattern. The idea that the next crisis will be avoided by "better" regulation is as inevitable as financial crises themselves. As Carmen Reinhart and Kenneth Rogoff have observed in their

seminal book "This time is different" (2009), there is a reoccurring pattern of hubris in financial markets. But that sense of overconfidence is not limited to market participants, it affects regulators as well. New regulation is put in place in the hope that this time will be different, and after a certain fermentation period the financial sector time and again has been successfully exploring new avenues to circumvent regulation. The G20 efforts to introduce new regulation are also following this course.

Two main factors account for these repeated failures. First, financial regulation by definition is based on past experience. Reform is an exercise in shutting the stable door after the horse has bolted. New regulation invariably fails to envisage, or is pre-empted by, new developments in finance. Whilst the utility of so-called innovation in finance is not always obvious, new instruments certainly create new challenges to supervisors, and they regularly fail.

Second, global rules can be, indeed frequently are, traduced by financial sector lobbying. Time and again bankers have succeeded in pressuring policy makers to accede to what Gordon Brown famously called "light touch regulation". The financial sector's lobbying efforts have often been effective and have resulted in a race-to-the-bottom by policy makers. The concern to miss out and to lose business to other financial sectors has often (mis-)guided policies. The most commonly used tactic is the reference to the level field. The argument is that unless the rest of the world, or at least the rest of the G-20, implements certain rules, any tightening of regulation at the national level will lose in the deterioration of the competitive position of that country's financial sector.

Of course, this rhetoric has been exploited not just by the financial sector, but indeed also by policymakers, who have quite too often given the interests of banks preference over the interests of wider society. In short, Wall Street dominated, Main Street had to bear the consequences. Policy makers have joined the choir and have embraced the reasoning that those benefitting from unrestricted finance have been providing.

Globalization, narrowly defined as the increase of economic transactions between nations due to the lowering of hurdles for trade and finance, has been said to reduce the policy space of individual societies. The force of ever increasing interdependence, it has been argued, compels policy makers to deregulate economies and to reduce the level of regulatory restrictions. For instance, the liberalization of capital flows has been labelled as inevitable and an absolute must. It was argued that there is, to paraphrase Margaret Thatcher, no alternative to dismantling restriction on cross-border capital flows. From the end of the regime of Bretton Woods in the 1970s more and more OECD countries have been scrapping restrictions on capital flows and have thus embraced neo-classical doctrines. In most cases, this decision to liberalize capital flows has not been discussed in the polity of the affected societies, let alone having been subject to a wider democratic debate.

In the European Union, supporters of unrestricted capital flows were hardly confronted with opposition. Integration enjoyed widespread political support, and there was no differentiation between the integration of markets for goods and

labour and capital markets. Economies like Spain and Ireland were joining the monetary union and at the same time were unable to protect themselves against unwanted capital inflows. In the event, both economies were subject to a boom in real estate and the national authorities had hardly any instrument to fight the overheating.

Consider the specific situation in Spain, for example. Roughly a decade after Spain emerged from years of authoritarian rule, the country joined the European Union. Until it joined the Eurozone in 1999, authorities were able to manage developments in the financial sector pretty well. The combination of membership in the Eurozone, which resulted in a dramatic reduction of the level of both nominal and real interest rates, and unrestricted capital flows resulted in an unsustainable boom in real estate. Capital flows to Spain reached unprecedented levels. Between 2006 and 2008, the current account deficits of Spain—reflecting capital inflows of the same magnitude—were between 9.0 and 10.0 % of GDP.[2] Evidently, capital inflows of that magnitude pose a risk to an economy, and being locked inside the Eurozone and its emphasis on neo-classical thinking, Spanish policy makers were forced to observe the unfolding drama without being able to do anything about it.

The drawbacks of multilateral rules have become evident in the European crisis from 2009 on. The Eurozone left participating economies with too few instruments to fight a credit boom. In Ireland and Spain in particular, authorities were unable to fight the obvious bubbles in real estate. They had no tools at their disposal: Interest rates were set at a uniform level by the ECB in Frankfurt, and robust other restrictions were not permitted due to European rules. Both countries had no instrument whatsoever to slow the inflow of foreign capital which fuelled the existing booms. Neither taxes on inflows nor other restrictions were permitted, thus exposing these two economies to market failure of enormous dimensions. Even the attempts of Spanish authorities to tighten supervision of local banks could not be very strict: Bypassing these national rules by borrowing elsewhere in the Eurozone was relatively straightforward and did not even entail currency risk.

3.2.3 The Consequences of Scrapping Capital Controls

However, this perceived need for unrestricted capital flows essentially reflected the interests of not too many members of individual societies. In particular, internationally operating financial firms have displayed a profound interest in lowering restrictions on capital flows. As Jagdish Bhagwati observed way back in 1998:

> Wall Street's financial firms have obvious self-interest in a world of free capital mobility since it only enlarges the arena in which to make money. (Bhagwati 1998, p. 11)

[2]OECD, Economic Outlook 89 database.

For most members of a society, the issue of restrictions on capital flows is a marginal issue. Apart from holidays and the occasional transfer for one's nephew's birthday, cross-border capital flows are not affecting wider society. However, stable or volatile exchange rates are much more important. Volatility of exchange rates affects all sectors of the economy that are either exporting or competing with imports. In fact, when considering the 1963 observation of Robert Mundell that an impossible trinity exists in monetary policy, I suggest that the policies of recent years reflect the growing political influence of those parts of societies that benefit from unrestricted capital flows at the expense of those that would benefit from stable exchange rates. What do I mean by this?

Essentially, Mundell suggested that of the three goals that monetary policy aims to achieve (stable exchange rates, unrestricted capital flows, independence of domestic monetary policy) only two are achievable at the same time (Mundell 1963; for a discussion of the trinity on exchange rate policy see Obstfeld et al. 2005). In democratic societies, the independence of domestic monetary policy, i.e. the ability of a central bank to raise or lower interest rates according to domestic economic developments, is an indispensable goal.[3] Thus, there is a simple political choice: Either unrestricted capital flows or stable exchange rates. In the era of Bretton Woods, capital flows were restricted, which reflected the weak position of the financial sector and the relative importance of manufacturing industry. The turn to unrestricted flows has clearly demonstrated that the financial sector is back to its former position of influence on domestic policy makers.

Since the end of Bretton Woods, capital flows have risen dramatically. But I note that there has been a particularly sharp rise of flows in the decade before the US crisis. World current account imbalances (the half-sum of all deficits and surpluses of the 181 countries in the database of the IMF) had been relatively stable between the early 1970s and 1997; in that period, they oscillated around 1.2 % of global GDP. Between 1997 and 2007, they grew to about 3 % of global GDP (Brender/Pisani 2010, p. 24). The current account deficits of capital importing countries (notably the USA) and the surpluses of capital exporting countries (notably, but not only, China, Japan, Germany) rose dramatically. But this is a dangerous development that requires regulatory responses (Dieter/Higgott 2010).

A key issue here is the utility of capital inflows for an economy. In the 1970s, when restrictions on capital flows were still widely applied, liberal economists have suggested that unrestricted flows would benefit the poor. Capital, it was argued, would flow from capital-rich economies to countries were capital is scarce, primarily developing economies.[4] Why would that happen? The underlying theory is the efficient-market hypothesis, essentially arguing that financial markets process all available information efficiently. Thus, markets will realize that the more efficient use of capital will be in developing economies, rather than in

[3]Under the gold standard, the political climate was of course different. Trade unions were non-existent or much weaker, and policy makers had more freedom to set interest rates according to external economic conditions.

[4]For a discussion of the effects of liberalization see Eatwell (1997).

established, developed markets. Of course, some capital has flown to developing countries, but in the first decade of the 21st century capital has been flowing upstream, from poorer economies to the United States of America. In the USA, the capital inflow was not used wisely, i.e. financing investment, but instead it financed unsustainable levels of consumption.

Recent research has confirmed the strongly diverging utility of different types of capital inflows. Aizenman, Jinjarak and Park have analysed capital flows to about 100 countries in two different time periods, 2000–2005 and 2006–2010. Whilst they confirm the positive contribution that foreign direct investment can make to economic development, they have not fund evidence both for portfolio investment and short-term debt. The later can even have negative effects on growth, particularly in phases of financial turmoil (Aizenman et al. 2011, p. 18).

The diverging effects of different types of capital inflows are hardly surprising. The key factor that determines the utility capital inflows is their use: Are they used for financing investment or for financing consumption? With regard to economic development, inflows that finance consumption (or failed investments) are most problematic. FDI is therefore better placed than other types of inflows to generate income for debt service. Portfolio inflows can generate income for debt service, but this is more difficult for foreign debt. Obviously, inflows into the USA, Spain or Greece have often financed consumption rather than investment. With hindsight, restrictions on certain kinds of inflows would have helped to keep these economies on a sustainable track. Of course, China is the largest economy that continues to restrict capital flows. Whilst this has not made China immune to financial turbulence, the key factor is that any crisis in China will not be due to an external shock. Put differently: The Chinese financial sector may show cracks, but these are home-grown. Consequently, the resolution of any financial instability will have to be developed primarily in China, not at the international level.

Today, it is obvious that the unwillingness to restrict capital flows resulted in a severe penalty for the countries that have failed to consider the negative effects of capital flows. This of course is a failure of politics, not economics. Policy makers have to consider and defend the interest of society at large, not just those of the financial sector.

3.2.4 Crises Revisited: What Can Be Learned?

Occasionally, one gets the impression that societies get used to financial crises as inevitable events, which is of course true. Hyman Minsky has suggested in 1977—when financial were occurring, but at a much lower frequency and intensity than today—that financial crises are systemic, rather than accidental events (Minsky 1977, p. 10). His core argument is that economic booms change the behaviour and the expectations of market participants. When a boom develops, standards change and risks are ignored:

> The tendency to transform doing well into a speculative boom is the basic instability in a capitalist economy. (Minsky 1977, p. 13)

Needless to say that this pattern of overconfidence in the boom has been observable many times since Minsky made his observation. A key example is the Japanese twin bubble—in real estate and share prices—in the 1980s. Consider what Minsky had suggested:

> Increased availability of finance bids up the prices of assets relative to the prices of current output, and this leads to increases in investment. (Minsky 1977, p. 13)

Exactly this happened in Japan, and the rise of asset prices relative to current output was reflected in the ever increasing number of years an employee in Japan would have had to work for his or her dwelling. The bubble burst in 1990, but is certainly was not the last financial crisis.

Minsky developed a minority position that was of course disregarded by the neoclassical mainstream, who continued to believe in the superior rationality of financial markets and their ability to process information efficiently. By contrast, Minsky suggested that financial stability cannot be achieved:

> There is, in the financial instability hypothesis, a theory of how a capitalist economy endogenously generates a financial structure which is susceptible to financial crises, and how the normal functioning of financial markets in the resulting boom economy will trigger a financial crisis. (Minsky 1977, p. 15)

Developments since the 1970s have obviously confirmed Minsky's financial instability hypothesis. His plea sounds very contemporary. He advocated a 'good financial society', in which the tendency of business and bankers to engage in speculative activity is constrained (Minsky 1977, p. 16). What he did, however, not provide was an idea how this goal could be achieved.

3.3 Consequences of Financial Regulation

3.3.1 The Limits of Global Regulation

For more than two decades, the dominant view in the debate on financial regulation has suggested that global rules, and only those, can make the financial system safer and more stable. As indicated above, my contrasting view would give preference to tailor-made national and/or regional level solutions. A diverse regulatory landscape would be the result. While such an approach would not automatically prevent financial crises, the effects of turmoil might be mitigated because, as we know from biology, diversity stabilises complex systems, whereas monocultures transmit and more easily exacerbate shocks.

Of course, if the record of both regulators and academic observers in identifying future risks were better than history tells us then the case for diversity would be weaker. But as numerous financial crises have demonstrated, the widespread

assumption that authorities are able to learn from past mistakes has time and again led to hubris and turbulence. Global rules may eventually result in global crises. There is no evidence that the ability to predict future risk is so well developed that the implementation of more global standards in finance will contain it. Simplifying is not axiomatically stabilising.

Andrew Haldane, Executive Director for Financial Stability at the Bank of England, has been interpreting the financial system as 'complex adaptive system' (2009, p. 3). He suggests that four mechanisms influence the stability of the network: connectivity, feedback, uncertainty and innovation (Haldane 2009, p. 8). All four of them have the potential to turn a hitherto stable system into an unstable one. Let us look at them in turn.

Connectivity of participants in financial markets—facilitated by cross-border capital flows—can serve as a shock absorber, but only within a certain range. Past a certain, hart-to-predict point, connectivity turns into contagion:

> But beyond a certain range, the system can flip the wrong side of the knife-edge. Interconnections serve as shock-amplifiers, not dampeners, as losses cascade. The system acts not as a mutual insurance device but as a mutual incendiary device. … Even a modest piece of news might be sufficient to take the system beyond its tipping point. (Haldane 2009, p. 9)

We have seen numerous examples of the Janus-headed dimension of connectivity. At first benign and not problematic, cross-border financial flows suddenly turn from sources of relatively cheap finance into unmanageable liabilities. For instance, for many years the financial flows into Asian economies prior to the 1997 crisis appeared to be a blessing, only to become a liability when the tide turned. Similarly, before subprime connectivity, hailed by Alan Greenspan as a new era in finance, for years was considered to be unproblematic, but when the tipping point was reached the American virus infected financial systems all over the globe.

For the definition of feedback, Haldane refers to epidemiology. The speed with which crises, or diseases, spread, very much depends on the perception of market participants. Their views 'construct' the crisis. The reaction of market participants to crises thus determines the rate of transmission of the financial crisis (Haldane 2009, p. 12). And as we know, financial markets have a tendency to be characterized by herd behaviour: First greed, than panic (Wood 1988). Both work as feedback loops.

> Uncertainty is the third factor in Haldane's analysis. Networks generate chains of claims, and whilst in boom times the question of counterparty exposure is often ignored, in the event uncertainty creeps in. Is Bernhard Madoff or Warren Buffet at the end of the chain? (Haldane 2009, p. 14)

Modern finance has of course done at lot to conceal counterparty exposure and thus increased uncertainty. The widespread use of over-the counter derivatives, in essence private contracts between two parties without authorities or other market participants knowing about them, has been a key factor. Consider, for example, the surprise that hit many, including the US government, when the full exposure

of American International Group AIG, the world's largest insurer, to credit default swaps became clear the day after Lehman Brothers collapsed. Haldane suggests that "Counterparty risk is not just unknown, it is almost unknowable" (Haldane 2009, p. 14).

Finally, innovation is a factor that contributes to the stability or fragility of financial systems. In fact, innovation in finance has to be sharply separated from the real economy. In finance, innovation is associated with increased complexity and less transparency. The utility of innovation in fiancé remains to be demonstrated. Take, for example, some of the 'innovations' that contributed to the 2007/2008 crisis in the USA. One particularly opaque and dangerous instrument has been the squared collateralized debt obligation, or CDO2. An investor in a CDO2 would have had to read in excess of one billion (!) pages to understand the product. Haldane points to the impenetrability of that kind of financial product:

> With a PhD in mathematics under one arm and a Diploma in speed-reading under the other, this task would have tried the patience of even the most diligent investor. (Haldane 2009, p. 16)

Against this background, I suggest to take an agnostic view of banking regulation. One will never be able to know what the risks of future developments will be, and even if tough rules would be implemented, it is safe to assume that the financial sector will find innovative ways around them. For example, the current proposal to require extra amounts of capital from so-called systemically relevant banks creates an incentive to carve up big financial firms into smaller units. While many observers currently appear to hope that big, too-big-to-fail banks will obey and implement new regulatory measures that would make them less profitable than their smaller peers, past experience does not provide sufficient evidence for this claim. It is plausible to expect that there will be a departure from large, integrated banks into smaller units. Yet this may not result in the lowering of risk, unless the newly created smaller banks follow diverging strategies or regulators would be willing to permit the simultaneous bankruptcy of several medium-sized banks.

As mentioned before, previous global initiatives for stricter regulation of the financial sector have not contributed to the stability of the international financial system. Basle I, introduced in the late 1980s when Japanese banks were the rising stars in finance, was not preventing any of the crises of the 1990s. Neither the Mexican crisis of 1994/95 nor, more importantly, the Asian crisis in 1997/98 was prevented. Particularly the crisis in Asia could have been a reminder for policy makers in the OECD, for it represented a textbook example of hubris in the financial markets that went unchecked. Not one single major market participant spotted the emerging crisis. Rating agencies started to worry when the situation had already visibly deteriorated and then contributed to the deepening of the crisis by frequently downgrading the affected economies. The parallels to the American and European crises are all too obvious. But then, Americans and Europeans enjoyed their short-lived moment of Schadenfreude, rather than returning to more prudent banking at home.

3.3.2 Policy Recommendations

My proposal to reverse current emphasis in global economic governance needs to be specified and put into context. Three key messages emerge from the financial crises of the last decades. First, financial innovation in most cases is modern alchemy and pretends to being able to create wealth with financial engineering. It can, but only for a short period of time and, more importantly, only for a limited group of people. Financial innovation has not contributed meaningfully to improving conditions for investment and thus not contributed to higher welfare. Moreover, as in particular subprime has demonstrated clearly, the gains of some people in the financial sector accrued prior to the crisis subsequently had to be covered by taxpayers.

Second, the increase of cross-border capital flows since the late 1990s has not contributed to a more sustainable financial system, but has instead opened new avenues for the transmission of financial shocks from one country to another. Compare, say, the Savings & Loans crisis in the 1980s with subprime. Both were the result of ill-constructed financial regulation in the USA, but the effects were extremely different. The S&L crisis was a domestic affair that did not affect the rest of the world in a significant way. Subprime, however, did. The key transmission mechanism was the capital inflows into the USA prior to the 2007/2008 crisis.

Third, attempts to regulate more prudently will always be exposed to powerful campaigns by the financial sector—often supported by academic economists that all too often are personally benefiting from the policy recommendations they give. Time and again, there will be crusades against proposals for tight regulation of the financial sector, and past experience suggests that today's world is no different.

So what are the benefits from a greater segmentation of financial markets as suggested by us? For instance, financial innovation that would have to be explained to a domestic audience would most probably receive less support. Financial institutions that have to explain to a domestic regulator what the benefits of a CDO2—a very exotic instrument that required documentation of one billion (!) pages—would most probably struggle to get their message across (Haldane 2009, p. 16). Using developments in global finance as a means for documenting the importance of financial innovation worked in the past, but departing from a global approach would enable regulators to investigate the pros and cons much more thoroughly. I am suggesting that the regulation of finance ought to be put back into the national polity. Since societies have to bear the consequences of failed regulation of the financial sector, they should be provided with direct ownership of the regulatory process.

In addition, the segmentation of markets from one another would help to contain national financial crises from having contagion effects. A crisis in one country would not have devastating effects on other economies, apart of course from slowing demand from the affected economy. Crisis would of course still occur, but more in isolation and without contagion.

The attempts of the financial sector, or parts of it to be precise, to lower regulatory standards would also be more difficult in a national context. If decision makers will be confronted with the potential fallout of too lax regulation in the domestic political domain, chances are that liberalisation would be implemented more cautiously, if all.

In essence, I emphasize the recommendations of the 2009 Warwick Commission. Their proposal to switch from home-country regulation to host-country regulation has been endorsed by some commentators (e.g. Levinson 2010, p. 87). As long as business cycles are structurally diverging between economies, national approaches to regulation would provide more stability than uniform, global approaches.

My recommendation to improve diversity of regulation has two dimensions. First, in line with the recommendations of the 2009 Warwick Commission on International Financial Reform, I suggest a departure from the principle of home country regulation and the introduction of host country regulation. In essence, this would enable regulators to require both national and international banks to provide local minimum capital requirements for local risks (Warwick Commission 2009, p. 8). This shift to national regulation would make the activities of big international financial firms more difficult and would favour the development of national financial systems. In this regard, I share John Maynard Keynes' observation that "above all, let finance be primarily national" (Keynes 1933, p. 758).

3.3.3 A Step Further: Is a Tax on Cross-Border Flows Essential?

But I am of course aware that any attempt of regulators to implement a host country approach will also be subject to the financial sector attempting to circumvent regulation. Thus, the proposal for host country regulation has to answer the following question: What response are regulators willing to implement if their rules are by-passed? Assume, for example, that in a country the authorities notice a steep increase in real estate prices as well as lending for real estate. If they tighten regulatory standards, this will make borrowing at home less attractive and will entice borrower to turn to foreign lenders. In such a situation, authorities ought to be willing to implement temporary taxes on capital flows, e.g. at the level originally envisaged by James Tobin, i.e. 1 % point. Whilst taxation of cross-border flows may not be necessary outside credit booms, in some cases they appear necessary in order to ensure the stability of the domestic financial system.

Tobin's aim was not the creation of regulatory divergence, but instead the stabilization of exchange rates (Tobin 1978). My goal is somewhat different. Whilst a tax on cross-border flows could potentially stabilize exchange rates, partly because a significant tax would constitute a de facto restriction on capital flows, my main goal is to provide regulatory sovereignty, not stable exchange rates.

Of course, critics will argue that taxes on cross-border flows will make borrowing more expensive. My response is: This indeed is the intention. Given the numerous credit booms that went unchecked in since the liberalisation of finance, I do think it is not necessary to prove the efficacy of more restricted lending practices. After all, credit booms signal quite accurately the advent of financial crises (Schularick/Taylor 2009, p. 26).

Jagdish Bhagwati, a hard-nosed free trader, has suggested long before the most recent crises that unrestricted capital flows contribute to crises.

> But only an untutored economist will argue that … free trade in widgets and life insurance policies is the same as free capital mobility. Capital flows are characterized, as the economic historian Charles Kindleberger … has famously noted, by panics and manias. (Bhagwati 1998, p. 8)

Is there any evidence that restrictions on capital flows would provide greater financial stability? Bordo et al. have examined 21 countries over a 120-year period and have found interesting results.[5] The only period that was characterized by a co-operative international climate (if one ignores the economies of the Warsaw Pact for a moment) and restrictions on capital flows, the era of Bretton Woods, banking crises were almost non-existent. From 1945 to 1971, not a single banking crisis was recorded in any of the 21 countries in the sample (Bordo et al. 2001, p. 59). Currency crisis continued to occur, which is not surprising since fixed exchange rates tend to require adjustment in regular intervals. But for us, the absence of banking crises in the era of Bretton Woods is a feature of finance that should not be dismissed light-heartedly.

A study by Schularick and Taylor further supports my plea for national regulation. They have analysed data for 14 developed economies in the span of 140 years. Following earlier work of Hyman Minsky (1977) and Charles Kindleberger (1978), Schularick and Taylor test whether the financial system is prone to crisis due to endogenous credit bubbles (Schularick/Taylor 2009, p. 3). The pattern is quite known: Phases of greed and euphoria alternate with periods of anxiety and panic. The result of their quantitative analysis is clear: Credit booms matter, and they usually precede financial crises:

> Our key finding is that all forms of the model show that a credit boom over the previous five years is indicative of a heightened risk of a financial crisis. (Schularick/Taylor 2009, p. 20)

It has to be added that many credit booms would not have occurred without substantial capital inflows, as it has been demonstrated above for Spain. These findings have severe repercussions for the evaluation of monetary policy. The mainstream school of thought, primarily, but not exclusively promoted by Alan Greenspan and the American Federal Reserve Bank, has been that monetary

[5]The countries in the sample are Argentina, Australia, Belgium, Brazil, Canada, Chile, Denmark, Finland, France, Germany, Great Britain, Greece, Italy, Japan, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the USA, i.e. the leading economies in that 120 years time span.

policy's exclusive focus should be on price stability and the promotion of economic growth. Financial stability, defined as the absence of unsustainable asset price inflations, was not an issue for the Fed. In the early years of the 21st century, Greenspan defended his deliberate ignorance of asset price inflations in a debate with the European Central Bank's then Chief Economist Otmar Issing (Issing 2003). Greenspan's position, shared by prominent American economists Alan Blinder and Frederic Mishkin, has been labelled the "Jackson Hole Consensus" named after the annual gathering of central bankers and academic economist in Wyoming's Jackson Hole (Issing 2008, p. 3).

Like the dismantling of capital controls, this mainstream position is based on the neo-classical efficient market hypothesis. Efficient markets correctly reflect all available information at the time of pricing the assets, and asset price inflations essentially either do not occur at all—the most radical position—or cannot be addressed by monetary policy at reasonable cost—the more nuanced variety. Of course, a coherent monetary policy would then have to ignore asset markets all together. However, the American approach was regularly asymmetric: Banks and other market participants were bail-out after the event, which did damage market discipline and contributed to weakening risk management in the market (Issing 2008, p. 4).

After the collapse of Lehman Brothers, Otmar Issing underlined his call for intervention by suggesting that "… an impressive number of empirical studies have demonstrated that hardly any asset price bubble has not been accompanied if not preceded by strong growth of credit and/or money" (Issing 2008, p. 6). Prior to the bursting of the US bubble, the then Chief Economist of the Bank for International Settlements, the Canadian William White, raised the same issue in a 2006 BIS working paper.

Assuming that Schularick and Taylor's findings are correct, credit booms and asset price inflations are indeed a second key factor that central banks should pay attention to. Monetary policymaking should consider price stability and financial stability (Schularick/Taylor 2009, p. 26). Central banks could and should no longer pretend that credit booms are a private sector phenomenon that central banks can well and truly ignore.

But what are the consequences for my proposal of a return to national rules in finance? The answer is that central banks can control credit booms at home, but not abroad. Their ability to monitor developments in foreign financial markets is limited. Central banks and national bank supervisors may be able to limit unsustainable asset price inflations and credit booms at home, but they cannot be entrusted with doing the same task in other countries. For instance, would OECD central bankers and banking supervisors capable of deciding whether lending for real estate investment in China would constitute lending into an asset price bubble or aren't they?[6] Almost inevitably, central bankers and national supervisors will be

[6]Of course, China does not permit borrowing abroad, so the case is hypothetical. Today, anecdotal evidence suggests that 34 million dwellings are unoccupied in China and this surely constitutes a real estate bubble. The point is that from London and Frankfurt, an assessment of the sustainability of a boom will always be more difficult than for domestic central bankers and supervisors.

put under pressure by the domestic financial sector to be more generous with international lending operations. Since this could easily lead to future cases of the types of crisis Icelandic style, the segmentation of financial markets is a radical, but the more sustainable policy choice.

3.4 The Utility of Global Rules in Trade

The proposal to abandon the attempts to make finance safer by developing more global rules could be interpreted as a recipe for reversing globalisation—it is not. Rather, I suggest that in the light of my discussion above, there are sufficient reasons for a sharp distinction between global rules in trade and those in finance. I am a staunch advocate of further liberalisation of trade. As Jagdish Bhagwati suggested in 1998, after the Asian crisis, trade in widgets and trade in dollars differ from one another (Bhagwati 1998). In this regard, I differ from John Maynard Keynes approach, who advocated in 1933 "let goods should be homespun whenever it is reasonably and conveniently possible" (Keynes 1933, p. 758).

In contrast to the yet to be measured positive economic effects of unrestricted capital flows, trade economists have shown time and again the benefits of fewer restrictions in trade. Whilst trade may have negative effects for some parts of a country's population, the overall benefits far outweigh the negative dimensions. Trade has enabled countries like China, India and Vietnam to contribute to and benefit from a deeper international division of labour. Hundreds of millions of workers in developing economies have worked their way out of poverty by producing for global markets. At the risk of generalisation, it is fair to say that the worst cases of poverty occur in countries that continue to try to protect their citizens from a more liberal approach to trade. And of course the industrialised societies benefit as well. Consumers would not enjoy the same range of goods and services if there were significantly less trade. Central bankers would have had a much harder job in controlling inflation if China and other emerging economies would not have provided cheap manufactured products. All these are tangible benefits of relatively free trade.

Thus, I argue that in the other domain of global economic relations—as both economic theory and the history of the trade regime tell us—global rules are appropriate and do indeed provide additional benefits to the global economy. It is thus ironic and regrettable that there has been a declining commitment to the norms and practices of the multilateral trading system and a proliferation of bilateral and regional trading arrangements. The World Trade Organisation is in dire straits, primarily because of the unwillingness of the United States of America and other key players to support the conclusion of the Doha Round. Whilst the WTO continues to be attractive for some countries—Yemen has joined as the 160th member in June 2014—the organisation has lost support from its previous core constituency. All OECD-countries are defecting to presumably useful alternatives, i.e. preferential

trade agreements. These agreements, however, are making international trade more complex and will not facilitate deeper international division of labour.[7]

Yet, the tightening of the rules for financial market regulation is not the only field where the G20 is failing. Despite the mantra-like repetition of memoranda of understanding, the trade ministers of the G20 have not been able to surpass their conflicts of interest and reach a settlement in the Doha Round of the World Trade Organization WTO. What are the reasons for this failure?

Although the G20 managed to prevent a revival of protectionist measures on a broad front in the midst of the crisis, there is a large gap between the announcements of the G20 and quantifiable results in trade policy. There is not one final communiqué lacking a clear statement stressing the importance of the World Trade Organization WTO and the necessity to conclude the Doha Round. Nonetheless, the reality of trade policy looks very different. All the states that are preventing the conclusion of the Doha Round through their veto are members of the G20.

Although little information on the reasons for the deadlock in the Doha Round is publicly available, it is known that the USA, Brazil and China are blocking its conclusion. The emerging economies Brazil and China oppose the U.S.'s demand for the complete elimination of tariffs on industrial goods. Conversely, the U.S. resists the request to comprehensively abandon subsidies to the agricultural sector.

Thus, the Doha Round is not concluded because three important members of the G20 no longer believe in multilateral solutions and rather engage in preferential agreements. For experts in the field of international trade, this is a paradox. There is a broad consensus that a single rule book for international trade would facilitate economic growth and contribute to a worldwide increase of prosperity. This, however, cannot be said for the currently so popular free trade agreements. So why are the countries in the G20 incapable of further developing the common rules for international trade?

One explanation is the lack of a hegemonial power, which is willing to guarantee the compliance with the rules of the game, but at the same time also establishes a system that provides the member countries with sufficient economic benefits. In any event, this is how the postwar economy emerged: The U.S. enforced the system of Bretton Woods and made sure that the participation in this economic regime remains attractive. Of course, the Bretton Woods regime never was a truly global system since the member countries of the Council on Mutual Economic Assistance (COMECON) were not participating. Still, within the bipolar order of the Cold War, the U.S. managed to keep the system at the same time open and stable.

After the collapse of the USSR and the following short-lived "unipolar moment" (Charles Krauthammer) of complete hegemony of the U.S., the multilateral order was being developed until 1995, the founding year of the WTO. Since the turn of the millennium and the parallel emergence of a multipolar order,

[7]For a detailed discussion of the motives for and the disadvantages of preferential agreements see the report of the Warwick Commission (2007, pp. 45–53).

nearly all attempts to organize "cooperation without hegemony" (Bob Keohane) have failed. The present multipolar world is characterized by superficial cooperation. Global governance, whether in policies to prevent further climate change or in economic policy, remains on hold. Even worse: The world is returning to regulation on the level of the nation state and non-cooperation. The American political scientist Ian Bremmer refers to the resulting situation as "G-Zero", an era in which groups as the G20 will no longer play a vital role (Bremmer 2012).

Apparently there is no such thing as an identity of interests of individual states as assumed by the advocates of global regulation and global governance. In other words: The gap between the preferences of individual states is increasing rather than narrowing. Governments must, however, respect the preferences of their societies in the formulation of policies if they do not wish to lose legitimacy. Then again, the different preferences of societies are the immediate result of a severely diverging perception of the international division of labour. Even in the G20 the individual societies have very different perceptions of the effects of globalization and its economic effects.

In Europe and the U.S., many people are increasingly critical of the international division of labour, if not outright hostile to globalization. According to a number of surveys, only about one fifth to one third of the respondents in OECD-countries sees greater opportunities than risks in globalization. Even in Germany, numerous politicians and citizens have been expressing a critical perception of globalization, although Germany strongly benefits from open markets and the resulting intensification of international trade.

Global rules in trade continue to be the first-best solution as all acknowledge. The liberal trade regime is not faultless, but on balance, it has helped hundreds of millions of people to leave absolute poverty behind them. The rise of China and other emerging economies would not have been possible that rapidly without a relatively open trade regime. Moreover, the G20 should acknowledge these facts and should no longer permit a few countries—less than five out of a WTO membership of 159—to obstruct the conclusion of Doha.

3.5 Conclusions

The critical perception of globalization and the outlined asymmetric sovereignty result in a standstill in the G20. Instead of a further development of the multilateral order, at best the status quo will be preserved. This is why we can expect nothing substantial, at least in terms of economic policy and financial regulation, from the summit of the G20 in St. Petersburg on September 5 and 6. The structural impediments to successful financial regulation and trade policies on a supranational level cannot be overcome by the heads of government and state of the G20. At least, there is hope in those fields, few as they may be, were the countries of the G20 have identical interests. This applies primarily to measures to close down tax loopholes. In 2008, ambitious expectations of a comprehensive reorganization of

international trade relations through the G20 were raised. Unfortunately, the G20 cannot and will not deliver in crisis prevention. Today, much more modest goals will have to be set. The key impediment for a successful further development of global rules in trade and finance can be found in the G20 societies themselves. The critical perception of globalization needs to be addressed by policy makers at the national level. The widespread reservations on the international division of labor in the OECD countries need to be addressed. If societies continue to show diverging preferences, the development of comprehensive global economic governance in the G20 will be all but impossible.

The G20 has played an important role in managing the last financial crises. It has been a success—as crisis manager. The global economy did not slide into depression, protectionism and political tensions. These are indeed important achievements. Nevertheless, the G20 should do more.

In particular, the G20 should end the destruction of the global trade regime. All big players, including China, have an obligation to keep the WTO at the centre of global trade regulation. Emerging markets, including China, have been constructive members of the WTO. Of course, there have been and will be disputes, but these can be settled within the WTO. The upcoming WTO Ministerial Meeting in Bali will offer an opportunity—probably the last one—for concluding the Doha Round, if in a "Doha Light" version. That opportunity should not be wasted.

Of course, I am aware that a lot of political capital has already been invested in prestigious new projects such as the Transatlantic and the Transpacific Preferential Trade agreements. However, a failure to put the WTO back on the agenda will result in the emergence of competing structures, and this won't be a positive development. Countries that have developed within the governance structures that the USA and, to a degree, European countries shaped after World War II will search for alternatives. The world may indeed slide back into a situation that characterised the 1930s: Preferences, the exclusion of rivals, and international relations that cease to be characterised by co-operation.

In contrast to the current approach of the G-20, I advocate global rules in trade, but national or regional rules in finance. To achieve this goal, the taxation of capital flows could be an instrument in order to provide polities with the necessary 'policy space' in which they can develop tailor-made solutions. The financial sector, supported by academic economists often closely intertwined with Wall Street, will argue that taxing cross-border flows would result in disaster. This is neither new nor a surprise. Bhagwati noted long before subprime and the various crises in Europe:

> And despite the evidence of the inherent risks of free capital flows, the Wall Street-Treasury complex is currently proceeding on the self-serving assumption that the ideal world is indeed one of free capital flows … It is time to shift the burden of proof from those who oppose to those who favour liberated capital. (Bhagwati 1998, p. 12)

At the very least, global rules should not discourage the introduction of additional regulatory measures at the national level. Of course, this proposal has severe drawbacks. One should not be under the illusion as to the limitations of this

approach. Tougher regulation at the national or regional level will also be exposed to intensive lobbying. Players will relocate to less restricted market places. It was ever thus. However, the benefits of a soundly regulated national financial sector outstrip the costs.

References

Aizenman J, Jinjarak Y, Park D (2011) Capital flows and economic growth in the era of financial integration and crisis, 1990–2010. National Bureau of Economic Research, Working Paper 17502, Oct 2011

Bhagwati J (1998) The Capital Myth. The difference between trade in widgets and dollars. Foreign Aff 77(3):7–12 (May/June 1998)

Bordo M, Eichengreen B, Klingebiel D, Martinez-Peria, MS; Rose AK (2001) Is the crisis problem growing more severe? Econ Policy 16(32):53–82 (April 2001)

Bremmer I (2012) Every nation for itself. Winners and losers in a G-zero world. Penguin, London

Brender A, Pisani F (2010) Global imbalances and the collapse of globalised finance. Brussels: centre for european policy studies. http://www.ceps.eu/book/global-imbalances-and-collapse-globalised-finance

Dieter H, Higgott R (2010) Managing global imbalances: Is it time to consider some form of sanctions? VoxEurope e-book, 23 June 2010, pp 197–204. http://www.voxeu.org/reports/global_imbalances.pdf

Eatwell J (1997) International financial liberalization: the impact on world development. UNDP, Discussion Paper Series 12/1997

Haldane A (2009) Rethinking the financial network. Speech by Andrew Haldane to the financial student association, Amsterdam, April 2009. http://www.finextra.com/Finextra-downloads/featuredocs/speech386.pdf

Issing O (2008) Asset prices and monetary policy. In: Cato institute's 26th annual conference, 19 Nov 2008. www.imf.org/external/np/seminars/eng/2011/res/pdf/oi3.pdf

Issing O (2003) Monetary stability, financial stability and the business cycle: five views. Bank for international settlement, BIS Papers, No 18, Sept 2003. www.bis.org/publ/bppdf/bispap18.pdf

Keynes JM (1933) National self-sufficiency. Yale Rev 22(4):755–769

Kindleberger CP (1978) Manias, panics, and crashes: a history of financial crises. John Wiley, Hoboken.

Levinson M (2010) Faulty basel. Why More diplomacy won't keep the financial system safe. Foreign Aff 89(3):76–88

Minsky HP (1977) The financial instability hypothesis: an interpretation of Keynes and alternative to "standard" theory. Nebraska J Econ Bus 16(1):5–16

Mundell R (1963) Capital mobility and stabilization policy under fixed and flexible exchange rates. Can J Econ Polit Sci 29:475–485

Obstfeld M, Shambaugh JC, Taylor, AM (2005) The trilemma in history: tradeoffs among exchange rates, monetary policies, and capital mobility. Rev Econ Stat 87(3):428–438

Reinhart C, Rogoff K (2009) This time is different. Eight centuries of financial folly. Princeton University Press, Princeton

Schularick M, Taylor AM (2009) Credit booms gone bust: monetary policy, leverage cycles and financial crises, 1870–2008. National Bureau of Economic Research, Working Paper 15512, Nov 2009

Stiglitz JE (2013) The free-trade charade. Project Syndicate, 4 July 2013. http://www.project-syndicate.org/commentary/transatlantic-and-transpacific-free-trade-trouble-by-joseph-e–stiglitz

Tobin J (1978) A proposal for international monetary reform. East Econ J 4(3–4):153–159

Warwick Commission (2007) The multilateral trade regime: which way forward? The Report of the First Warwick Commission. Coventry 2007

Warwick Commission (2009) International financial reform: in praise of the unlevel playing field. The report of the second Warwick commission. Coventry 2009

Wood C (1988) Boom and bust. Sidgewick & Jackson, London

Part II
Achieving Global Food Security—How Can the G-20 Help?

Chapter 4
Ensuring Food Security: Challenges and Options

Ashok Gulati and Shweta Saini

The Government of India (GoI) notified the National Food Security Act (NFSA), 2013 on 10th September, 2013, which is understood to have come into force since the 5th July, 2013 (see Sect. 4.1 of The National Food Security Act, GoI, 2013).

The United Progressive Alliance (UPA) government waived this as their flagship program under the "rights based approach" and firmly believed that it will make a major dent in solving the problem of food and nutritional security of the Indian population. The Act combines and expands some existing food-based welfare schemes and a conditional cash transfer scheme, meant for pregnant women, under the ambit of NFSA. Both in terms of the size of commitment and the depth of coverage, the existing system of Targeted Public Distribution System (TPDS) comprises of the largest component of NFSA, 2013. The Act is likely to be the biggest ever program aimed at reaching more than 800 million people (67 % of India's population) and distributing more than 60 million tonnes of highly subsidized grains (with almost 90 % subsidy). Several experts, however, have expressed strong apprehensions whether this program can deliver the promises made, given numerous operational challenges and financial implications it will have.

It is against this backdrop, it may be worthwhile to closely look at the various provisions this NFSA entails, the challenges it is likely to face, and what could be alternative options that may help achieve the same ends at much lower cost and with much less distortions to agri-markets, than has been envisioned in the Act.

A. Gulati (✉) · S. Saini
ICRIER, New Delhi, India
e-mail: agulati@icrier.res.in

S. Saini
e-mail: ssaini@icrier.res.in

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_4

4.1 The NFSA and Its Key Provisions

The key feature of the NFSA, 2013 is that it adopts a 'life cycle' approach embedded in a 'rights based entitlement' framework. It makes provisions for subsidized distribution of 5 kg of grains per person per month (basically rice/wheat/coarse cereal) at Rs. 3/2/1 per kg to 67 % of population (75 % rural and 50 % urban). The Antyodaya (or AAY or poorest-of-poor) beneficiaries and their entitlements of 35 kg/family/month (implying 7 kg/person/month) have been retained as under the TPDS.

The issue prices of cereals mentioned above, are to remain frozen for 3 years going forward. Besides this highly subsidized grain distribution, the Act also envisions providing free meals to children within the age group of 6 months–6 years, and to pregnant and lactating mothers, at the anganwadis, besides giving a cash transfer of not less than Rs. 6000 to pregnant women as maternity benefits. The students in the age-group of 6–14 years will be provided free mid-day meals in their schools. As per the calculations of the government in 2013, this will entail distributing about 61.2 million tonnes of cereals, and a food subsidy of about Rs. 125,000 crores.

As per the Act document, the 35 (and now 36) Indian States/UTs were given 365 days (revised upwards from 180 days earlier given as per the National Food Security Bill, 2011) after the Act's commencement on 5th July, 2013, to identify eligible households as per the guidelines framed under the Act. The States were to update their lists of eligible households and place the list in public domain within this stipulated time. For implementation by States, the Centre has defined a nine-point action plan for ensuring a smooth TPDS functioning. These nine points study the status of implementation of various features of TPDS, like computerization of TPDS operations, review of lists of beneficiaries, ensuring door step delivery of grains, taking action against the guilty charged for leakages under TPDS etc. The Socio-Economic and Caste Census, 2011 (SECC), undertaken by the Centre forms the basis of beneficiary identification by States/UTs and by the present status, the draft list of household information is ready only for 18 of the 35 States, and only 11 states have reported to start implementation of NFSA by March 2014. With the present state of unpreparedness by the Indian States/UTs and the delay in SECC results, there appears a higher likelihood of many States defaulting on the 365 day deadline.

The big question to debate is: will this type of Act, with its envisioned size and structure, banish hunger and malnutrition say in the next 5–10 years? Or will it continue for the next 20–30 years? What will be the implications of this in terms of fiscal expenditures involved, market distortions it will cause, and overall efficiency losses and welfare gains in managing India's biggest ever food security complex?

4.2 Challenges to NFSA, 2013

In order to respond to these questions, few facts may be noted:

(a) That the average per capita consumption of cereals in India is 10.6 kg/per month as per 2011 NSSO consumption survey. So, with a 5 kgs/per person per month allocation under NFSA, poor consumers will still have to face the markets for a little more than half of their cereal consumption. The problem becomes acute when government procures and stores large quantities of grains, much more in excess of its needs for PDS system, the open market runs dry and cereal prices rise driving up the food inflation in the market, as has been the case during 2012–14. The net result of this is that while on one hand, government wants to give cheap food to 67 % population, on the other, inadvertently, it takes away part of this 'welfare benefit' through higher open market prices.

(b) Under normal circumstances, most farming families, on an average, retain about one-third of cereal production for self consumption at home. Smaller holdings generally hold a larger percentage for self-consumption. But now with NFSA covering 75 % of rural population, majority of whom would be small and marginal farmers, they would expect the government to give them at least half of their cereal needs at highly subsidized prices. This is leading to a peculiar situation: the small and marginal farmers are bringing larger percentage of their production to the government for procurement, and then expect the same to be given back to them at Rs. 3/2 kg. This implies unnecessary overloading of the system, which is already creaking due to shortage of logistics and good storage facilities. Further, the cost of handling grains by the government are much higher than those handled by the markets. All this can be avoided, if farming families are supported through some other alternative routes.

(c) The NFSA relies on the existing PDS for delivery of highly subsidized foodgrains to people. But the PDS suffers from large leakages, amounting to about 40 %. In states like Bihar, the leakages are as high as 71 % in 2009, as calculated from NSSO data. Although NFSA talks of computerizing the entire PDS, from end to end, set-up Vigilance Committees, undertake social audits, etc., to plug these leakages, there is very little progress in that direction especially in states like Bihar and Uttar Pradesh, which suffer badly from this problem. Could there be some other alternative ways to help the poor, without much leakages, is the moot question.

(d) The current system of production and procurement of foodgrains, on which NFSA relies for its ambitious objectives, is quite volatile and unpredictable. Indian agriculture is still largely rain-fed, and it experiences drought almost every 4–5 years. Climate change is indicating that the frequency and intensity of such droughts and extreme weather events is going to increase. Under such circumstances, production and procurement can fluctuate widely. Take, for instance, the case of 2002–03 drought when foodgrain production

dropped by 38 million tonnes over last year. Where would India go to buy 38 million tonnes of grains to keep its PDS running at full steam? The NFSA has a provision of force majeure, meaning thereby that the government may not be responsible to give food when such extreme events of Nature occur. The point is when the people need support most during droughts, the government may absolve from its responsibility. Then what is the point of having such a legal Act? In case of procurement, even as late as 2013–14 wheat marketing season, the government first had a target of procuring 44 million tonnes on April 1st, 2013, which was scaled down to 38 million tonnes after a month, but the real procurement was only 25 million tonnes. With such uncertain production and procurement pathways, how can one be sure of delivering a legally committed 61.2 mt of foodgrains every year through PDS, which in any case is highly leaky, and solve the problem of hunger and malnutrition?

(e) There is also an issue of those states that have been distributing highly subsidized food to even a larger percentage of population of their states. For example, some States like Tamil Nadu, which has universal coverage, and Chhattisgarh with 90 % coverage of their populations thus extend their coverage beyond the Centre's TPDS. They have been supplying rice at a price even lower than what is envisaged under NFSA, 2013. The Centre has agreed to give such States an extra, but temporary, allocation of grains based on last few years' data, at a price to be decided later. This puts the onus of distributing not only 61.2 mt of foodgrains by the Centre, but a little more, may be even up to 65 mt. In order to do this in a sustainable manner, in the face of fluctuating production and procurement as explained above, government will have to keep large buffer stocks (strategic reserves of say 10–15 mt) to take care of any such exigency. This will lead to increasing government intervention in grain markets, procuring 65–75 mt of foodgrains, greater controls on the operation of free grain markets, which will all push up the costs of operation, and may be even rent seeking. Is this the direction in which India wants to tread when it is talking of liberalization in all other sectors? Or there could be some other options, which are more efficient and better aligned to market forces?

(f) Another problem of larger government procurement and stocking of grains is that it will slow down the process of natural diversification of agriculture in line with the changing demand patterns in favour of high value products. A few states, like Punjab, Haryana, Andhra Pradesh, and now even Chhattisgarh and Madhya Pradesh, which have built strong procurement machinery, and without whose help the Centre cannot run its NFSA, can start putting more taxes and commissions on procurement of grains by the Centre. Given that these taxes etc. are within the jurisdiction of the states, the Centre cannot do much in this regard. Already, for example, Punjab, Andhra, and Haryana charge exorbitant taxes and fees, which go as high as 14.5 % in Punjab. These taxes can go further up as Centre locks itself in NFSA, and the states find it easier to 'milk the Centre', all in the name of food

security for the poor. This will lead to blowing up the food subsidy bill very soon, and making the whole process financially very inefficient and almost unsustainable.

(g) Further, while the direct financial cost of NFSA is counted at around Rs. 125,000 crores, as per Ministry of Food's internal calculations, the NFSA clearly states in its Annexure that this does not include the costs of stabilizing production which will be incurred by the Ministry of Agriculture, or costs of building logistics (railways don't have excess capacity to carry the grain), or storage, etc., which will be incurred by corresponding Ministries. As per the discussion paper of CACP on this issue, a rough cost estimate works out to be Rs. 200,000 crores, if one has to stabilize foodgrain production and create good quality logistics and other infrastructure to ensure regular and smooth supplies of grains to PDS without much risk.

(h) Lastly, it must be recognized that the problem of malnutrition is multidimensional, and it cannot be solved by just giving 5 kg of grains on per person per month basis. Global and Indian research has revealed that at least three factors are critical to control malnutrition amongst children: (a) nutritious food; (b) access to better sanitation and hygiene, especially safe drinking water and toilets; (c) better female education. Without making a dent on these three factors, the problem of malnutrition is likely to stay with us for a long time.

These are broadly the key challenges to NFSA. What could be alternative options, which are better and can accomplish the same objectives at a lower cost, with lesser distortion to markets, and are aligned to overall liberalization of the economy?

4.3 Options and the Way Forward

In essence, what NFSA is trying to achieve is an equity objective (extending economic access to food for the poor) by using a price policy instrument, instead of an income policy instrument. Fundamental principles of policy making suggest that price policy is for achieving efficiency in allocation of resources while income policy should be targeted to achieve equity objectives. But if one tries to achieve equity through price policy (highly subsidized grains), there is a high probability that it will fail to deliver on the promises made, or will deliver at a huge cost, which may not be worth the price because the efficiency losses may exceed welfare gains that it is trying to achieve.

The big question remains: how can one achieve economic access to food more efficiently? The answer lies in substituting the present system of state agencies physically distributing grains with conditional cash transfers based on the platform created by the Aadhar Unique Identity scheme. As this system would require fingerprints of all those drawing benefits from the government and would deposit the cash directly in their accounts, the leakages would reduce dramatically.

But then the same technology can be used to do the physical distribution of grains to plug leakages. However, the difference between cash transfers and grain distribution is that in case of cash transfers, high costs of taxes, fees, and costs of operation of FCI and other state agencies, etc. all can be bypassed. Also, there will not be any interference with grain markets.

Besides it being the best international practise, the conditional cash transfer (CCT) scheme would also imply greater efficiency of the domestic grain market by reducing the government's intervention levels. This also gives the consumers greater autonomy in deciding their diet plans. The success of the CCT scheme is well demonstrated by studies on Brazil, Mexico and many other countries. Lately, even Pakistan has dismantled its fair price shops and moved on to income support to the poor under its Benazir Bhutto Income Support Programme in 2008. Even the NFSA 2013 has a caveat of substituting physical grains with cash but it can happen only in times of "non-supply of entitled quantities".

We feel that such an option should be given at all times, to all the identified beneficiaries of many welfare schemes; the technology from the UID could provide the perfect platform to give people the option to choose from cash or grains. It is not too late for India to switch to this system. India could introduce cash transfers in at least 53 cities with populations greater than one million and then extend the system to farmers, giving an option to deficit States to receive payments in cash or physical quantities. However for those identified tribal or remote areas, which still would require a physical distribution of grain, the existing process of schemes could be continued.

The government would need to keep critical reserves of only 15–20 million tonnes against any possible drought- much less than the 80 million tonnes it had in hand in July 2012. This would help reduce and stabilize prices of staples in the open market. Moving to cash transfers would also allow the natural process of diversification towards high-value products, augment farmers' incomes, and allow consumers to eat more nutritious food, a win-win situation for both the government and the consumers.

Whether India can make this transition and save on massive resources for better use will have to be seen. Estimates show that at least 30–40 % of the present food subsidy can be saved, which can either be diverted into irrigation investments in the rural economy to stabilize production, or create better sanitation facilities to check malnutrition, or can also be given to poor people by augmenting income support.

Chapter 5
Implications of India's National Food Security Act

Reetika Khera

5.1 Introduction

The National Food Security Act (NFSA) was passed in the Lok Sabha on 26 August, 2013 and by the Rajya Sabha on 2 September, 2013. The debate on the NFSA tended to be exclusively focussed on the Public Distribution System (PDS) though, in fact, the new law attempts to take a "life-cycle approach" to food security. It includes the Integrated Child Development Services (ICDS) scheme which is aimed at children under the age of 6 years, the Mid-Day Meal (MDM) Scheme for school-going children in the 6–14 years age group and maternity entitlements for pregnant women, along with the PDS. Under the PDS, two-thirds of the population will be covered—75 % in rural areas and 50 % in urban areas.

This short paper aims to address five common misconceptions regarding the NFSA. The public debate that preceded and followed its enactment tended to be either devoid of facts or, at times, misrepresented them. The second section focuses on the performance of the PDS on a key indicator: "leakages" from the system. We find that there has been a reduction in leakages from over 60 % in 2004–5 to less than 40 % in 2011–12 at the all India level. Meanwhile, some states witnessed a substantial improvement: e.g., in Chhattisgarh leakages fell from over 50 % to less than 10 %; in Odisha from around 75 % to under 30 %. What is interesting is that these are states that are not generally associated with strong administrative capacity.

R. Khera (✉)
IIT, Delhi, India
e-mail: reetika@hss.iitd.ac.in

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_5

5.2 Can the National Food Security Act Do Anything About Under-Nutrition?

Many commentators believe that the NFSA cannot do much to reduce under-nutrition, as it only provides cheap cereals. This is because of the overwhelming focus on the Public Distribution System (PDS) in public debate. In fact, even the limited interventions that are part of the NFSA (i.e., maternity entitlements, ICDS and MDM) are important for the following reasons. First, the NFSA includes maternity entitlements (Rs. 6000 per pregnancy for women) which could go a long way in ensuring better nutrition in utero. Two, it includes supplementary nutrition for children under six through the Integrated Child Development Services (ICDS) scheme, including children in the 0–3 year age group, a crucial period for battling under-nutrition. Finally, even the PDS (which will be expanded to include 75 and 50 % in rural and urban areas respectively) can contribute to better nutrition. There is a provision to supply more nutritious grain (e.g., millets and maize) instead of wheat and rice. Some states (Andhra Pradesh, Chhattisgarh, Himachal Pradesh, and Tamil Nadu) already provide nutritious commodities such as pulses and oil, and the NFSA may prompt others to follow. Further, households may use the "implicit transfer" from buying cereals at cheap prices to diversify diets and buy more nutritious food items (Drèze and Khera 2013). What remains true is that the NFSA is only a step ahead, and much more will need to be done to reduce rates of under-nutrition. This includes providing access to safe drinking water, better sanitation and health facilities, etc.

Before moving on, it is worth reminding ourselves that even the pursuit of food security, as opposed to nutritional security is a worthwhile goal. Though some estimates suggest that the proportion of the population reporting hunger is very small (e.g., 2 % according to recent National Sample Survey data), others suggest that the numbers may be higher. Moreover, even if NSS estimates are accepted, it would translate into an unacceptably large number of people. Further, the proportion of those who are vulnerable to hunger remains high in India. This is because casual employment in the informal sector remains high in India. A family with a working adult may be fine, but a small illness or inability to get work for a day or two can push the family into a dire situation.

5.3 Is the NFSA Affordable?

Another concern has been the financial cost of the Act. According to the 2012–13 budget, the combined expenditure on the PDS, ICDS and MDM was Rs. 1.2 lakh crores. The food subsidy is Rs. 90,000 crores and is estimated to go up, approximately by Rs. 30,000 crores, to Rs. 1.2 lakh crores—i.e., around 1.2 % of GDP. Estimates such as "3 % of GDP" and "Rs. 6 lakh crores over 3 years" are exaggerations.[1] (Somewhat unusually, the latter estimate is presented aggregated over

[1]See Gulati and Gujral (2011).

3 years, whereas the convention is to present them "per year".) Note also that the food subsidy is a combination of support to farmers and the consumer subsidy.

The next question is whether we can afford Rs. 1.5 lakh crores for the NFSA. Though the NFSA is not inexpensive, it is also useful to put the cost in context: in 2012–13, tax revenues foregone amount to more than Rs. 5 lakh crores and the increase in the food subsidy (Rs. 30,000 crores) is less than the subsidy given to the gold and diamond industry (Rs. 60,000 crores).[2] Currently, the fuel subsidy is higher (Rs. 96,880 crores) than the food subsidy (Rs. 90,000 crores) and fertilizer subsidy is of similar magnitude (Rs. 65,974 crores). It is also reasonably well accepted that the fuel and fertilizer subsidy do not go to the poorest. Clearly, some fiscal space does exist. Viewed in this manner, the affordability of the food bill is ultimately a question of political commitment and priorities.

5.4 Is the NFSA "Anti-farmer"?

At the time of the debate on the NFSA, some political parties refused to support the Bill on the grounds that it is "anti-farmer" and will adversely impact agriculture.[3] Currently, the government commits 58 mt of grain to the PDS, ICDS and MDM. This will increase by 5 mt, to 63 mt with the NFSA. The government procures about 30 % of total production (Table 1.17, Economic Survey 2012–13) and only needs to continue to do so. The remaining 70 % of grain trade in wheat and paddy in the private market will remain unaffected even after the NFSA is implemented. Neither overall requirement nor the share of public procurement in total production change. Consequently, the claim that India will become dependent on imports and that the NFSA will lead to higher prices for non-beneficiary households is baseless (see Singh 2011).

In fact, government procurement through the Food Corporation of India (FCI) is welcomed by farmers as it enhances their choices—to sell in the private market or to FCI. Without FCI, farmers would have no option but to sell to private traders. Some argue that the NFSA will further burden Punjab and Haryana's agricultural sector. Again, the facts tell a different story: procurement has become more decentralized since 2004–5 and the combined share of non-traditional states (Andhra Pradesh, Chhattisgarh and Odisha) in paddy procurement has risen to 33–45 %. Others feel that if grain is provided at Rs. 1–3/kg, those farmers who produce for self-consumption will stop doing so. So far, Chhattisgarh's experience with decentralized procurement and an expanded PDS does not corroborate this.

[2]See Table 9 of the Tax Revenue Foregone statement in the budget.

[3]One political party labelled the NFSB as "anti-farmer". When a senior spokesperson was asked to explain how in a televised debate, the only response he could manage was "we will explain in Parliament"!.

Finally, the Bill contains a provision for including millets and maize, so that there is scope for diversification of cropping patterns. That the agricultural sector needs urgent attention and reform is not in dispute, but the NFSA does not hinder that process.

5.5 Can the Foodgrain Requirement of the NFSA Be Met?

The fourth question that is often raised is with respect to the increase in foodgrain procurement and distribution resulting from the enactment of the law. As explained above, the foodgrain requirement of the NFSA is around 63 mt, just 5 mt more than the current commitment to the same programmes (see Fig. 1). Many believe that the NFSA entails a big expansion of procurement. This is not true. The reason why more people can be covered with the same foodgrain requirement is that a very large share of the grain currently is allocated through the APL, "ad hoc" and "special ad hoc" quotas. And the allocations (and off-take) under these quotas have been rising because the government has too much grain. Because these quotas are not regular allocations (explained below), in some states, it gets misused.

Another widespread concern is related to India's obligations to the World Trade Organization (WTO), under its Agreement on Agriculture (AOA). As Narayanan (2014) points out, existing provisions under the AOA can accommodate current levels of procurement and price support. Further, India may not require to negotiate special protection.

5.6 Should We Continue with a Public Distribution System That Is Known to Be "Leaky"?

The NFSA will deliver grain and other commodities through the PDS. Over the years, the PDS acquired the reputation for being very "leaky". In 2011–12, the latest year for which estimates are available, leakage from the PDS was just under 40 % (Himanshu and Sen 2013). What is also worth noting is that between 2004–5 and 2011–12, overall leakage has declined by nearly 15 percentage points. Table 1 provides leakage figures at the all India and state level for the thick rounds of the NSS—1999–2000, 2004–5, 2009–10 and 2011–12. Though this is hardly acceptable, some states have shown remarkable improvement. Between 2004–5 and 2011–12, in Chhattisgarh leakages are down to 10 % (from 50 %) and in Odisha to 20 % (from 75 %). The experiences of these two states are of particular interest because these are states did not have the reputation of being especially committed to social programmes or enjoying the political will to make such programmes work. The reforms that facilitated this quick turnaround include moves towards

universalization, increase in implicit subsidy, diversification of PDS commodities on the one hand, and the use of technology (e.g., computerization of the entire system), door-step delivery, strengthening grievance redressal mechanisms, etc.[4] What is significant is that many of these reforms have been made mandatory under the NFSA.

It is necessary to say a few words on those states where the leakage rates are above the all India average. Even in these states (e.g. in Uttar Pradesh leakages were just under 60 % in 2009–10), the BPL and AAY households seems to get their share. In a survey of BPL and AAY households in 2011, respondents in UP reported getting 77–88 % of their entitlements (see Khera 2011a, b).

One of the reasons for the lack of substantial improvement in leakages at the all India level is the growing share of APL grain in total allocation to, and offtake by, the states. In 2004–5, APL offtake was one-fifth of total offtake of grain from the central pool. By 2011–12, the share of APL grain alone stood at 37 %. Including offtake from "ad hoc allocations", the figure rises to 45 %. Allocations under these two quotas (APL and "ad hoc") have been on the rise in recent years due to the storage problems associated with the large stocks with the government.

This additional offtake by the states is used differently across the country. Between 2000–2008, the central issue price (the price at which the central government sells grain to the state government) of APL wheat and rice (Rs. 8–10/kg) were close to the market price. Neither APL card holders nor state governments were interested in this grain. Over time, the APL cardholders stopped getting grain, and the ration card became not a "ration" card, but a "mitti ka tel" (kerosene) card. Around 2008–9, market prices of grain nearly doubled (approximately Rs. 15–20/kg). Meanwhile, issue price for APL grain remained unchanged, so that even APL grain became subsidized. The increased offtake under the APL and "special ad hoc" quota in the past four years (ranging between 35–45 % of total offtake) reflects renewed state interest in this quota. Many states use it to expand coverage (e.g., Tamil Nadu), but in others (like UP and Madhya Pradesh), APL card holders are unaware of their entitlements are and many PDS dealers do not know that APL grain is being lifted. The lack of clarity and transparency in the APL and ad hoc quota has opened the door to corruption.

As mentioned above, in 2011–12, the share of APL grain in total allocation stood at 37 %, and including ad hoc allocations, this rises to 47 %. Thus, nearly half of all PDS grain was flowing through the non-transparent APL channel in 2011–12 and 2012–13 (45 %).

As the NFSA rolls out, many APL card holders will become "entitled" households with clear entitlements (25 kg per month at Rs. 1–2–3/kg). Grain flowing through the leaky APL pipe will be channelled through a transparent BPL-AAY pipe, with significantly lower cheating. This has already begun to happen some states (e.g., Bihar).

[4]For a detailed discussion see Drèze and Khera (2010).

More recent evidence from Bihar and Madhya Pradesh, both high leakage states, has shown that the rollout of the NFSA can indeed improve the implementation of the PDS (see Drèze et al. 2015 and Drèze and Khera 2015).

The National Food Security Act 2013 cannot by itself deal with the problem of under-nutrition in the country, but it can make an important contribution and can certain end the problem of living with hunger. There are many more interventions which could have been included, e.g., community kitchens for destitute persons as well as provision of more nutritious food items such as pulses and edible oil. Some aspects which need more research, e.g., what macro-economic implications does the twin intervention of decentralized procurement and a more broad-based PDS have on production of wheat and rice, cropping patterns, and so on. Nevertheless, the NFSA 2013 is a great opportunity to complete the transition towards a functional and inclusive PDS across the country, and put an end to food insecurity.

References

Drèze J, Khera R (2010) Chhattisgarh shows the way. The Hindu, 4 November

Drèze J, Khera R (2013) Rural Poverty and the Public Distribution System. Econ Polit Wkly 48(45, 46), 16 November

Drèze J, Khera R (2015) Thought for Food. Outlook, 21 August

Drèze J, Khera R, Pudussery J (2015) Food Security, Bihar on the Move. Econ Polit Wkly 50(34)

Gulati A, Gujral J (2011) Food Security Bill: Can we afford Rs. 6 lakh cr food subsidy in 3 years. Econ Times, 17 December

Himanshu, Sen A (2013) In-kind food transfers—I: impact on poverty. Econ Polit Wkly 48(45, 46):46–54

Khera R (2011a) Revival of the public distribution system, Evidence and explanations. Econ Polit Wkly

Khera R (2011b) Trends in diversion of grain from the public distribution system. Econ Polit Wkly 46(26)

Narayanan S (2014) The National Food Security Act vis-a-vis the WTO Agreement on Agriculture. Econ Polit Wkly 49(5), 1 February

Singh A (2011) Food Security Bill: Good Politics to Deliver Bad Economics. Deccan Herald, 23 December

Chapter 6
Determinants of Food Security in Sub-Saharan Africa, South Asia and Latin America

Simrit Kaur and Harpreet Kaur

6.1 Introduction

Providing food and nutrition security to the poor and most vulnerable has become a challenge in the face of surging food prices and frequent shocks on account of storms and drought in various parts of the world. Compared to recent past, cereal prices have increased the most amongst all food commodities and are expected to remain high particularly in import-dependent developing countries (Willenbockel 2011). Rising prices have also been accompanied by a rise in food price volatility, that are expected to persist in the future on account of output fluctuations in major food producing countries and a sharp run down of food stocks (FAO 2011). Households that are unable to cope find themselves more deeply entrenched in poverty, facing malnutrition and hunger (Ivanic et al. 2011; HLPE 2011).

As per the Economist Intelligence Units (EIU's) Global Food Security Index (GFSI 2012) report, Sub-Saharan Africa is the most undernourished, malnourished and food insecure region in the world, followed by South Asia (Chart 6.1). Prevalence of underweight children (below 5) is also high in countries of Sub-Saharan Africa and South Asia.

According to the Global Hunger Index report (2013), world hunger even today remains "serious," with 19 countries suffering from levels of hunger that are either "alarming" or "extremely alarming". Though the Global Hunger Index (GHI) has been falling, the global averages mask dramatic differences among regions and

S. Kaur (✉)
Professor of Public Policy, Faculty of Management Studies, University of Delhi, New Delhi, India
e-mail: kaur.simrit@gmail.com

H. Kaur
Sri Guru Gobind Singh College of Commerce, University of Delhi, New Delhi, India

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_6

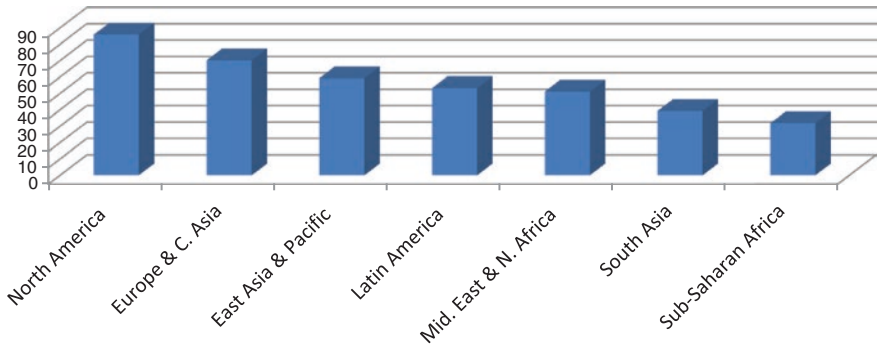

Chart 6.1 Food Security Index in Regions of the World (score out of 100). *Source* The Economists GFSI (2012) Report

countries. For instance, while in Sub-Saharan Africa, the 2013 GHI score is 23 % lower than in 1990, the decline is as high as 34 % in South Asia. Progress in East and Southeast Asia and Latin America and the Caribbean has been even more remarkable, with the GHI scores falling by 52 and 50 % respectively.

Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (World Food Summit 1996). From this definition, four main dimensions of food security can be identified:

- *Physical availability of food*: It addresses the "supply side" of food security and is determined by the level of food production, stock levels and net trade. Over the last two decades, food supplies have grown faster than the population in developing countries, resulting in rising food availability per person. Dietary energy supplies have also risen faster than average dietary energy requirements, resulting in higher levels of energy adequacy in most developing regions, except Western Asia. Average dietary energy supply adequacy (defined as dietary energy supply as a percentage of the average dietary energy requirement) has risen by almost 10 % over the last two decades in developing regions as a whole. Additionally, the quality of diets has also improved globally. This is reflected, for instance, in the decline in the share of dietary energy derived from cereals and roots and tubers in most regions. Only Africa and Southern Asia did not benefit fully from these improvements; diets in these regions remain imbalanced and heavily dependent on cereals and roots and tubers.
- *Economic and physical access to food*: Physical availability of food does not automatically imply access to food. Concerns about insufficient food access have resulted in a greater policy focus on incomes, expenditure, markets and prices in achieving food security objectives. The ability to access food rests on two pillars: economic and physical access. Economic access is determined by disposable income, food prices and the provision of and access to social support. The domestic food price index, defined as the ratio of food purchasing power parity (PPP) to general PPP, captures the cost of food relative to total consumption. Physical access is determined by the availability and quality of infrastructure.

- *Food utilization*: It is commonly understood as the way the body makes the most of various nutrients in the food. Combined with good biological utilization of food consumed, this determines the nutritional status of individuals. Food utilization includes two distinct dimensions. The first is captured by anthropometric indicators affected by undernutrition that are widely available for children under 5 years of age. These include wasting (being too thin for one's height), stunting (being too short for one's age) and underweight (being too thin for one's age). The second dimension is captured by a number of determinants or input indicators that reflect food quality and preparations, health and hygiene conditions, determining how effectively available food can be utilized. In addition to several other factors, food utilization is also influenced by the way in which the food is handled, prepared and stored. Access to clean water is crucial to preparation of hygienic food and maintaining a healthy body. While by 2010, the MDG target of halving the proportion of the population without sustainable access to safe drinking water and basic sanitation has already been reached at the global level (from 24 to 12 %), however, the progress has been uneven across regions and limited in Sub-Saharan Africa. Recent data suggests that only 61 % of the population in Sub-Saharan Africa has access to improved water supply, compared with 90 % in Latin America and most of Asia. Similar disparities are found within countries and, in particular, between urban and rural areas.
- *Stability of the other three dimensions over time*: Even if one's food intake is adequate today, one could still be considered food insecure if there is inadequate access to food on a regular basis, risking a deterioration of one's nutritional status. Adverse weather conditions, political instability, or economic factors (unemployment, rising food prices) may have an impact on one's food security status. Two types of indicators have been identified to measure the extent and exposure to risk. First includes the area equipped for irrigation, which provides a measure of the extent of exposure to climatic shocks such as droughts; and the share of food imports in total merchandise exports, which captures the adequacy of foreign exchange reserves to pay for food imports. The second group of indicators captures risks or shocks that directly affect food security, such as swings in food and input prices, production and supply. Together with swings in prices, food supplies have seen larger-than-normal variability in recent years. However, there is also evidence that production variability is lower than price variability, and that consumption variability is smaller than both production and price variability. Among the main regions, Africa and Latin America have experienced the widest fluctuation in food supply since 1990, while variability has been smaller in Asia.

For food security objectives to be realized, all four dimensions must be fulfilled simultaneously. When analyzing food insecurity, it is important to know how intense or severe the impact is on the overall food security and nutrition status. This knowledge helps to identify the nature, extent and urgency of the assistance that may be required for the household afflicted with food insecurity. While this may be measured by different indicators or benchmarks, common among such indicators are the proportion of the population that is undernourished (the

proportion of the population whose dietary energy consumption measured in kilocalories required to conduct sedentary or light activities is less than a pre-determined threshold). The undernourished are also referred to as suffering from food deprivation. The severity of undernourishment indicates, for the food deprived, the extent to which dietary energy consumption falls below the pre-determined threshold. This is also referred to as the 'Depth of Food Deficit'. Recent studies show that economic growth alone will not take care of the problem of food insecurity. What is needed is a combination of:

- Income growth; supported by
- Direct nutrition interventions; and
- Investment in health, water and education.

The present paper has 4 sections. Section 6.1 discusses the various dimensions of food insecurity in the context of availability, access, utilization and stability. In Sect. 6.2, food (in)security trends in Sub-Saharan Africa, Latin America and South Asia are provided. Aspects such as food consumption pattern, depth of food deficit, prevalence of undernourishment and progress towards meeting Millennium Development Goals are analyzed here. The basic objective of Sect. 6.3 is to econometrically test the significance of various determinants of food insecurity. As measures of food insecurity, we consider two dependent variables, viz: prevalence of undernourishment, and the depth of food deficit. The correlates of food insecurity analyzed are: average value of food production as a proxy for food availability; per capita GDP (levels or growth), food inflation (or its volatility) as a measure of economic accessibility; rail and road density as a proxy for physical accessibility to food; access to water as a proxy for food utilization; and food import as a percentage of total merchandize exports as a measure to capture the stability/vulnerability aspect of food insecurity. Econometric results indicate that while regional variations do exist, nevertheless, broad conclusions can be drawn in terms of determinants of food security. Given that access to healthy food is a basic human right, steps need to be taken to build resilience of the poor. It is in this context that the paper concludes from a broad policy perspective.

6.2 Food (in)Security Trends: South Asia, Sub-Saharan Africa and Latin America

Food insecurity and price instability affect hunger and malnutrition and challenge our efforts to achieve the World Food Summit (WFS)[1] and Millennium Development Goals (MDGs)[2] of reducing the number and proportion of people

[1]World Food Summit goal: halve, between 1990–92 and 2015, the number of undernourished people.

[2]Millennium Development Goal 1, target 1C: halve, between 1990 and 2015, the proportion of people who suffer from hunger.

who suffer from hunger by half by 2015. Nevertheless, developing regions as a whole have registered significant progress towards the MDG hunger target. If the average annual decline since 1990 continues, the prevalence of undernourishment will reach a level close to the 2015 target (FAO 2013) though meeting it would require additional efforts. In Table 6.1, we report the progress made by different regions of the world in meeting the targets as set under the WFS and the MDGs. Africa remains the region with the highest prevalence of undernourishment, with around one in four people estimated to be undernourished. Levels and trends in undernourishment differ within the continent. While Sub-Saharan Africa has the highest prevalence of undernourishment; there has been some improvement over the last two decades, with the prevalence of undernourishment declining from 32.7 to 24.8 %. Overall, the region is not on track to achieve the MDG hunger target, reflecting too little progress.[3] In Asia, both the number and proportion of people undernourished have decreased significantly in most of its countries, particularly in South-Eastern Asia. However, progress in Southern Asia has been slower, especially in terms of the number of people undernourished. In Latin America, the MDG target has already been reached.

While at the global level there has been an overall reduction in the number of undernourished between 1990–92 and 2011–13, different rates of progress across regions have led to changes in the distribution of undernourished people in the world. Most of the world's undernourished people are still to be found in Southern Asia, followed by Sub-Saharan Africa. The regional share has declined most in Eastern Asia and South-Eastern Asia, and to a lesser extent in Latin America and the Caribbean. Meanwhile, the share has increased in Southern Asia, in Sub-Saharan Africa and in Western Asia and Northern Africa.

In Figure 6.2, we plot the relationship between the depth of food deficit and GDP per capita (as measured in constant 2005 USD) for three regions, viz. Sub-Saharan Africa, Latin America and South Asia. For comparison, the same relationship is also plotted on average for the entire world. For the period 2010–12, the depth of the food deficit in terms of kcal per capita per day is highest in Sub-Saharan Africa, followed by South Asia, and Latin America (205, 127 and 54 kcal/caput/day, respectively). Despite all regions having made a progress in reducing the depth of food deficit since 1990–92, the indicators remain regional or national averages, and thus do not capture pockets of food insecurity and vulnerability that occur at the sub-regional or sub-national level. Therefore, as an illustrative case, in Fig. 6.1b, we construct the relationship between the depth of food deficit and GDP per capita for five countries of South Asia, viz. India, Bangladesh, Sri Lanka, Nepal and Pakistan.

[3]However, this may be contrasted with efforts made by some of the African countries which have done extremely well in meeting these targets. For instance, Ghana, Malawi, Ethiopia, Mali, Niger and Nigeria achieved these targets by 2008.

Table 6.1 Prevalence of undernourishment and progress towards the World Food Summit (WFS) and the Millennium Development Goal (MDG) targets

Region/country	Number of undernourished (Million)		Change so far (%)	Progress towards WFS targets	Proportion of undernourished (%)		Change so far (%)	Progress towards MDG targets
	1990–02	2011–13			1990–02	2011–13		
Developing regions	995.5	826.6	−17.0	Number reduced by more than 5 %	23.6	14.3	−39.3	Progress insufficient to meet target
Sub-Saharan Africa	173.1	222.7	28.7	Number increased by more than 5 %	32.7	24.8	−24.2	Progress insufficient to meet target
L. America	57.4	39.8	−30.6	Number reduced by more than 5 %	13.8	7.1	−48.5	Target expected to be met
Asia[a]	751.3	552.0	−26.5	Number reduced by more than 5 %	24.1	13.5	−44.1	Progress insufficient to meet target
South Asia	314.3	294.7	−6.2	Number reduced by more than 5 %	20	15	−27	Progress insufficient to meet target

Source FAO (2013), The State of Food Insecurity in the World: The Multiple Dimensions of Food Security

[a]In Asia, only east Asia is likely to meet the MDG targets

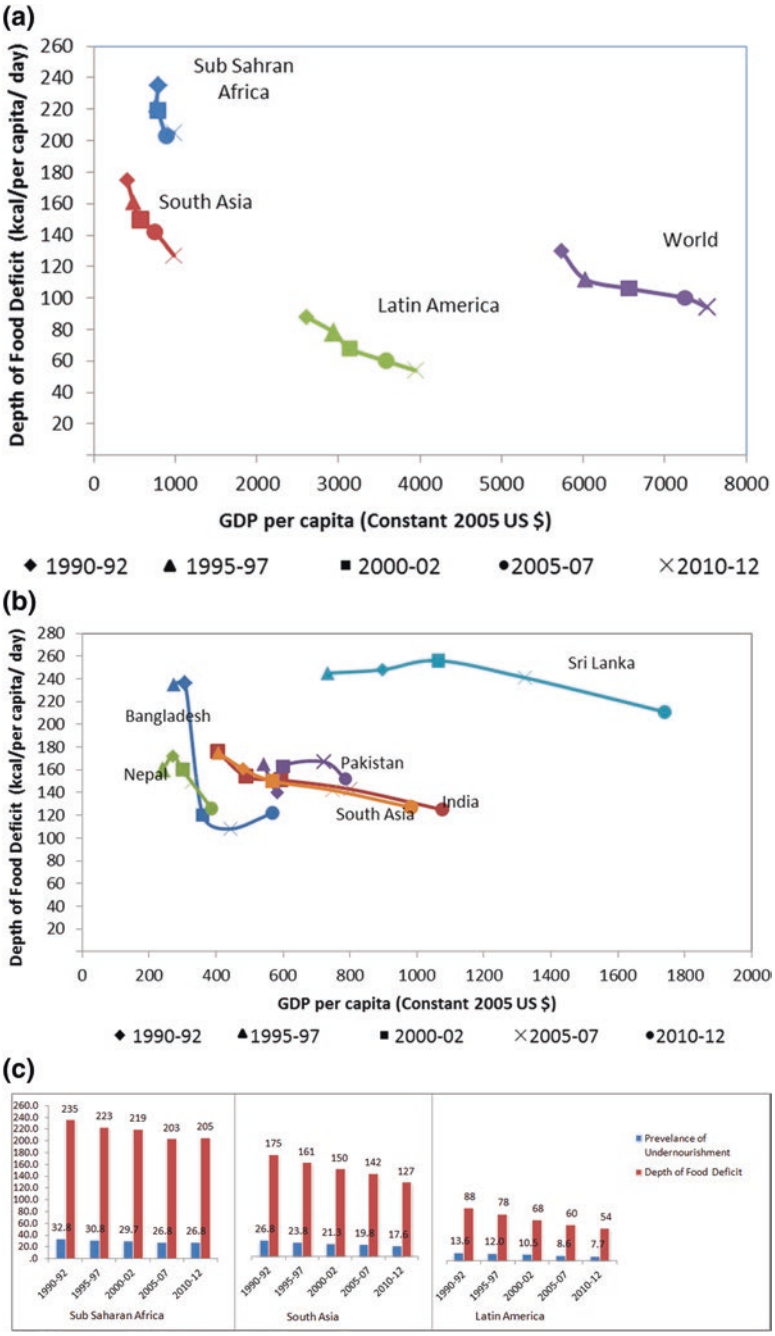

Fig. 6.1 Depth of food deficit and the prevalence of undernourishment. *Source* Based on data from FAO (2013) and WDI (2013). *Note* For Fig. 6.1c the vertical axis measures the Prevalence of Undernourishment (in percentage) and the Depth of Food Deficit (in kcal/per capita/day)

Based on Fig. 6.1a–c, few observations are made:

- Increases in real per capita incomes between 1990 and 2012 have resulted in a decrease in the depth of food deficit.
- The decline in the depth of food deficit is sharper in Sub-Saharan Africa and South Asia, than in Latin America. Figure 6.1 also shows that the decline in the depth of food deficit is greater at lower levels of income. In other words, it indicates that the impact of additional income is greater at lower levels of income (since the slope of the line is steeper).
- With similar per capita GDPs in South Asia and Sub-Saharan Africa over the period 1990–2012, the depth of food deficit remains higher in the latter.
- Figure 6.1b highlights the intra-regional differences within South Asia. It illustrates that within South Asia, Bangladesh has seen the steepest decline in its depth of food deficit, despite only a marginal increase in its per capita GDP. On the other hand, Sri Lanka has experienced the largest increase in its per capita GDP, with a not so large decline in its depth of food deficit. Also, the depth of food deficit remains highest for Sri Lanka.
- With respect to prevalence of undernourishment, in Sub-Saharan Africa the percentage of undernourished population fell from 32.8 to 26.8 over the period 1990–92 to 2010–12. For South Asia the corresponding decline has been from 26.8 to 17.6 over the same period. For Latin America, the decline has been from 13.6 % in 1990–92 to 7.6 % in 2010–12 (Refer Fig. 6.1c).

We now discuss the state of Food Insecurity in select countries of South Asia, Latin America and Sub-Saharan Africa based on Global Food Security Index Report (GFSI 2012, 2013).[4] As stated, food security is defined as the state in

[4]The Global Food Security Index (GFSI) is a comprehensive assessment of the drivers of food security. The index analyses the issue across three internationally designated dimensions: affordability, availability and utilization-the last of which the Economist Intelligence Unit calls "quality and safety". The three issues of food security are addressed for a set of 105 countries, constructed from 25 unique indicators. It is a dynamic, qualitative, and quantitative benchmarking model, which adjusts for the monthly impact of global food prices. Three category scores are calculated from the weighted mean of underlying indicators and scaled from 0 to 100, where 100 represents most favourable. The overall score for the GFSI (from 0 to 100) is calculated from a simple weighted average of the category and indicator scores. The category weights are: 40, 44 and 16 % respectively for affordability, availability and quality and safety. The indicator scores are normalised and then aggregated across categories to enable a comparison of broader concepts across countries. The indicators where a higher value indicates a more favourable environment for food security-such as gross domestic product per capita or average food supply-have been normalised on the basis of:

$$x = (x - \text{Min}(x))/(\text{Max}(x) - \text{Min}(x))$$

where Min(x) and Max(x) are respectively, the lowest and highest values, in the 105 economies for any given indicator. The normalised value is then transformed from a 0–1 value to a 0–100 score to make it directly comparable with other indicators. Data for the quantitative indicators are drawn from national and international statistical sources. However, some qualitative indicators have been created by the EIU specifically for this index, based on information from development banks, government websites, and range of surveys.

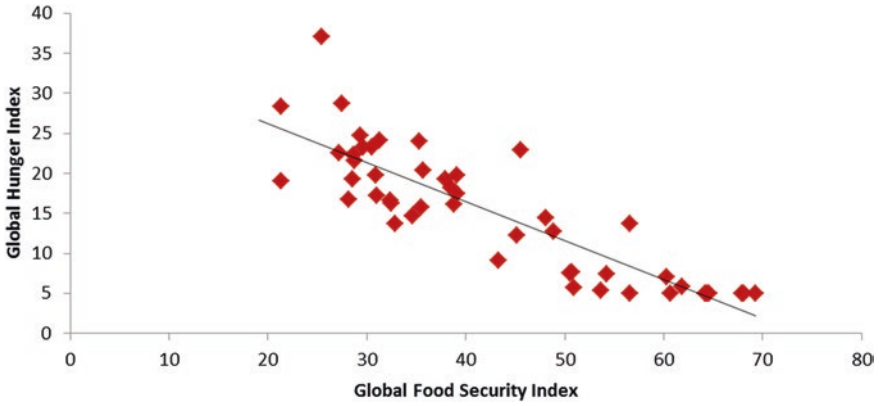

Fig. 6.2 Inverse Relation between Global Hunger Index and Global Food Security Index. *Source* Based on data from IFPRI's Global Hunger Index and The Economists Global Food Security Index Report

which people at all times have physical, social, and economic access to sufficient and nutritious food that meets their dietary needs for a healthy and active life. Using this definition adapted from the 1996 World Food Summit, the Global Food Security Index considers the core issues of affordability, availability and utilization. *Affordability* measures the ability of consumers to purchase food, their vulnerability to price shocks, and the presence of programmes and policies to support consumers when shocks occur. *Availability* measures the sufficiency of the national food supply, the risk of supply disruption, national capacity to disseminate food, and research efforts to expand agricultural output. *Utilization as measured by Quality and Safety* is estimated by looking at the variety and nutritional quality of average diets, as well as, the safety of food. Figure 6.2 plots the Global Hunger Index and the Global Food Security Index. As expected, an inverse relationship is noted between the two, implying that countries with high food security tend to have low hunger index and vice versa. This highlights the importance of addressing hunger in providing food security.

Addressing food insecurity through the categories of 'affordability', 'availability' and 'quality and safety' (with respective weights as 40, 44 and 16 %), we study the food insecurity indicators for select countries from the three regions. Data reveals that, in general, the two representative countries of Latin America, viz: Argentina and Brazil are better performers in all the three categories of 'affordability', 'availability' and 'quality and safety' as compared to India (from South Asia) and Ghana and Nigeria (from Sub-Saharan Africa). Affordability is the most serious concern in Nigeria, followed by Ghana and India (refer to Fig. 6.3). In terms of availability, though Nigeria is yet again at the lowest end, its variation from other countries is not too high.

The indicators for each of the sub-components of 'affordability', 'availability' and 'quality and safety' are discussed next (refer to Table 6.2).

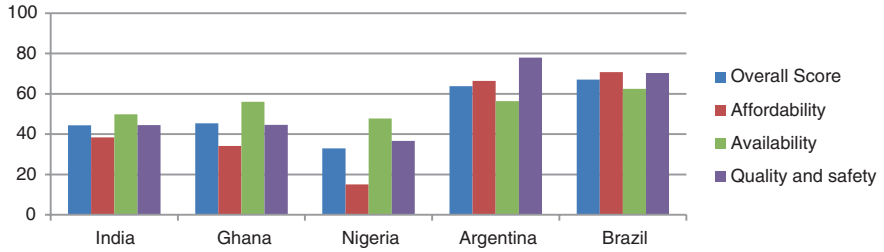

Fig. 6.3 Food Insecurity in select countries of South Asia, Latin America and Sub-Saharan Africa: affordability, availability and utilization. *Source* The Economists GFSI (2013) Report

Affordability This is based on components such as GDP per capita, food consumption as a per cent of household expenditure, percentage of population below the poverty line, access to financing for farmers and presence of food safety net programs. In Nigeria, more than 64 % of total expenditure is on food making the country extremely vulnerable to rising food prices. On the other hand, in Argentina and Brazil, the share of monthly per capita expenditure on food is relatively much lower at 33 and 20 % respectively. In terms of percentage of population living below the poverty line, while Nigeria on the one hand has as many as 85 % of its population with less than USD 2 per day, Argentina on the other hand has less than 2 % of its population below the poverty line. In India, this figure is close to 70 %. Food safety net programmes[5] measure the public initiatives to protect the poor from food related shocks. The GFSI (2013) report categorizes India's and Argentina's food safety nets as having a national coverage, with very broad, though not deep coverage of these programs (rating of 3 out of 4). For Ghana, the corresponding rating is at 2. Rating of 2 implies that Ghana has a moderate prevalence and depth of food safety net programs run by the government, multilaterals, or NGOs. Brazil and Nigeria are at the two extreme ends: Brazil with a rating of 'four on four' and Nigeria with a 'zero on four'.

Availability This is based on components such as average food supply (kcal/capita/day), public expenditure on agricultural R&D and volatility of agricultural production. In terms of average food supply, Brazil tops the list (3173 kcal/capita/day), while Ghana and Argentina come next (2934 and 2918 kcal/capita/day respectively). Surprisingly, Ghana which ranks the lowest in terms of GFSI amongst the five selected countries has a relatively favourable average supply of food per person (2711 kcal/capita/day). India ranks the lowest with the corresponding figure at 2321. Volatility of agricultural production has been estimated to be the same in all the five countries. In terms of expenditure on agricultural

[5]Presence of food safety net programs is a qualitative indicator that measures public initiatives to protect the poor from food-related shocks. This indicator considers food safety net programs, including in-kind food transfers, conditional cash transfers (i.e. food vouchers), and the existence of school feeding programs by the government, NGO, or multilateral sector. It takes a value between 0 and 4.

Table 6.2 Food security indicators and sub-components of affordability, availability and utilization in select countries of the regions

	India	Ghana	Nigeria	Argentina	Brazil
Overall score	44.4	45.4	33	63.8	67
(1) *Affordability* (*Weight* 40 %)	38.4	34.2	15.1	66.4	70.7
(1.1) Food consumption as % of household expenditure	49.5	51	64.7	33.4	19.8
(1.2) % of population under global poverty line ($2/day)	68.7	51.8	84.5	1.9	10.8
(1.3) Gross domestic product per capita (PPP)	3,910	3,200	1,920	18,080	12,100
(1.4) Agricultural import tariffs	31.4	17.5	15.5	10.4	10.3
(1.5) Presence of food safety net programs (0–4)	3	2	0	3	4
(1.6) Access to financing for farmers (0–4)	3	1	1	3	3
(2) *Availability* (*Weight* 44 %)	49.8	56	47.8	56.4	62.5
(2.1.1) Average food supply (kcal/capita/day)	2,321	2,934	2,711	2,918	3,173
(2.1.2) Dependency on chronic food aid	1	1	2	2	2
(2.2) Public expenditure on agri R&D (% of agri GDP)	1	2	1	3	4
(2.4) Volatility of agricultural production (std. Dev)	0.1	0.1	0.1	0.1	0.1
(2.5) Political stability risk	25	45	65	55	25
(3) *Quality and safety* (*Weight* 16 %)	44.5	44.6	36.7	77.9	70.3
(3.1) Diet diversification %	38	33	36	67	64
(3.4) Protein quality	37.6	42.4	35.9	95	87
(3.5.1) Agency to ensure the safety and health of food	1	1	1	1	1
(3.5.2) % of population with access to potable water	92	86	58	97	98
(3.5.3) Presence of formal grocery sector	1	1	0	2	2
(4) *Background variables*					
(4.1) Prevalence of undernourishment	17.5	5	8.5	5	6.9
(4.2.1) Percentage of children stunted	47.9	28.6	41	8.2	7.1
(4.2.2) Percentage of children underweight	43.5	14.3	26.7	2.3	2.2
(4.3) Intensity of food deprivation kcal/person/day	125	19	50	26	55
(4.4) Human Development Index (0–100)	0.6	0.6	0.5	0.8	0.7
(4.5) EIU Women's Economic Opportunity Index (1–100); 100 most favourable for Women	43.8	42.6	34.6	58.5	61.1
(4.6) EIU Democracy Index (1–10); 10 most democratic	7.5	6	3.8	6.8	7.1

Source The Economist GFSI (2013) Report

Research and Development as a per cent of GDP, Brazil and Argentina are at the top (4 and 3 % respectively), Ghana is next (2 %), followed by India and Nigeria (1 % each).

Quality and Safety This is based on components such as diet diversification, intake of protein, safety and health of food, and percentage of population with access to potable water. Diet diversification is highest in Argentina, followed by Brazil. India, Ghana and Nigeria have much lower levels of diet diversification. A similar ranking is observed with respect to protein intake.

6.3 Correlates of Food Insecurity: Econometric Analysis

The basic objective of this section is to analyze the correlates of food insecurity in South Asia (SA), Sub-Saharan Africa (SSA), and Latin America (LA). As measures of food insecurity, we consider two dependent variables, viz: prevalence of undernourishment, and the depth of food deficit. Depth of food deficit indicates how many calories would be needed to lift the undernourished from their present status, everything else being constant. To analyze the determinants of food insecurity, we consider the average value of food production as a proxy for food availability; per capita GDP (levels or growth), and food inflation (or its volatility) as a measure of economic accessibility; rail and road density as a proxy for physical accessibility to food; access to water as a proxy for food utilization; and food import as a percentage of total merchandize exports as a measure to capture the stability/vulnerability aspect of food insecurity.

Specifically, food insecurity is posited to depend on:

$$UnderN_{i,t} = \alpha_0 + \beta_1 FoodP_{avi,t-1} + \beta_2 GDP/\Delta GDP_{pci,t-1} + \beta_3 \Delta FPI/Volatility_i + \beta_5 RoadD_{i.t} + \beta_6 Water_{i.t} + \beta_7 FoodM/TotX_{i.t} + \varepsilon_{i.t} \quad (6.1)$$

$$Food_{Deficit_{i,t}} = \alpha_0 + \beta_1 FoodP_{avi,t-1} + \beta_2 GDP/\Delta GDP_{pci,t-1} + \beta_3 \Delta FPI/Volatility_{i,t} + \beta_4 RailD_{i,t} + \beta_5 RoadD_{i,t} + \beta_6 Water_{Accessi,t} + \beta_7 FoodM/TotX_{i,t} + \varepsilon_{i,t} \quad (6.2)$$

where:

- UnderN is the prevalence of undernourishment in country i. It is the proportion of the population estimated to be at risk of caloric inadequacy.
- $\text{Food}_{\text{Deficit}}$ represents the depth of food deficit.
- FoodP_{av} is the average value of food production of country i, in International Dollars divided by the total population.
- GDP_{pc} is the Gross Domestic Product per capita measured in constant 2005 USD. Regressions have been run for levels of GDP, as well as, its growth rates.
- ΔFPI is the change in Domestic Food Price Level Index, which is calculated by dividing the Food Purchasing Power Parity (FPPP) by the General PPP, thus

providing an index of the price of food in the country relative to the price of the generic consumption basket. It is a measure of food inflation. Additionally, we also run regressions with volatility of food prices as a correlate of food insecurity.
- RailD is a measure of rail lines density and RoadD is a measure of road density.
- $\text{Water}_{\text{Access}}$ refers to the access to an improved water source.
- Food M/Tot X refers to the value of food imports of a country expressed as a percentage of total merchandise exports.
- 'i' and 't' subscripts represent country and time respectively, and the error term is omitted, and
- All variables are in logarithms.

The data has been sourced primarily from FAO's Food Security Indicators, 2012 and the World Bank's World Development Indicators, 2012. Panel regressions using the fixed effects model (as suggested by the Hausman test); have been run for 4 countries of South Asia, 38 countries of Sub-Saharan Africa, and 11 countries of Latin America (refer Appendix Tables 6.7 and 6.8 for detailed list of 'variables with definitions' and 'countries'). In addition, a pooled regression for the three regions has also been estimated. Regressions have been run on 3 year averages from 1990–1992 to 2010–12. The results are reported in Tables 6.3, 6.4 and 6.5. Table 6.3 reports results with GDP per capita and Change in FPI as determinants of food insecurity for SA, SSA, LA and overall pooled data. Table 6.4 reports results with GDP per capita and volatility in food prices as determinants of food insecurity. Table 6.5 reports results with GDP growth rates and volatility in food prices as determinants of food insecurity. Additionally, Appendix Table 6.6 reports results with GDP growth rates and change in FPI as determinants of food insecurity.

Based on our econometric results, following conclusions emerge:

- *Average Value of Food Production*: In general, prevalence of undernourishment, as well as, the depth of food deficit declines significantly with an increase in agricultural production for all three regional groupings. The only exception is Latin America, where though an increase in the value of food production has been estimated to decrease prevalence of under-nutrition, nevertheless the depth of food deficit has been estimated to increase significantly with food production (Table 6.3). With volatility of food prices as one of the correlates of food insecurity, similar results hold for overall pooled regression, and the specific regions. The only exception being Latin America. Here, average value of food production index has been estimated to have a non-significant impact on extent of undernourishment, and depth of food deficit (Tables 6.4 and 6.5).
- *GDP Per Capita and its Growth Rate*: Increases in GDP per capita have been estimated to reduce the prevalence of under-nutrition significantly for all three regional groupings. However, its impact on the depth of food deficit is significant in only Sub-Saharan Africa. While the depth of food deficit is estimated to decline with an increase in GDP per capita for South Asia and Latin America as well, the impact remains non-significant (Table 6.3). With respect

Table 6.3 Regression estimates for determinants of food insecurity in South Asia, Sub-Saharan Africa and Latin America

	South Asia		Sub-Saharan Africa		Latin America		Pooled	
	UnderN	$Food_{Deficit}$	UnderN	$Food_{Deficit}$	UnderN	$Food_{Deficit}$	UnderN	$Food_{Deficit}$
$FoodP_{av(t-1)}$	−0.864	−1.182**	−0.553***	−0.746***	−0.738*	3.600**	−0.781***	−1.172***
	(−1.51)	(−2.01)	(−3.50)	(−4.42)	(−2.04)	−2.52	(−6.47)	(−4.03)
$GDP_{pc(t-1)}$	−1.156**	−0.799	−1.027***	−1.175***	−0.437*	−0.36	−0.350***	−0.198
	(−2.16)	(−1.46)	(−5.21)	(−5.64)	(−1.71)	(−0.31)	(−3.86)	(−0.93)
ΔFPI	3.162*	3.379*	0.345***	0.367***	0.197	−5.367**	0.331***	0.304
	−1.84	−1.92	−4.34	−4.32	−0.49	(−2.29)	−4.03	−1.52
RailD	−1.526**	−2.764***	−0.425***	−0.488***	−0.155***	−0.435	−0.163***	−0.207*
	(−2.46)	(−4.34)	(−3.67)	(−3.97)	(−4.10)	(−1.67)	(−3.24)	(−1.70)
RoadD	0.159	0.0941	−0.335***	−0.419***	−0.415***	0.946	−0.286***	−0.509***
	−0.9	−0.52	(−5.09)	(−6.27)	(−2.99)	−1.14	(−4.69)	(−3.63)
$Water_{Access}$	2.263*	2.058	−0.320**	−0.331**	2.573	−43.48***	−0.169	−0.253
	−1.75	−1.55	(−2.62)	(−2.53)	−1.25	(−7.40)	(−1.41)	(−0.87)
Food M/Tot X	−0.0099	−0.0768	−0.0363	−0.0157	−0.0235	−1.103***	−0.0763	−0.0064
	(−0.13)	(−0.96)	(−0.91)	(−0.37)	(−0.34)	(−2.79)	(−2.24)	(−0.08)
Constant	4.861	8.121	14.13	18.12	−0.377	181.2	10.89	14.42
N	72	72	152	161	38	62	262	295

t statistics in parentheses
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

Table 6.4 Regression estimates for determinants of food insecurity in South Asia, Sub-Saharan Africa and Latin America (with GDP Per Capita and Volatility of Food Prices as one of the determinants)

	South Asia		Sub-Saharan Africa		Latin America		Pooled	
	UnderN	$Food_{Deficit}$	UnderN	$Food_{Deficit}$	UnderN	$Food_{Deficit}$	UnderN	$Food_{Deficit}$
$FoodP_{av(t-1)}$	-1.896^{***} (−4.97)	-2.204^{***} (−5.17)	-0.459^{***} (−4.79)	-0.637^{***} (−5.83)	0.331 (1.29)	1.827 (1.78)	-0.507^{***} (−6.46)	-0.848^{***} (−5.35)
$GDP_{pc(t-1)}$	0.448 (1.37)	0.715^{*} (1.96)	-0.437^{***} (−5.11)	-0.456^{***} (−4.67)	−0.300 (−1.44)	-1.590^{**} (−2.26)	-0.303^{***} (−4.81)	-0.385^{***} (−3.06)
FPI $Volatility_{t-1}$	−0.0114 (−0.37)	−0.0280 (−0.81)	−0.0166 (−1.03)	−0.0219 (−1.19)	0.143^{***} (4.18)	0.581^{***} (4.69)	0.0141 (1.07)	0.0758^{***} (2.85)
RoadD	-0.228^{**} (−2.58)	−0.156 (−1.58)	-0.314^{***} (−6.45)	-0.406^{***} (−7.57)	-0.377^{**} (−2.47)	-1.045^{*} (−1.74)	-0.277^{***} (−6.43)	-0.332^{***} (−3.87)
$Water_{Access}$	−1.246 (−1.44)	−1.462 (−1.51)	-0.728^{***} (−6.67)	-0.714^{***} (−5.75)	−0.00707 (−0.02)	-3.572^{**} (−2.70)	-0.669^{***} (−7.00)	-0.657^{***} (−3.36)
Food M/ TotX	−0.0352 (−0.68)	−0.0921 (−1.58)	-0.080^{***} (−3.80)	-0.0783^{**} (−3.25)	0.100^{**} (2.03)	−0.215 (−1.21)	-0.0664^{***} (−3.83)	-0.084^{**} (−2.43)
Constant	16.14	18.81	12.18	15.24	3.443	23.27	11.30	15.34
N	74	74	345	353	91	125	510	552

t statistics in parentheses
$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table 6.5 Determinants of food insecurity-regression estimates for South Asia, Sub Saharan Africa and Latin America (with GDP Growth and Volatility of Food Prices as one of the determinants)

	South Asia		Sub-Saharan Africa		Latin America		Pooled	
	UnderN	$Food_{Deficit}$	UnderN	$Food_{Deficit}$	UnderN	$Food_{Deficit}$	UnderN	$Food_{Deficit}$
$FoodP_{av(t-1)}$	-1.433^{***} (−6.90)	-1.538^{***} (−6.56)	-0.480^{***} (−4.82)	-0.660^{***} (−5.84)	0.140 (0.61)	0.656 (0.73)	-0.552^{***} (−6.92)	-0.924^{***} (−5.84)
$GDP_{pc\_}rog^{7}{}_{(t-1)}$	−0.0783 (−0.07)	0.766 (0.65)	−0.0531 (−0.20)	0.0476 (0.16)	0.620 (1.25)	−1.077 (−0.58)	−0.0222 (−0.09)	−0.0347 (−0.07)
FPI $Volatility_{t-1}$	−0.00669 (−0.21)	−0.0128 (−0.35)	−0.0150 (−0.90)	−0.0201 (−1.06)	0.143^{***} (4.15)	0.630^{***} (4.98)	0.0150 (1.11)	0.0794^{***} (2.96)
RoadD	-0.219^{**} (−2.43)	−0.134 (−1.32)	-0.325^{***} (−6.39)	-0.424^{***} (−7.62)	-0.512^{***} (−3.89)	-1.527^{**} (−2.67)	-0.316^{***} (−7.26)	-0.379^{***} (−4.43)
$Water_{Access}$	−0.127 (−0.40)	0.250 (0.70)	-0.977^{***} (−9.56)	-0.977^{***} (−8.43)	0.127 (0.38)	-3.081^{**} (−2.32)	-0.822^{***} (−8.87)	-0.850^{***} (−4.54)
Food M/ TotX	−0.0559 (−1.02)	-0.108^{*} (−1.74)	−0.0321 (−1.57)	−0.0261 (−1.13)	0.0892^{*} (1.84)	-0.335^{*} (−1.94)	-0.0399^{*} (−2.30)	−0.0523 (−1.54)
Constant	11.75	12.36	10.36	13.35	1.925	16.28	10.17	13.94
N	74	74	344	352	91	125	509	551

t statistics in parentheses
$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$
It represents growth rate of GDP per capita

to GDP growth rates, its impact on under-nutrition and the depth of food deficit remains non-significant for all regional groupings (refer to Table 6.4). However, as reported in Appendix Table 6.6, Latin America is an exception since higher GDP growth rates have been estimated to reduce the depth of food deficit significantly for this region.

- *Inflation*: Higher inflation, as expected, has been estimated to increase the extent of under-nutrition, as well as, the depth of food deficit in most of the cases. Further, this impact is most significant for countries of Sub-Saharan Africa, followed by South Asia. Incidentally, for Latin America, while higher inflation does not impact under-nutrition, it does decrease the depth of food deficit significantly (Table 6.3). Also, as reported in Tables 6.4 and 6.5, the volatility in food prices has been estimated to have a significant adverse effect in this region (for both undernourishment, as well as, the depth of food deficit). On the other hand, volatility of food prices does not impact food security in regions of South Asia and Sub-Saharan Africa, while inflation per se does have an adverse impact.
- *Rail and Road Density*: Physical infrastructure, as captured by rail and road density reduces both under-nutrition and the depth of food deficit significantly in Sub-Saharan Africa. For Latin American countries, while infrastructure impacts under-nutrition, it does not impact the depth of food deficit. For South Asia, while rail density reduces both under-nutrition and depth of food deficit, road density has been estimated to have a non-significant impact on both the output variables. For the pooled regression, infrastructure has been estimated to reduce both under-nutrition and the depth of food deficit significantly (Table 6.3).
- *Access to Improved Water*: Access to improved water reduces both under-nutrition and the depth of food deficit significantly in Sub-Saharan Africa. However, for Latin American countries, while it reduces the depth of food deficit significantly, it has a non-significant effect on prevalence of under-nutrition (Table 6.3). For countries of South Asia, while access to improved water does not impact the depth of food deficit, its impact on under-nutrition too, in general, remains non-significant across model specifications (Tables 6.3, 6.4 and Appendix Table 6.6).
- *Value of Food Imports Over Total Merchandise Exports*: The share of food imports in total merchandise exports captures the adequacy of foreign exchange reserves to pay for food imports. It thus captures the vulnerability of a country to pay for food imports. In general, this variable has been estimated to have a non-significant impact on under nutrition and the depth of food deficit in specification represented in Table 6.3. Across other specifications, its impact, where significant remains ambiguous (negative for SSA and either positive or negative for LA).

6.4 Conclusion and Policy Implications

Despite a fall in prevalence of hunger in recent years, a total of 842 million people in 2011–13, or around one in eight people in the world, still remain chronically hungry, not getting enough food to conduct an active life on a regular basis. Also, despite overall progress, marked differences across regions persist. Sub-Saharan Africa remains the region with the highest prevalence of undernourishment, with modest progress in recent years, while Southern Asia has shown slow progress. On the other hand, significant reductions in both the number of people who are undernourished and the prevalence of undernourishment have occurred in most countries of Latin America. Differences in GDP growth rates, political and institutional stability, incentives to raise agricultural productivity and overall economic development have often been cited as the main reasons for hunger trends varying across regions.

To put the analysis in perspective, our econometric estimates indicate that while regional variations do exist, nevertheless, broadly the following can be observed: increases in GDP per capita, improvement in rail and road infrastructure; increase in food production; and access to better drinking water reduce both under-nutrition, and the depth of food deficit. GDP growth rates have been estimated to impact the depth of food deficit the most in Latin America. Further, as expected, food inflation and food price volatility have been estimated to increase food insecurity significantly. Also, while food price inflation impacts food insecurity more in SSA and SA, it is the food price volatility that is more of a concern in LA. With respect to infrastructure, both rail and road density impact food security rather strongly for countries of SSA, as compared to SA and LA.

Given that access to healthy food is a basic human right, it is critical that organizations-both domestic and international- take steps to build resilience of the poor. It is also important for the world community to understand that many of the shocks and stresses to which poor and hungry people are exposed are caused by the actions of more affluent regions and countries. Thus, all economies-rich and poor-must act together and assume responsibility to reduce risk and build resilience to food and nutrition insecurity. To address aspects of food insecurity, domestic measures such as enhancing agricultural production and productivity; improving physical infrastructure; and providing adequate safety nets need to be undertaken. Globally, in addition to other measures, countries and institutions need to adopt an appropriate biofuel policy, as also maintain adequate food stocks.[6]

Appendix

See Tables 6.6, 6.7, 6.8.

[6]For details, refer to Chap. 7 by Simrit Kaur and Harpreet Kaur in the existing edition of the book.

Table 6.6 Determinants of Food Insecurity-Regression Estimates for South Asia, Sub-Saharan Africa and Latin America (with GDP Growth and Food Inflation as one of the determinants)

	South Asia		Sub-Saharan Africa		Latin America		Pooled	
	UnderN	$Food_{Deficit}$	UnderN	$Food_{Deficit}$	UnderN	$Food_{Deficit}$	UnderN	$Food_{Deficit}$
$FoodPav_{(t-1)}$	-1.825^{***}	-1.807^{***}	-0.626^{***}	-0.885^{***}	-1.125^{**}	3.709^{***}	-0.889^{***}	-1.199^{***}
	(-6.99)	(-6.96)	(-3.54)	(-4.60)	(-3.54)	(3.42)	(-7.74)	(-4.23)
$\Delta\ GDPpc_{(t-1)}$	-1.198	-0.708	-0.742	-0.531	0.250	-6.811^{**}	-0.973^{**}	-1.262
	(-0.63)	(-0.38)	(-1.36)	(-0.90)	(0.38)	(-2.12)	(-2.07)	(-1.14)
ΔFPI	2.461	3.273	0.227^{**}	0.259^{***}	0.277	-5.861^{**}	0.203^{**}	0.193
	(1.22)	(1.63)	(2.61)	(2.73)	(0.63)	(-2.58)	(2.44)	(0.93)
RailD	-2.118^{***}	-3.330^{***}	-0.301^{**}	-0.347^{**}	-0.130^{**}	-0.474^{*}	-0.162^{**}	-0.212^{*}
	(-3.40)	(-5.38)	(-2.40)	(-2.54)	(-3.35)	(-1.97)	(-3.23)	(-1.70)
RoadD	-0.0506	-0.0531	-0.336^{***}	-0.470^{***}	-0.526^{**}	1.200	-0.341^{***}	-0.503^{***}
	(-0.28)	(-0.30)	(-4.53)	(-6.23)	(-3.63)	(1.38)	(-5.60)	(-3.46)
$Water_{Access}$	-0.379	0.128	-0.885^{***}	-0.881^{***}	3.162	-48.35^{***}	-0.570^{**}	-0.629
	(-0.98)	(0.33)	(-4.01)	(-3.64)	(1.34)	(-8.64)	(-3.25)	(-1.44)
Food M/ Tot X	-0.0391	-0.116	-0.0435	-0.0196	-0.0261	-1.295^{***}	-0.0944^{**}	-0.0424
	(-0.43)	(-1.29)	(-1.03)	(-0.43)	(-0.32)	(-3.38)	(-2.72)	(-0.50)
Constant	15.13^{***}	15.63^{***}	10.20^{***}	13.51^{***}	-4.073	199.3^{***}	10.97^{***}	14.87^{***}
N	68	68	143	152	35	58	246	278

t/z statistics in parentheses
$^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table 6.7 Variables and their definitions

Variable	Definition
UnderN	Prevalence of undernourishment is the proportion of the population estimated to be at risk of caloric inadequacy. The indicator is calculated on 3 year averages
$Food_{Deficit}$	Depth of Food Deficit indicates how many calories would be needed to lift the undernourished from their status, everything else being constant. The average intensity of food deprivation of the undernourished, estimated as the difference between the average dietary energy requirement and the average dietary energy consumption of the undernourished population (food-deprived), is multiplied by the number of undernourished to provide an estimate of the total food deficit in the country, which is then normalized by the total population. The indicator is calculated as a weighted average over 3 years with total population being considered as the weights
$FoodP_{av}$	Average Value of Food Production is the total value of Annual Food Production, as estimated by FAO and published by FAOSTAT in International Dollars (I $) divided by the total population. The indicator is calculated on 3 year averages with simple aggregation by regions/sub-regions being considered subsequently divided by total population (original data are not per caput)
GDP_{pc}	Gross Domestic Product per capita measured in constant 2005 USD. The data is sourced from WDI
GDPpc_rog	Annual growth rate of Gross Domestic Product per capita measured in constant 2005 USD
FPI	The Domestic Food Price Level Index is calculated by dividing the Food Purchasing Power Parity (FPPP) by the General PPP, thus providing an index of the price of food in the country relative to the price of the generic consumption basket. Data are available for 2005 from the ICP Program. It is then extended to other years by adjusting both numerator and denominator using the relative changes in Food CPI and General CPI as provided by ILO
FPI Volatility	The Domestic Food Price Volatility is a measure of variation of the Domestic Food Price Level Index. It has been computed as the Standard Deviation (SD) of the deviations from the trend over the previous 5 years
RailD	Rail lines density corresponds to the ratio between the length of railway route available for train service, irrespective of the number of parallel tracks (rail lines, total route in km) with the area of the country. Rail lines density is the total route in km per 100 km^2 of land area
RoadD	Road density is the ratio of the length of the country's total road network to the country's land area. The road network includes all roads in the country: motorways, highways, main or national roads, secondary or regional roads, and other urban and rural roads. Road density is the km of road per 100 km^2 of land area
$Water_{Access}$	Access to an improved water source refers to the percentage of the population with reasonable access to an adequate amount of water from an improved source, such as a household connection, public standpipe, borehole, protected well or spring, and rainwater collection. Unimproved sources include vendors, tanker trucks, and unprotected wells and springs. Reasonable access is defined as the availability of at least 20 L a person a day from a source within 1 km of the dwelling
Food M/Tot X	It is the simple sum of the value of food imports and total merchandise exports by regions or sub-regions divided by sum of total merchandise exports and multiply by 100. The indicator is calculated on 3 year averages

Notes Data on all variables except GDP per capita is sourced from FAO (2012). The definitions of the variables cited above are also taken from FAO (2012)

Table 6.8 List of countries used in econometric analysis

South Asia (4 countries)	Sub Saharan Africa (38 countries)		Latin America (11 countries)
Bangladesh	Angola	Mauritania	Argentina[a]
India	Benin	Mauritius	Bolivia
Pakistan	Botswana	Mozambique	Brazil
Sri Lanka	Burkina Faso	Namibia	Chile
	Burundi	Niger	Colombia
	Cameroon	Nigeria	Ecuador
	Cape Verde	Rwanda	Mexico[a]
	Central African Rep.	Sao Tome & Principe	Paraguay
	Chad	Senegal	Peru
	Congo	Sierra Leone	Uruguay[a]
	Côte d'Ivoire	South Africa[a]	Venezuela
	Ethiopia	Swaziland	
	Gabon	Togo	
	Gambia	Uganda	
	Ghana	United Republic of Tanzania	
	Guinea	Zambia	
	Kenya	Zimbabwe	
	Lesotho		
	Madagascar		
	Malawi		
	Mali		

[a]Not considered while analyzing Prevalence of Undernourishment

Note The exact number of countries considered in a particular regression varies on account of non-availability of data for select variables/select countries. The above table provides the total set of countries considered

References

FAO (2011) The State of Food Insecurity in the World 2010: How Does International Price Volatility affects Domestic Economies and Food Security? Rome: FAO. http://www.fao.org/docrep/013/i2050e/i2050e.pdf

FAO (2012) Food Security Indicators. FAO Statistics. http://www.fao.org/economic/ess/ess-fs/ess-fadata

FAO (2013) The State of Food Insecurity in the World. The multiple dimensions of food security food security? Rome: FAO. http://www.fao.org/docrep/018/i3434e/i3434e.pdf

GFSI (2012) Global Food Security Index, The Economist Intelligence Unit's GFSI

GFSI (2013) Global Food Security Index, The Economist Intelligence Unit's GFSI

Global Hunger Index (2013) The challenge of hunger: Building Resilience. International Food Policy research Institute

HLPE (2011) Price volatility and Food Security. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome, 2011

Ivanic M, Martin W, Zaman H (2011) Estimating the short-run poverty impacts of the 2010–11 surge in food prices. World Bank Policy Research Working Paper Series, 5366

Willenbockel D (2011) Exploring Food Price Scenarios Towards 2030 with a Global Mutliregional Model. Oxfam Research Reports. http://www.oxfam.org/sites/

World Bank's World Development Indicators (WDI) available online at: http://data.worldbank.org/data-catalog/world-development-indicators

World Bank (2013) World development indicators 2013. World Bank, Washington, DC. doi:10.1596/978-0-8213-9824-1

World Food Summit (1996) World Food Summit Plan of Action, paragraph 1. In: Rome Declaration on World Food Security and World Food Summit Plan of Action; World Food Summit, 13–17 Nov 1996, Rome, Italy. Rome, FAO

Chapter 7
Combating Food Insecurity: Implications for Policy

Simrit Kaur and Harpreet Kaur

7.1 Introduction

The recent rise in global food prices and their volatility in 2007-08 and 2011 have raised grave concerns about the food and nutrition security of poor people in developing countries. High and increasing food prices pose a significant policy challenge, in countries where the share of food in household expenditure is relatively high (FAO et al. 2011). While the impact of spiraling food prices varies across countries and social groups, some common outcomes can easily be delineated, more so amongst vulnerable groups that face universal problems arising from poverty and social systems (Mathur 2010). According to a joint study by the Food and Agriculture Organization (FAO), and the Organization for Economic Co-operation and Development (OECD), the price increases and spikes of recent years may be indicative of what is to be expected into the future (OECD and FAO 2012). In this context, food security and food price stability are major concerns for governments in developing countries and international organizations.

According to FAO's latest statistics, at least 805 million people are still hungry in the world (FAO 2014a, b). As represented in Fig. 7.1, vast majority of hungry people live in developing regions, where an estimated 791 million or 13.5 % of the overall population, were chronically undernourished in 2012–14. Sub-Saharan Africa remains the region with the highest prevalence of undernourishment at 23.8 %. Slow progress has been made in South Asia where the number of undernourished

S. Kaur (✉)
Professor of Public Policy, Faculty of Management Studies, University of Delhi, New Delhi, India
e-mail: kaur.simrit@gmail.com

H. Kaur
Sri Guru Gobind Singh College of Commerce, University of Delhi, New Delhi, India

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_7

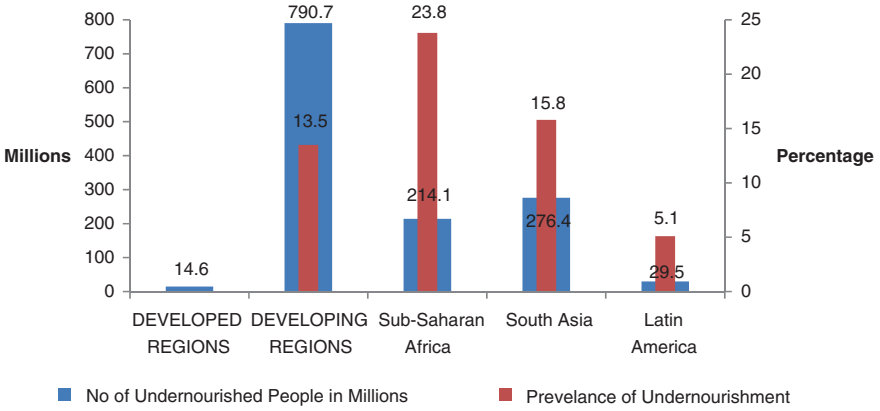

Fig. 7.1 Number of undernourished people and prevalence of undernourishment (2012–2014). *Source* FAO (2014b)

has gone down from 291.7 million in 1990–92 to 276.4 million people in 2012–14. On the other hand, significant reductions in both the number of people who are undernourished and the prevalence of undernourishment have occurred in most countries of Eastern and South-Eastern Asia, as well as in Latin America.

High and volatile prices are an important factor contributing to the existing levels of undernourishment. A study by Ivanic et al. (2011) estimate that the 2011 food price hike pushed 68 million people into poverty, while at the same time pulling 24 million people out of poverty. The overall result was a net increase of 44 million poor people. Hence, building the resilience of developing countries and their vulnerable populations to high and volatile food prices is an integral component of a comprehensive strategy to help these populations manage shocks in the future.

A number of studies have been conducted for finding the causes behind the increasing food prices. Some of the factors listed include supply-utilization shocks such as adverse weather conditions, production shortfalls, low stocks, third-world income and population growth and resulting dietary transitions; long-run production trends and declining investments in agricultural research; biofuels and the link between corn and crude oil; export restrictions and trade policy responses; exchange rates and macroeconomic factors; and financialization of commodities and speculation (Abbot et al. 2011; Heady and Fan 2010). Wright (2011), negates most of these factors and concludes that the mandate related to biofuels and the low grain stock-to-use ratio (SUR) in the years of price spikes have been primarily responsible for price hikes and volatility. The present study analyses the broad economic and regulatory measures that affect food insecurity with specific focus on agricultural productivity, subsidies and safety nets, surge in biofuel demand and variations in foodgrains stocks-to-use ratio.

The present paper has three sections. Section 7.1 briefly provides the extent of undernourishment in different regions of the world. The lessons for the national

and international organizations are the subject matter of Sect. 7.2. Importance for the world community to understand that many of the shocks and stresses to which the hungry are exposed are caused by their actions, and thus the need for them to participate in formulation of agenda to enhance food security is also discussed here. Finally, Sect. 7.3 concludes from a broad policy perspective.

7.2 Select Policies for Combating Food Insecurity

The select policies for combating food insecurity that are discussed in this section are related to:

i. Agricultural productivity
ii. Subsidies and safety nets
iii. Surge in biofuel demand, and
iv. Variations in foodgrains stocks-to-use ratio

Each of these is discussed next.

(i) *Enhancing Agricultural productivity*:

Enhancing and accelerating agricultural productivity in a sustainable manner is a central component for achieving global food and nutrition security. Productivity can be a growth engine, leading to improved food systems, economic transformation, and poverty reduction. When coupled with access to nutritious food, agricultural productivity is a powerful base for building health and stability (GAP 2012). In October 2010, Global Harvest Institute (GHI) released its inaugural Global Agricultural Productivity Report (GAP Report), to serve as a benchmark to analyze agricultural productivity growth. The Global Agricultural Productivity Report (GAP 2012), has forged five policy priorities to improve agricultural productivity growth and meet the challenge of feeding a growing global population. These are:

- Increasing Investment in Agricultural Development and Rural Infrastructure
- Strengthening and Streamlining Development Assistance Programs
- Improving Agricultural Research Funding, Structure, and Collaboration
- Embracing Science and Information Based Technologies, and
- Removing Barriers to Global and Regional Trade in Agriculture

Projected food demand varies across countries on account of population growth and rising incomes. While this demand is expected to grow by only 12 % from 2000 to 2030 for the developed countries, the same is likely to grow by a whopping 115 % for the developing countries. Also, for the developing countries, a greater percentage of the additional demand is expected to come from increasing incomes rather than additional population. GAP Report (2010) calculated that global agricultural total factor productivity (TFP) must grow by an average rate of at least 1.75 % annually to double agricultural output by 2050. Recent

findings indicate that global TFP is rising at an average annual rate of 1.84 %. However, wide regional differences exist. Additionally, productivity variations across regions will continue to exist, and thus closing the excess demand gap will invariably require mechanisms such as trade or, where appropriate, land expansion. Historically, the Americas have been net exporters of food while Asia and Sub-Saharan Africa have been net importers. Here we discuss the expected food gaps likely to prevail in Asia, Sub-Saharan Africa and Latin America by 2030.

Asia: In South Asia, food demand is estimated to grow annually by 2.75 % between 2000 and 2030. Asian populations are transforming rapidly: urbanization is increasing, incomes are rising, and the middle class is expanding. As a result, additional food demand in Asia will result primarily from rising incomes rather than population increases. By 2030, 75 % of China's population is expected to enter the middle income category, which currently is at 12 %. Similarly, for India and Indonesia, the middle-income population could grow to account for 70 and 80 % of the population respectively by 2050. If this region maintains the TFP growth rate of the last decade of 2.48, 82 % of total demand will be met by maintaining the current TFP growth rate. The remaining food gap will have to be met through trade.

Sub-Saharan Africa: In Sub-Saharan Africa, the average annual growth in food demand is projected to be 2.83 % per year from 2000 to 2030. This is expected to be largely on account of population increase. The supplies are expected to increase more through additional land being cropped rather than enhanced productivity. Only 13 % of total additional demand generated by 2030 is expected to be met by maintaining the current TFP growth rate which are low and average only 0.5 %. Here, less than 4 % of cropland is irrigated, compared with 35–40 % in much of Asia. Farmers in this region apply less than eight kilograms per hectare of inorganic fertilizers compared with more than 150 kg/ha in much of Asia. Corruption, political instability, conflict, and the lack of intra-regional trade capacity have also been cited as major barriers to agricultural production and food security. With TFP growth rates being rather low, food demand gaps are likely to increase significantly unless productivity growth rates accelerate and/or input use expands.

Empirical evidence shows that in Sub-Saharan Africa, each 1 % increase in agricultural productivity translates into a similar increase in the number of people that can afford basic needs (FAO 2011). Raising productivity in Sub-Saharan Africa will require application of information technology, better storage facilities, and unleashing the productive power of women farmers in Africa by giving them access to credit, training and secure tenure laws. These changes are likely to make a significant impact on not only productivity, but also on household income, and food and nutrition security.

Latin America: In this region the food demand is expected to increase at a rate of 1.8 % per year from 2000 to 2030. TFP growth from the last decade is 2.74 % and if maintained or accelerated, this region will have more of food surplus. FAO predicts that food exports from the Latin American and the Caribbean region

is likely to expand fast as these countries will move from 118 to 130 % agricultural self-sufficiency by 2050 (Schmidhuber et al. 2009). Additional investment in infrastructure is the main hindrance for achieving better productivity and competitiveness. For instance, the World Economic Forum ranks Brazil's quality of infrastructure at 104 out of 142 countries surveyed. This is behind China (69), India (86), and Russia (100) (The Economist 2012). With due consideration given to this constraint, the region will be able to further expand its exports, increase production of biofuels, or withdraw some land from production for conservation.

These regions are required to improve productivity along the entire value chain through better infrastructure, processing, transportation, education, data analysis, and information management. Sustainability of improvement in agricultural productivity is being challenged by factors such as climate change, natural resource degradation, diversion of water and land from agriculture to urban and other uses, and rising input costs. This reinforces the need for enhancing R&D efforts in agriculture.

(ii) *Subsidies and safety nets*:

Rising food prices may negatively affect human development in four dimensions: by increasing poverty; worsening nutrition; reducing the utilization of education and health services; and depleting the productive assets of the poor (World Bank 2008; Grosh et al. 2008). At the height of the 2008 crisis, poor families most frequently responded to higher food prices by eating cheaper foods with lower nutritional value, consuming less food in meals and skipping meals (Brinkman et al. 2010; Compton et al. 2010). It is in this context that we discuss the need for strong government support in the form of subsidies in providing food security.

Given that, there is more than enough food in the world to feed its inhabitants, global hunger is not an insoluble problem. *Deprivation* in a *world of plenty* is an intrinsic rationale for state intervention to invest in programmes that reduce hunger and under-nutrition. Both the *welfarist approach*[1] and the *social justice approach* provide a rationale for government intervention. The link between 'efficiency wages' and 'poverty-nutrition-trap' also reinforces the need for government intervention (Leibenstein 1957; Mirrlees 1975; Stiglitz 1976, 2012; Bliss and Stern 1978; Besley and Coate 1991, 1992). In order to break the vicious cycle of deprivation, while economic growth is essential, evidence suggests that this happens at a modest rate. Thus targeted interventions, say, in the form of direct investments in nutrition are desirable (Alderman 2005). Sen's concept of development as freedom (Sen 2000) also justifies state actions to secure and expand the

[1]But welfarist theory also recognizes that what governments can achieve is limited by information and administrative constraints, both of which must be understood in order to determine whether and how to intervene. For example, where firms or individuals have more information on the costs and benefits of their decisions, the theory suggests that decentralized market-based instruments are preferable.

freedom of individuals. Studies by Kaur (2007, 2009) too corroborate Sen's view. Her findings indicate that while higher economic freedom (as measured by the Frazer's Institute's economic freedom index) promotes growth, it does not necessarily expand *larger freedoms*, as measured by freedom from want and deprivation. On the other hand, big governments with large subsidies and transfers as a proportion of GDP (which by definition lowers economic freedom index) have been instrumental in providing freedoms, such as, lowering poverty, inequality, infant mortality and malnutrition.

Food safety net programmes measure the public initiatives to protect the poor from food related shocks. The GFSI (2013), measures the depth and expanse of food safety nets across countries, by assigning a value between 0 and 4. It is a qualitative indicator that measures public initiatives to protect the poor from food-related shocks. The indicator considers food safety net programs, including in-kind food transfers, conditional cash transfers (i.e. food vouchers), and the existence of school feeding programs by the government, NGO, or multilateral sector. It takes a value between 0 and 4. The Report categorizes India's and Argentina's food safety nets as having a national coverage, with very broad, though not deep coverage of these programs (rating of 3 out of 4). For Ghana, the corresponding rating is at 2, implying that Ghana has a moderate prevalence and depth of food safety net programs run by the government, multilaterals, or NGOs. Brazil and Nigeria are at the two extreme ends: Brazil with a rating of 'four on four' and Nigeria with a 'zero on four'.

Studies by Jha et al. (2010, 2013a, b) have found that India's Public Distribution System (the world's largest food subsidy programme, PDS) has significantly increased the intake of calories, proteins, and iron for the PDS participants in the Indian states of Andhra Pradesh, Maharashtra and Rajasthan. However, a study by Svedberg (2012) provides a contrary view to the effectiveness of this programme and states that the impact of PDS on outcome variables, such as poverty and malnutrition, are practically nil.[2] Others too have often criticized government interventions in the form of subsidies on several grounds. Despite these shortcomings, interventions are considered beneficial, especially micronutrient interventions as they have high benefit-cost ratio. In India, vitamin and mineral deficiencies represent an annual GDP loss of USD 12.5 billion. In Pakistan, they may be costing the country around USD 2.5 billion annually[3] (Kaur 2014). In recognition of this fact, many countries have enshrined the right to adequate food in their national constitutions.

Post the food, fuel and financial crises there has been an increase in support by the World Bank to developing countries for social safety net programmes for reducing poverty and vulnerability in these economies (Fig. 7.2). Based on Fig. 7.2, the following observations can be made:

[2]Despite the noble intention of targeting subsidized food grains, the PDS is plagued with controversies (Bhattacharya and Rana 2008; Jha and Srinivasan 2001; Jha et al. 1999, 2013a; Kochar 2005; Khera 2008, 2011; Kumar 2010; Svedberg 2012; and Planning Commission 2008).

[3]Countries with a GDP $\geq$ USD15,000 are assumed to be free of vitamin A deficiency.

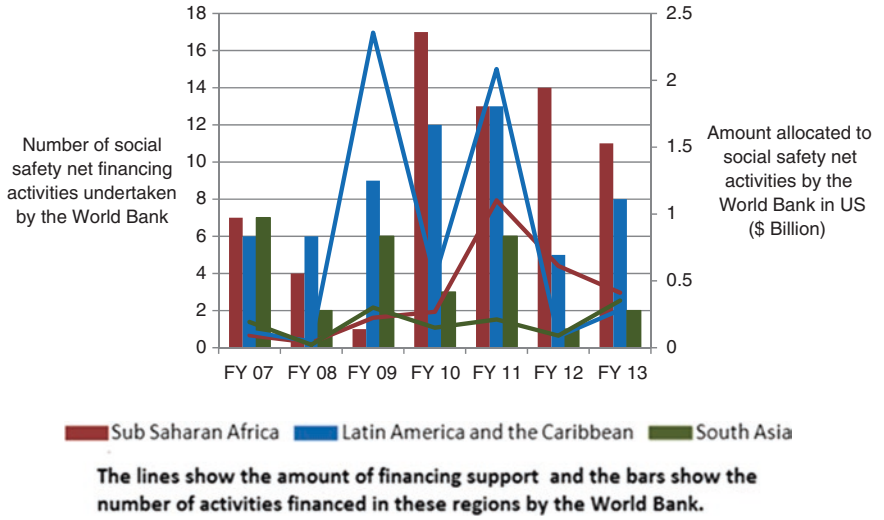

Fig. 7.2 World bank support for social safety nets in terms of (i) number of financing activities and (ii) financing of social safety net activities in Sub Saharan Africa, Latin America and the Caribbean and South Asia, FY07-FY13. *Source* Andrews et al. (2014)

- In Sub-Saharan Africa, during the period FY 2007 to FY 2013, the number of World Bank sponsored financing activities peaked at 17 in financial year 2010-11. During the same period, there was a complementary rise in terms of the financing amounts allocated to Social Safety Net (SSN) activities. For instance, the SSA region experienced a six-fold increase between FY08 and FY10 to reach USD 270 million. The amount allocated to social safety net activities in the region reached a peak of USD 1.02 billion in 2011–12. This support has been strongly sustained since the crisis.
- Latin America and the Caribbean have been given the largest share of monetary support for SSN activities by the World Bank. The total amount the region has received between FY 2007 and FY 2013 stands at USD 5.502 billion. The number of financing activities increased from 6 in 2008–09 to 9 in 2009–10, and then further to13 in 2011–12.
- Post the first food crisis, South Asia received USD 0.3 billion as support for social safety net activities by the World Bank in 2008–09. This support increased to USD 0.35 billion in 2012–13. A total of 27 social safety net activities have been financed by the World Bank in the region during the period 2007–08 to 2012–13.

(iii) *Surge in biofuel demand*

Further, while many observers feel that oil price hike, low interest rates, excess global liquidity, income expansion in China and India, and hike in biofuel demand

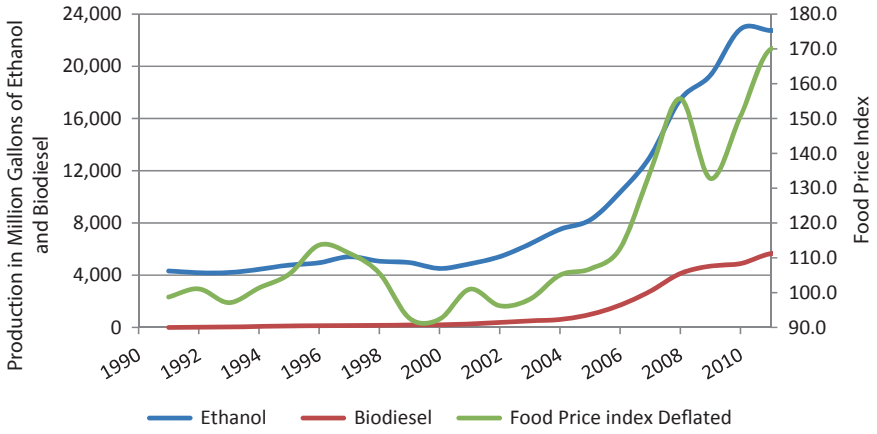

Fig. 7.3 World ethanol and biodiesel production in million gallons along with the global food price index (Base 2002–04). *Source* Prepared from data for World Ethanol and Biodiesel Production from Earth Policy Institute, which compiled data from F.O. Licht data, cited in Suzanne Hunt and Peter Stair, "Biofuels Hit a Gusher," Vital Signs 2006–07 (Washington, DC: World watch Institute, 2006), pp. 40–41; 2000–2004 data from F.O. Licht, World Ethanol and Biofuels Report, vol. 7, no. 2 (23 September 2008), p. 29; 2005-2012 data from F.O. Licht, World Ethanol and Biofuels Report, vol. 10, no. 14 (27 March 2012), p. 281. The data for the Global Food Price index is from FAO

have been the main reasons for food price hikes, Wright (2011), negates most of these factors. He concludes that two events have been primarily responsible for price hikes and volatility. First, is the mandate related to biofuels and the second is the low grain stock-to-use ratio (SUR) in the years of price spikes. According to him, the most obvious large exogenous shock to grain markets in recent years has been the *surge in biofuels demand*. According to the HLPE (2011) Report, world biofuel production increased by around five times, from less than 20 billion litres a year in 2001 to over 100 billion litres a year in 2011 (Fig. 7.3). The report also states that biofuels are responsible for most of the growth in demand for vegetable oils and a significant proportion of the demand for grains since 2000. As a result, they have been an important driver behind food price rise and food price volatility in recent years. Further, the steepest rise in biofuel production occurred in 2007–08, in tandem with a sharp rise in food commodity prices.

The existing modern biofuel markets initially emerged in response to the oil price hikes in the 1970s. Brazil and the U.S. in response to these oil price hikes created a biofuels production sector and an ethanol market, the former using sugar cane and the latter corn. Rising fuel prices are prompting governments to take a more proactive stance towards encouraging production and use of biofuels. This has led to increased demand for biofuel raw materials, such as wheat, soy, maize and palm oil, and increased competition for cropland. The diversion of corn and soybeans to biofuel is now very substantial (more than 30 % for corn and 20 % for soy) and is likely to continue to increase under the current policies using

subsidies and mandates. These higher mandates and subsidies are likely to have more serious implications for supplies of corn for feed and food, relative to equivalent yield drops due to transitory, weather- or disease-related shocks. Almost all of the increase in global maize production from 2004 to 2007 (the period when grain prices rose sharply) went for biofuels production in the U.S., while existing stocks were depleted by an increase in global consumption for other uses. From 2004 to 2007, global maize production increased by 51 million tons, biofuel use in the U.S. increased by 50 million tons and global consumption for all other uses increased by 33 million tons, which caused global stocks to decline by 30 million tons (Mitchell 2008).

The World Bank's climate change agenda seeks to inform the global debate on biofuels through analysis, monitoring and balancing of competing needs for energy and food security. Concerns over increasing energy use, climate change, and carbon dioxide emissions from fossil fuels make switching to low-carbon fuels a high policy priority at both the global and country levels, and biofuels are a potential low-carbon energy source. These benefits, however, have to be weighed against the potential costs of rising food prices. According to an IFPRI study, most scenarios of increased use of biofuels imply substantial trade-offs with food prices. These trade-offs are dampened, although not eliminated, when technological advances in biofuel and crop production are considered. Trade-offs between energy security, climate change and food security objectives need to be carefully monitored and integrated into both food and biofuel policy actions. Even in the G-20 meetings biofuels were only mentioned in the Action Plan as something that required further study. No concrete action was recommended as a mandate on biofuel production, despite the growing weight of evidence that biofuels demand was a significant factor in high and volatile prices (Abbott et al. 2011). This is an area that certainly needs more concerted action by the international organizations. Removing policies that create conflict between the use of crops for fuel relative to food and feed and which increase price volatility is essential. Hence biofuel mandates should be relaxed or removed, along with subsidies and trade barriers.

(iv) *Variations in foodgrains stocks-to-use ratios (SURs)*:

Next is the role of grain stocks as a determinant of food price spikes and the associated learning from it. Traditionally the volatility in food prices has been explained by means of shocks to demand and supply ignoring stocks. Food stocks are important with respect to access and distribution of food as they support the ability of governments to limit excessive volatility in prices by offsetting supply shocks or sudden surges in demand. Available stocks can help cushion output shortfalls and contain price rises. However when stocks are minimal, prices tend to rise to accommodate production shortfalls. Bobenrieth et al. (2012) recommend that for the markets to function effectively, a virtually irreducible minimum amount of grain must be held in the system to transport, market, and process grains. Their analysis, based on the correlation between de-trended real prices and stock-to-use ratio from 1961 to 2007 for wheat, rice, maize and calories, substantiates that periods of low stock-to-use ratios (SURs) coexist with periods of high prices.

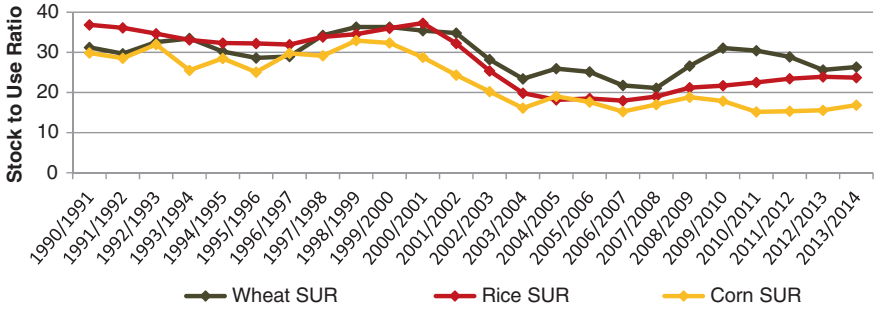

Fig. 7.4 Wheat, rice and corn stock-to-use ratios (SURs). *Source* FAS, USDA

Analyses of grain reserves reveals that the bulk of the grain stocks are held in the United States and China, although Chinese stocks are effectively irrelevant to global markets as China prefers to maintain grain reserves to insure against domestic shortages. Looking at grain stocks since the early 1960s, Wiggins and Keats (2009) make important observations: First, China has consistently kept stocks proportionately much larger than the rest of the world, with ratios exceeding 70 % for rice crop in the 1990s; second, during the last 50 years, world stock ratios were allowed to decline until the early 1970s, thereafter they were built-up after the 1973–74 price spike, and then reduced after the turn of the century; and, third, the low points in stocks-to-use ratios tend to coincide with price spikes. More specifically, historically, the fall in global stocks of cereals below 15–20 % of world consumption, has led to large price increases and a breakdown of functioning of agricultural markets. A recent study by Wiggins et al. (2010), shows that an additional 105 million tonnes of cereals stored around the world would have been sufficient to avoid the global market disruption of 2007–08.

In Fig. 7.4, we use normalized stock-to-use ratios to analyse the adequacy of food stocks. These ratios continuously fell during the initial half of the decade of the 90s. The SURs for wheat, rice and corn were all lower in the first decade of the new millennium as compared to the decade of the 90s. More specifically the SURs for wheat, rice and corn stood at an average of 32, 34 and 29 % in the 1990s respectively and fell to 27, 22 and 19 % in the following decade. The food price crisis of 2007–08 corresponded with the low SURs of 21, 19 and 17 % for wheat, rice and corn respectively. These low SURs implied a lower level of ability to contain short term shocks and a greater impact on prices (Fig. 7.5). Hence stocks, and the factors that led to changing stock levels, were fundamental to the food price spike of 2007–08 and the recent increase in cereal prices in 2010–11.

Certain significant observations can be drawn from Fig. 7.5. These are:

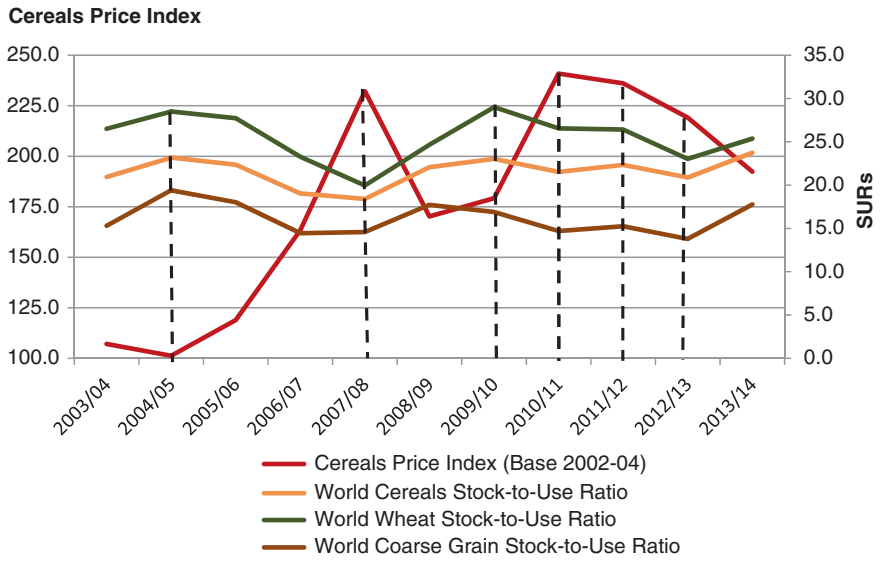

Fig. 7.5 Cereal price index and world cereals stock to use ratio. *Source* FAO (2014a)

- The cereals price index was the lowest in 2003–04 when the stocks-to-use ratios for cereals, wheat as well as coarse grains were the highest.
- The cereals price index continued to rise with the fall in the stocks-to-use ratios for cereals, wheat and coarse grains before reaching its peak in 2007–08. This peak of cereals price index (232.1) coincided with the lowest levels of stocks-to-use ratios of cereals, wheat and coarse grains.
- Post the crisis of 2007–08 till 2009–10, the stocks-to-use ratios for cereals and wheat continued to rise leading to lower cereals price index. However in 2010–11 the cereals price index reached a new peak and stood at about 241 with another fall in the stocks-to-use ratios for cereals, wheat and coarse grains.
- Thus, the rise in the cereals price index has closely mirrored the fall in the stocks-to-use ratios of cereals, wheat and coarse grains till 2011–12[4].
- Period from 2011–12 to 2012–13 seems an aberration since during this time cereals price index fell, despite a fall in stocks-to-use ratios of cereals, wheat and coarse grains.
- Post 2012–13, the fall in cereals price index is associated with rise in SURs for cereals, wheat and coarse grains.

[4]However between 2011–12 and 2012–13 the cereals price index continued to fall despite a fall in stocks-to-use ratios of cereals, wheat and coarse grains.

Hence stocks, and the factors that lead to changing stock levels, have been crucial historically to explain food price spikes. Thus, policy makers must account for stocks-to-use ratios and prices as indicators of vulnerability to spikes in global cereal markets (Wiggins and Keats 2009).

7.3 Conclusion and Policy Implication

To summarize, our paper delves with broad economic and regulatory measures that affect food insecurity. Specifically, four policies for combating food insecurity have been discussed, viz.: enhancing agricultural productivity, providing appropriate subsidies and safety nets, designing biofuel policies and controlling variations in foodgrains stocks-to-use ratio. Sustained growth in agricultural productivity is indispensable for resolving issues of food insecurity. Enhanced agricultural productivity can be achieved by strengthening the available infrastructure, spreading knowledge of improved practices to smallholders and developing strong institutions. Investments in R&D for agricultural production are necessary for growth in agricultural productivity. This is true especially in the face of challenges such as: climate change, natural resource degradation, diversion of water and land from agriculture to urban and other uses, and rising input costs.

Social safety nets and protection programmes play an essential role in situations such as the food crises faced in 2007–08 and 2011. For one, they help avert an increase in poverty and inequality, enable households to maintain an access to food and thus are important for avoiding social and political instability. In response to the high food prices in 2008, 23 countries introduced or expanded cash transfer programmes, 19 countries introduced food assistance programmes, and 16 countries increased disposable income measures, demonstrating the importance of social protection measures (FAO 2009).

To the extent that diversion of corn away from consumption towards fuel production has led to declining SURs, adopting an appropriate biofuel policy remains paramount. Also, the Agricultural Market Information System (AMIS), a collaborative effort of international organizations, needs to enhance market information and transparency on the working of the grain markets. Unfortunately, there still remains no clarity on how the AMIS would work with the private sector, particularly the four big international cereal global grain traders referred to as ‘the ABCD’ (because of the coincidence of their initials as in ADM, Bunge, Cargill and Louise Dreyfus), which trade in over 75 % of world cereal trade. Setting new regulatory framework regarding stock disclosure norms for these large private corporations is undoubtedly important if information asymmetries are to be addressed.

Additionally, several initiatives such as ASEAN’s Emergency Rice Reserve Agreement, SAARC’s Regional Food Bank and RESOGEST in drought-prone West African and Sahelian States have been undertaken at regional level to provide food security. However, more needs to be done towards improving their effectiveness. For instance, the SAARC Food Bank, established in 2007 as a

successor of the non-operational SAARC Food Reserve, can benefit the South Asian region immensely-especially the food importers, and those with foodgrain production volatilities, but it is yet to be operationalised. The non-operationalisation of the SAARC Food Bank is attributed primarily to three factors (Pant 2014). First pertains to structural flaws, second to allocation of insufficient food, and third to procedural difficulties. Thus, structural flaws such as impractical triggers and ambiguous governance mechanisms need to be addressed. Additionally, procedural difficulties that emerge due to absence of proper pricing mechanism and inefficient distribution channels have delayed the operationalization of the Food Bank. The SAARC Food Bank Board needs to clearly define an emergency situation and the level of food deficit that would entail accessing food from the Food Bank. Public Distribution Systems in member countries too need to be strengthened.

For instance, India's public distribution system (PDS) operated under its food subsidy programme has a popular grain reserve policy. The system was revamped in 1997 as the Targeted PDS. With the implementation of the National Food Security Act (NFSA), coverage under the Targeted Public Distribution System (TPDS) has increased from 36 % to about two-thirds of the population. The NFSA, with the objective of providing food and nutritional security, provides for coverage of up to 75 % of the rural population and up to 50 % of the urban population. However, despite the noble intention of targeting subsidized food grains, the PDS is plagued with controversies such as ineffective targeting, substantial exclusion, and low off-take. Meanwhile, a shift to direct cash transfer system or food stamps is expected to plug in some of these leakages and loop holes. Nevertheless, the assurance of food supplies as maintained by the Food Corporation of India has had the potential to reduce price spikes, general food price volatility and improve food availability to the poor and vulnerable.

To conclude, as long as high and volatile food prices continue to pose threats with malnutrition and hunger being a reality for millions of people, deeper reforms in policies designed by international organizations and developed country governments are required. Meaningful, coordinated and collaborative efforts are required that bring about reforms attacking the structural weaknesses of the global food system. We need policies that accelerate agricultural productivity in a sustainable manner, support appropriately designed targeted interventions, discourage biofuel expansion and encourage the maintenance of sufficient buffer stocks. Regrettably, the developed world and international organizations have shied away from tackling the broader structural economic dimensions of the food crisis with bold regulatory reforms, and instead have pressed for initiatives that smooth markets by increasing food production and encouraging information flows, and that create mechanisms to cope with volatility such as assistance and risk management. In other words, it has focused narrowly on production, information and mechanisms to cope with price volatility, rather than the broader economic and regulatory measures that affect food security, viz. an appropriate biofuel policy and desirability of maintaining an adequate stock-to-use ratio. Needless to say, the G20 has to bring these concerns to the forefront to tackle food insecurity in select regions of the world.

References

Abbott P, Hurt C, Tyner W (2011) What's driving food prices in 2011? http://www.farmfoundation.org/news/articlefiles/105-FoodPrices_web.pdf

Alderman H (2005) Linkages between poverty reduction strategies and child nutrition: an Asian perspective. Econ Polit Weekly 40:4837–4842

Andrews C, Kryeziu A, Seo D (2014) World bank support for social safety nets 2007–2013: a review of financing, knowledge services, and results. World Bank Group, Washington, DC. https://openknowledge.worldbank.org/handle/10986/20034

Besley T, Coate S (1991) Public provision of private goods and the redistribution of income. Am Econ Rev 81:979–984. (Decentralizing public good supply (with Ian Jewitt), Econometrica, 59, 6, November 1991: 1769–1777)

Besley T, Coate S (1992) Workfare versus welfare: incentive arguments for work requirements in poverty alleviation programs. Am Econ Rev 82(1):249–261

Bhatachrya D, Rana K (2008) Politics of PDS Anger in West Bengal. Econ Polit Weekly, 2 Feb 2008

Bliss C, Stern N (1978) Productivity, wages and nutrition: Part I: the theory. J Dev Econ 5(2):331–362

Brinkman H, de Pee S, Sanogo I, Subran L, Bloem M (2010) High food prices and the global financial crisis have reduced access to nutritious food and worsened nutritional status and health. J Nutr (Supplement: The Impact of Climate Change, the Economic Crisis, and the Increase in Food Prices on Malnutrition. January 2010) 140:153S–161S

Bobenrieth E, Wright B, Zeng D (2012) Stocks-to-use ratios as indicators of vulnerability to spikes in global cereal markets. Paper prepared for the 2nd Session of the AMIS, Rome

Compton J, Wiggins S, Keats S (2010) Impact of the global food crisis on the poor: what is the evidence? Overseas Development Institute, London. www.odi.org.uk/resources/download/5187.pdf

Earth Policy Institute, Data Centre. http://www.earth-policy.org/data_center/C24

FAO (2009) Country Responses to the food security crisis: nature and preliminary implications of the policies pursued. Initiative on soaring food prices, Rome

FAO (2011) The state of food insecurity in the world 2010: how does international price volatility affects domestic economies and food security? Rome

GAP (2010) Global agricultural productivity report. The Global Harvest Initiative

GAP(2012) Global agricultural productivity report. The Global Harvest Initiative

FAO (2014a) Cereal supply and demand brief. http://www.fao.org/worldfoodsituation/csdb/en/

FAO (2014b) The state of food insecurity in the world: strengthening the enabling environment for food security and nutrition. FAO, Rome. http://www.fao.org/publications/sofi/2014/en/

Grosh M, del Ninno C, Tesliuc E, Ouerghi A (2008) For protection and promotion: the design and implementation of effective safety nets. World Bank, Washington, DC

Headey D, Fan S (2010) Reflections on the global food crisis: how did it happen? How has it hurt? And how can we prevent the next one? IFPRI Research Monograph 165. IFPRI, Washington DC

HLPE (2011) Price volatility and food security. A report by the high level panel of experts on food security and nutrition of the committee on world food security, Rome

Ivanic M, Martin W, Zaman H (2011) Estimating the short-run poverty impacts of the 2010–11 surge in food prices, World Bank Policy Research Working Paper Series, 5366

Jha R, Gaiha R, Pandey M, Kaicker N (2013a) Food subsidy, income transfer and the poor: a comparative analysis of the public distribution system in India's States. J Policy Model (In Press)

Jha R, Kaur S, Gaiha R, Pandey M (2013b) National rural employment guarantee scheme and targeted public distribution scheme in Rajasthan and Madhya Pradesh: complements or substitutes? J Asian Afr Stud (JASS) (In Press), Sage Publication. http://jas.sagepub.com/content/early/2013/05/01/0021909613479312.full.pdf+html

Jha R, Bhattacharyya S, Gaiha R (2010) Social safety nets and nutrient deprivation: an analysis of the national rural employment guarantee program and the public distribution system

in India. ASARC Working Papers 2010–04, Australian National University, Australia South Asia Research Centre
Jha R, Murthy KVB, Nagarajan HK, Seth A (1999) Real consumption levels and public distribution in India. Econ Polit Weekly, April 10
Jha S, Srinivasan PV (2001) Taking the PDS to the poor: directions for further reform. Econ Polit Weekly, September 29
Kaur S (2007) Economic freedom, inequality and poverty: re- examining the role of government. Indian Econ J. 55
Kaur S (2009) Economic freedom, larger freedoms and public policy. The forum of public policy. J Oxford Round Table. http://forumonpublicpolicy.com/archivespring08/kaur.pdf
Kaur Simrit (2014) Food entitlements, subsidies and right to food: a South Asian perspective. In: Jha R, Gaiha R, Deolalikar A (eds) Handbook on food: demand, supply, sustainability and security. Edward Elgar, Cheltenham
Khera R (2008) Access to the targeted public distribution system: a case study in Rajasthan. Econ Polit Weekly 43:51–56
Khera R (2011) India's public distribution system: utilisation and impact. J Dev Stud 47(3):1–23
Kochar A (2005) Can targeted foodgrain programs improve nutrition? an empirical analysis of India's public distribution system. Econ Dev Cult Change 54:203–235
Kumar P (2010) Targeted public distribution system: performance and inefficiencies. Academic Foundation and NCAER, New Delhi
Leibenstein H (1957) Economic backwardness and economic growth: studies in the theory of economic development. Wiley, New York
Mathur A (2010, August). Rising food prices and food security: impact of the 2008 food crisis in Asia. NTS Insight. RSIS Centre for Non-Traditional Security (NTS) Studies, Singapore. http://www.rsis.edu.sg/nts/HTMLNewsletter/Insight/NTS-Insight-Aug-1001.html
Mirrlees l (1975) A pure theory of underdeveloped economies. In: Reynolds L (ed) Agriculture in development theory. Yale University Press, New Haven, pp 84–108
Mitchell D (2008, July) A note on rising food prices. The World Bank Development Prospects Group. http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2008/07/28/000020439_20080728103002/Rendered/PDF/WP4682.pdf
OECD–FAO (2012) OECD–FAO agricultural outlook 2012–2021. Organisation for Economic Co-operation and Development, Paris. http://dx.doi.org/10.1787/agr_outlook-2012-en
Planning Commission (2008) Eleventh Five-Year Plan, New Delhi
Pant KP (2014) The SAARC food bank for food security in South Asia. SAWTEE, Kathmanadu
Schmidhuber J, Bruinsma J, Boedeker G (2009) Capital requirements for agriculture in developing countries to 2050. Paper presented at the Expert Meeting on How to Feed the World in 2050 of the Food and Agriculture Organization of the United Nations, Rome, Italy. http://ftp.fao.org/docrep/fao/012/ak974e/ak974e00.pdf
Sen A (2000) Development as freedom. Oxford University Press, Oxford
Stiglitz JE (1976) The efficiency wage hypothesis, surplus labour, and the distribution of incomes in LDCs. Oxford Econ Pap 28:185–207
Stiglitz JE (2012) The price of inequality: how today's divided society endangers our future. W.W. Norton & Company, New York
Svedberg P (2012) Reforming or replacing the public distribution system with cash transfers? Econ Polit Weekly EPW XLVII(7):53–62
The Economist (2012) Investing in Brazil's infrastructure: the road forsaken, August 11–17. http://www.economist.com
Foreign Agricultural Services, United States Department of Agriculture (FAS, USDA). http://apps.fas.usda.gov/psdonline/psdDownload.aspx
Wiggins S, Keats S (2009) Volatile world food prices and their implications: grain stocks and price rise. Supported by: Department for International Development (DFID) Overseas Development Institute, London. http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/7631.pdf

Wiggins S, Compton J, Keats S (2010) Preparing for future shocks to international staple food prices: what can the international community and the UK government do to help? Overseas Development Institute, London. http://www.odi.org.uk/resources/download/5095.pdf
Wright BD (2011) The economics of grain price volatility. Appl Econ Perspect 33(1):32–58
World Bank (2008) Guidance for responses from the human development sector to rising food and fuel prices. Washington, DC

Chapter 8
Food Security and Food Price Volatility

Jörg Mayer

8.1 Introduction

How to manage food price volatility has re-emerged as a hotly debated question. Much of this new interest is related to limitations of safety nets that became apparent in the 2005-food crisis in the Sahel and the failure of the global food system to prevent the food price spikes of 2007–2008 and 2010–2011 from impairing food security.[1] In 2009, the number of under-nourished people strongly increased to exceed 1 billion, thereby jeopardizing attainment of the Millennium Development Goal of reducing the number of under-nourished people to 420 million by 2015 (FAO 2009a). These events have led the international community to reconsider whether the appropriate balance has been found regarding the use of instruments designed to stabilize prices on the one hand and mitigate the adverse effects of price instability on food security on the other.

The objective of this chapter is to discuss some aspects involved in this rethinking. Section 8.2 focuses on the evidence regarding food price levels and volatility. Section 8.3 discusses a number of reasons for the recent increase in both the level and volatility of food prices. Section 8.4 addresses the impacts of price volatility

[1]Definitions of food security generally refer to the availability of adequate food and access to this food. A frequently used definition follows the 1996 World Food Summit: "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life". For further discussion of terminology related to food security, see Committee on World Food Security (2012).

J. Mayer (✉)
Division on Globalisation and Development Strategies, United Nations Conference on Trade and Development (UNCTAD), Geneva, Switzerland
e-mail: joerg.mayer@unctad.org

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_8

on food security and the policy responses that have been adopted, especially in the context of the G20. Section 8.5 concludes.

8.2 Assessing Recent Food Price Volatility

Concerns about food price volatility are often related to high food price levels. However, food prices can be high and show little variability, or low but variable. Yet, in general there is a positive association between high price levels and high price volatility. This is because low inventories will reduce current food availability, i.e. the sum of production in the current crop year and inventories from previous years, and exert upward price pressure. Low inventories will also limit the possibility of selling food stocks to reduce upward price pressure that may result from positive demand or negative supply shocks, thereby increasing price volatility.

Regarding the evolution of price levels, evidence on monthly price indices for major grains and oilseeds over the period 1960–2014 point to a first upward shift in the price level in the mid-1970s and another upward shift starting around 2003–2005, when major food prices were about only one-third of their current levels. The evidence also shows that price spikes are a frequent phenomenon, especially for rice, but that the recent food price spikes occurred from already relatively high price levels (Chart 8.1).

Turning to volatility, a simple measure of price changes can be calculated as follows:

$$R_{i,t} = ln\frac{P_{i,t}}{P_{i,t-1}} * 100$$

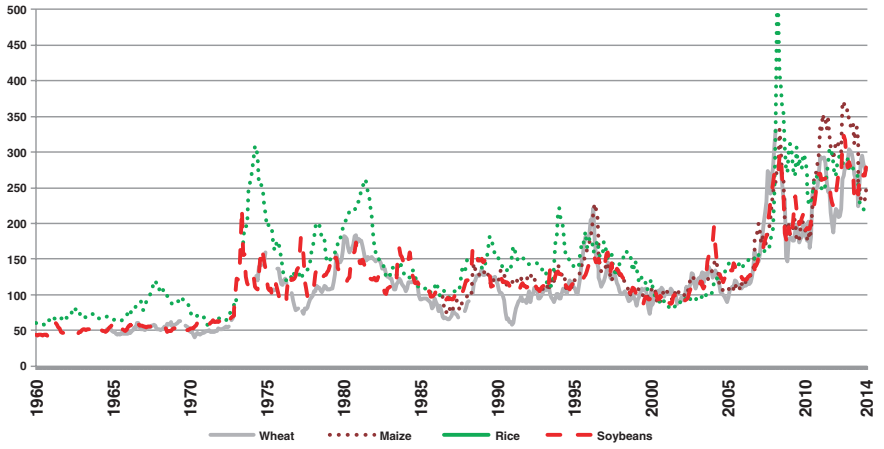

Chart 8.1 Monthly food prices, selected commodities, January 1960–March 2014, index numbers (2000 = 100). *Source* UNCTADstat

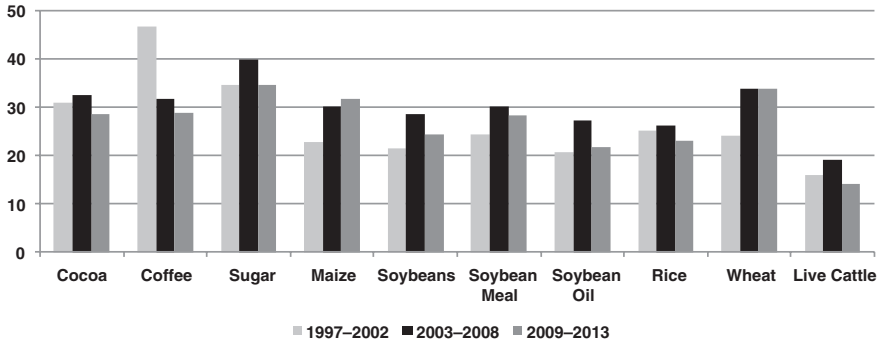

Chart 8.2 Price volatility, selected food commodities, 1997–2013. *Source* Author's calculation based on daily data from Bloomberg. *Note* The data shown are annualized standard deviations, expressed in percent

where $R_{i,t}$ represents logarithmic price changes and $P_{i,t}$ is the price of the first-month futures contract of commodity i. Based on this formula, price volatility over the period T can be measured by the annualized standard deviation of changes in logarithmic prices, denominated as σ, i.e.:

$$\sigma_{i,annualized} = \sqrt{250} * \sqrt{\frac{1}{T}\sum_{t=1}^{T}(R_{i,t} - \bar{R}_i)^2}$$

where $\bar{R}_i$ indicates the mean price change of commodity i over period T. Evidence based on daily data for the period 1997–2013, divided into three sub-periods (1997–2002, 2003–2008 and 2009–2013), shows that price volatility has varied significantly both across commodities and over time.[2] It is only for rice, and to some extent cocoa and live cattle, that price volatility remained at similar levels across the three periods. Other commodities, especially coffee and wheat, experienced sharp changes in volatility across these three periods. But while for all of the selected food commodities, except coffee, price volatility during the period 2003–2008 exceeds that during the period 1997–2002, this increase is most marked for wheat, maize and soybeans. Moreover, price volatility for maize and wheat further increased during the period 2009–2013 (Chart 8.2).

To see whether the increase in price volatility over time resulted from a larger number of extreme price changes, it is useful to analyse the distribution of returns.[3] If this distribution is normal and identical across time, the number of extreme events should not exceed a certain share of all observations. Assuming this share to

[2]The year 2003 marks a strong increase of both over-the-counter commodity derivatives and futures and options contracts outstanding on commodity exchanges and, thus, may be considered the beginning of the financialization of commodity trading (UNCTAD 2009: Chart 2.1).

[3]This analysis updates the author's earlier unpublished joint work with Johannes Gareis.

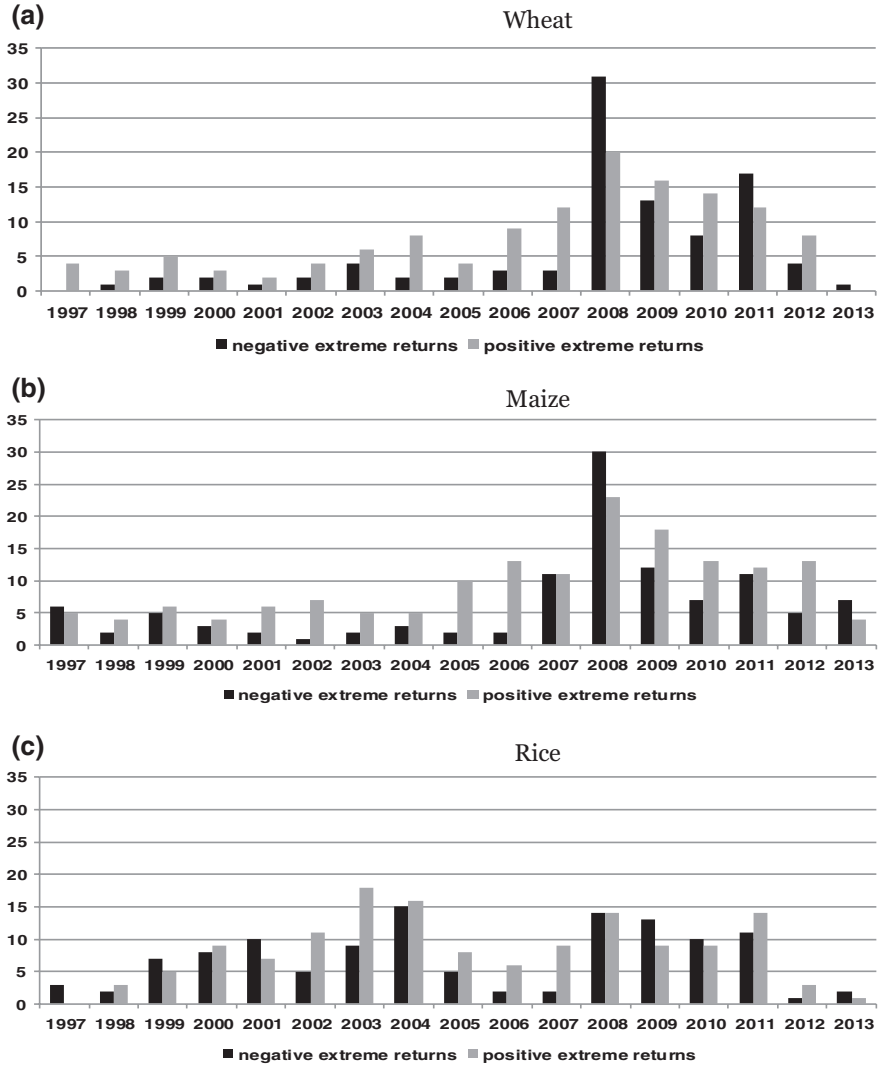

Chart 8.3 Extreme price changes, selected food commodities, 1997–2013, **a** wheat, **b** maize, **c** rice. *Source* Author's calculation based on daily data from Bloomberg

be 5 %, and recognizing that the mean of the distribution of returns is close to zero, an extreme event is defined as a return that exceeds 1.96 times the standard deviation of the return series. A plot of the annual distribution of these extreme returns indicates an increase in the number of extreme returns for maize and wheat starting at around 2003–2005. This number peaked in 2008 and subsequently declined to reach more normal levels in 2013. Regarding rice, the evidence points to volatility clusters, with periods of relatively low price volatility interspaced by periods of relatively high price volatility, i.e. 2003–2004 and 2008–2011 (Chart 8.3).

8.3 Reasons Underlying Recent Food Price Volatility

There are a large number of potential explanations for the food price spikes in 2007–2008 and 2010–2011 (UNCTAD 2008 and 2013). One part of these explanations refers to factors that are not directly related to the food sector. They include the diversion of food crops into the production of bio-fuels, the adoption of restrictive trade policies (such as export bans), the depreciation of the US dollar and speculative influences from the financialization of commodity trading (i.e. the increased interaction between commodity markets and the wider financial markets). Those explanations are likely to be of greatest importance for time periods of considerable price volatility. By contrast, the longer term trend towards higher food price levels over the past decade most probably results from factors related to food supply and demand: sizeable demand growth resulting from population growth, and especially from rapid per capita income growth in developing countries, particularly in Asia, combined with only sluggish supply growth, due to declining productivity growth, contributed to low levels of food inventories that were aggravated by poor harvests, in 2008 particularly in Australia.

Sizeable changes in supply and/or demand conditions can provoke considerable price volatility because of the low short-term price elasticity of producers and consumers. Producers can alter the amount of resources under exploitation only with a lag of several months. Consumers change habits only in response to substantial price changes because they cannot reduce food intake, and may be unwilling to change diets, and because commodity prices often account for a small share in the overall value of a consumed product (e.g. cocoa in chocolate). Drawing down inventories that can be easily activated will, within certain limits, rapidly augment market supply and, thus, moderate the impact of short-term supply and demand shocks on price fluctuations.

In principle, these mechanisms can effectively address food price volatility. In practice, however, decision making regarding food production and stockholding has always been subject to considerable uncertainty. This is because (i) medium- and longer-term commodity supply and demand conditions are subject to unknown factors, such as the effects of weather conditions and climate change on agricultural production; (ii) inventory data, which provide valuable signals for short-term price expectations, suffer from significant measurement errors mainly because it is common practice to estimate stocks not from surveys but as a residual from a food-balance or supply-utilization equilibrium, i.e. an approach that only yields estimates on changes in stocks, so that additional information on the level of stocks in some base year is required, and that relies on an equilibrium relationship where the estimated changes in stocks are only a small fraction of supply and use, so that small errors in supply or use estimation will result in large relative errors of the estimated changes in stocks; and (iii) data on current global commodity supply and demand conditions are published with long time lags and are frequently revised. Therefore, even generally well-informed traders must formulate price expectations on the basis of partial and uncertain data.

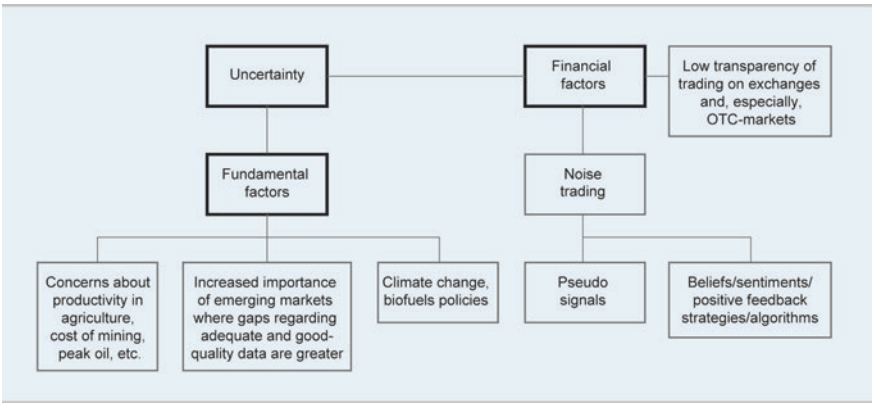

Chart 8.4 Recent sources of uncertainty in commodity trading. *Source* Mayer (2011)

To make matters worse, uncertainty in food commodity markets has most probably increased further (Chart 8.4). In recent years, rapid per capita income growth and the associated changes in dietary habits in emerging economies, especially in Asia, have led to growing demand for food. Moreover, projections indicate that agriculture in the 21st century needs to produce more food and fibre to feed a growing population with a smaller rural labour force. Indeed, "feeding a world population of 9.1 billion people in 2050 would require raising overall food production by some 70 percent between 2005/07 and 2050" (FAO 2009b, p. 2). This may well have signalled to market participants the presence of a new commodity super cycle, especially for food. On the other hand, it has been difficult to accurately assess the impact of these signals on the short-term evolution of supply and demand relationships. One reason for this relates to uncertainties about the stability of rapid economic growth in emerging economies. While per capita income growth in emerging economies has exceeded that in advanced economies by a considerable margin over the past two decades, and in particular between 2003 and 2012, there are growing concerns about these economies' heightened macroeconomic vulnerabilities associated with the phasing out of unconventional monetary policy in the United States and remaining macroeconomic risks in the euro area. The often wide gaps in the availability and accuracy of data regarding these economies' food demand, supply and inventory situations have further complicated assessments of supply-demand balances.

These signals from the demand side have combined with uncertainty about the possibility of achieving the productivity growth required for a commensurate increase in food supply, as had generally been the case in the past. Such concern about insufficient productivity growth has added to already growing worries about land use, water shortages and, more generally, the link between agricultural production and climate change. Moreover, the production of biofuels that are based on food stocks has greatly increased the relevance of information on energy for trading in agricultural commodities, and vice versa. As a result, together with

uncertainty about demand, a stream of information on the growing cost of profitable investment in sustained and resilient food supply growth has signalled to market participants that the probability of falling commodity prices is rather low. Yet, there is wide variation in expectations as to what extent supply growth can keep up with expected demand growth.

In such a situation of enhanced price uncertainty, the traditional roles of commodity derivatives markets in price discovery and risk transfer gain increased importance. Market participants that wish to protect the purchasing power of their income against possible price increases can purchase futures contracts in the appropriate food commodity. Doing so will lock in the purchase price of the food commodity and transfer the price risk to other market participants. Commodity exchanges appropriately fulfil this role if market participants, in addition to using information that is available to all market participants, trade on the basis of independent and individual information derived from an intimate knowledge of specific events relating to commodity markets and on their own plans to supply or demand commodities.

However, the financialization of commodity trading jeopardizes these functions of commodity exchanges. Starting in the early 1990s, but especially from about 2003, these exchanges experienced increased participation by financial actors that were new to commodity futures trading. They have included so-called "money managers" (i.e. investment banks, hedge funds and pension funds) as well as index traders. Neither of these two types of financial investors invests in commodities on the basis of fundamental supply and demand relationships. Rather, they regard commodities as an alternative asset class (comparable to equities, fixed-interest asset classes or real estate) and thus tend to introduce broader macroeconomic and financial factors into commodity trading. Yet, the two types follow different behaviours in terms of their position taking (Mayer 2012). Money managers have short-term active investment strategies based on the risk-return characteristics of their overall portfolio. They take frequently changing positions on both sides of the market, which enables them to earn positive returns in both rising and declining markets. By contrast, index traders follow a long-term passive investment strategy by investing and holding a commodity portfolio that follows major commodity indices—such as the Standard & Poor's Goldman Sachs Commodity Index (S&P GSCI) and the Dow Jones–Union Bank of Switzerland Commodity Index (DJ–UBSCI)—with a view to benefiting from an expected long-term increase in food prices. Such trading strategies imply, for example, that in a situation when a food market is moving towards excess supply and a build-up of inventories, implying a likely price decline, money managers might nevertheless move the market upwards by taking long positions to hedge against adverse developments on equity markets, the dollar exchange rate or inflation. Alternatively, index investors might see the respective food price as low relative to its long-term value and take long positions in the expectations of eventual price increases.

Taken together, the trading behaviour of each of these types of financial investors relies on information that generally is independent of the current supply and demand situation on physical commodity markets. This implies that the

financialization of commodity trading risks driving a wedge between futures markets and their underlying physical markets. Moreover, in a situation of uncertainty, it is difficult for other traders to judge whether market prices are changing because of the position changes of the financial traders or as a response to new information about market fundamentals. Hence, they risk misinterpreting a financial trader's position change as a genuine price signal and, by incorporating this signal into their trading strategy, perpetuate the "informational" value of this signal across the market, with the ensuing possibility of herd behaviour and speculative bubbles (Mayer 2011, 2012).[4]

Some observers have attributed a significant portion of the financialization of commodity trading to expansionary monetary policies, especially by the Federal Reserve in the United States. They argue that low short-term interest rates, and especially the adoption of unconventional monetary policy measures in November 2008, encourage speculative trading activities and contribute to rising commodity prices, as well as that changes in such policies are associated with changes in commodity prices (e.g. Hamilton 2009). Lower interest rates may contribute to food price increases by increasing demand, given that lower interest rates reduce the opportunity costs of carrying inventories, and by increasing financial investors' positions in commodity markets, given that lower interest rates reduce the carrying cost (caused, for example, by leveraging) of speculative positions.

A number of recent econometric studies have examined the impact of monetary conditions on commodity prices. For example, Anzuini et al. (2013) find a modest, though statistically significant, effect and that the by far largest impact results from positions of financial investors. Decomposing interest-rate changes into expected and surprise components and analysing the latter, Gospodinov and Jamali (2013) find insignificant effects of monetary policy surprises on price changes of food commodities, but significant and positive effects on metals and energy products. They explain this difference by the fact that food commodities are generally not used as hedges against inflation (contrary to metals) or dependent on the state of the business cycle (such as energy commodities).

However, these studies are based on long-term time series that end in 2008 and do not specifically analyse the effect of financialization or the price impact of unconventional monetary policy measures, especially those adopted by the United States Federal Reserve. It is possible that the effect of post-crisis unconventional monetary policies on commodity prices has exceeded that pursued during more normal periods. This is because it provides financial investors with additional liquidity for leveraging investment in a broad-based portfolio, which may increase return correlations across asset markets. However, to date no quantitative assessments of such potential effects are available. A study by Kawamoto et al. (2011) comes closest to such a quantitative assessment. On the assumption that unconventional monetary easing made financial investors relatively confident that no unexpected hike in interest rates would occur any time soon, these authors proxy the

[4]For a diverging view, see e.g. Irwin and Sanders (2011).

impact of unconventional monetary easing on commodity prices by an increase in financial investors' risk appetite, as measured by rising equity prices. Their results indicate that the post-2009 commodity price boom was in part driven by globally accommodative monetary conditions. Their evidence for the post-2009 period also indicates that the financialization of commodity markets has led to an increase in cross-market linkages between commodity and equity markets.

The report of the G20 Study Group on Commodities under the French presidency also noted that financial investors are unlikely to drive commodity prices over extended periods of time but that "a growing body of research supports the view that financial investors have affected price dynamics over short time horizons. Some episodes of large and sudden commodity price movements are consistent with the view that amplification mechanisms familiar from other financial markets … can also affect commodities futures markets" and that "large financial flows associated with herding behavior of financial investors can sometimes amplify commodity price movements and may sometimes cause prices to deviate temporarily from values consistent with physical supply and demand conditions"(G20 2011a, p. 31, 6).

Uncertainty about political tensions in the Black Sea region and particularly in Ukraine since the beginning of 2014 may represent a situation in which financial investors can amplify price changes triggered by actual or expected shifts in physical supply-and-demand relationships. This is true in particular because those tensions combine with a likely emergence of El Niño conditions (i.e. the anomalous warming of the Pacific Ocean) in the third quarter of 2014.[5] This weather phenomenon, which generally lasts six to nine months, often causes extreme weather events, such as above-normal rainfall in America (which would benefit maize, soy and wheat harvests, unless such rainfall causes flooding) and below-normal rainfall in parts of Asia, Southern Africa and Australia (which would adversely affect maize, rice and wheat harvests). Potential adverse impacts of these events on the availability of physical food commodities are likely to occur only in 2015. The large inventories and the expected abundant harvest this year, in particular for grains, are widely expected to keep food prices in 2014 below the levels of 2013, even though dry weather in some agricultural producing countries (including the United States and Brazil) may have contributed to the recent increase in wheat and maize prices (AMIS Market Monitor, April 2014).

However, financial positions in wheat and maize on the Chicago Board of Trade also strongly increased during the first four months of 2014. Almost all of this increase was due to managed money that sharply reversed its net short positions, with an only slight increase in the net long positions of index traders (whose positions are included in swap positions) (Chart 8.5).[6]

[5]In July 2014, the probability of El Niño conditions to occur was considered 70–80 % (AMIS Market Monitor, July 2014, p. 2).

[6]Commercial hedgers and small traders are the counterparties to these financial positions, which are not shown in Chart 4 to avoid cluttering.

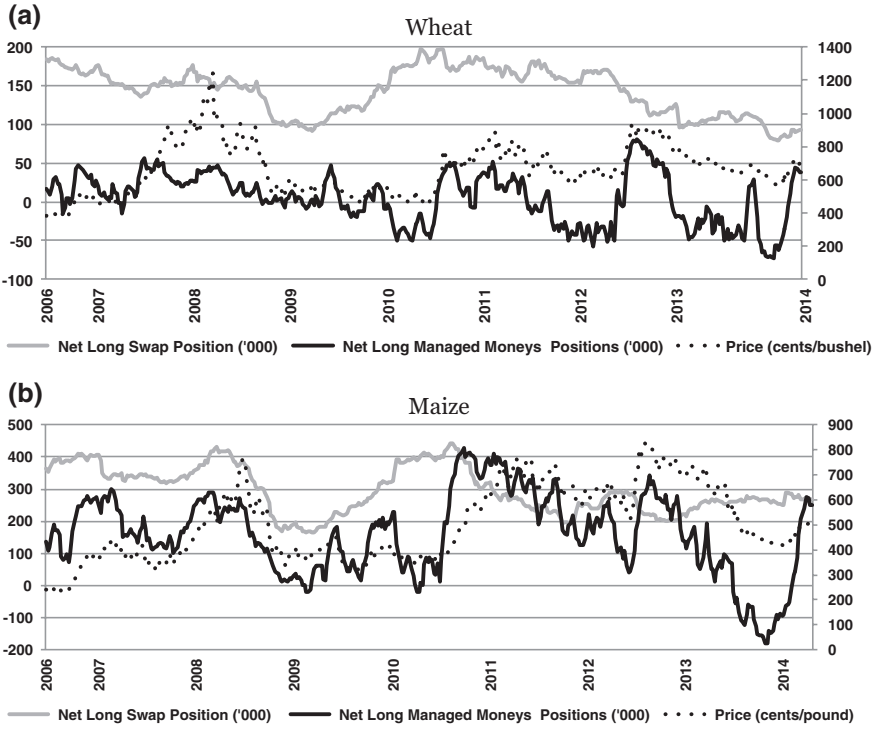

Chart 8.5 Financial positions and prices, wheat and maize, June 2006–April 2014, **a** wheat, **b** maize. *Source* Author's calculations based on Bloomberg and United States commodity futures trading commission (CFTC)

It is yet too early to judge whether these investment inflows are just short-term bets by money managers or funds that base position taking on momentum and technical computer-driven indicators. Indeed, as grain production was not adversely affected by those tensions, as had been feared, financial investors reversed their net long position in wheat and reduced it in maize. Yet, the supply shocks due to the cold winter in some parts of the Northern hemisphere, combined with other factors including concerns about El Niño and geopolitical tensions in Ukraine, have moved some food commodities (such as soybeans, rice and maize),[7] into backwardation (i.e. nearby prices are higher than forward prices) which allows index investors to earn positive returns when they roll over expiring contracts and give money managers indications on the emergence of positive return opportunities. This means that the beginning of 2014 may eventually qualify as one of the episodes of commodity price movements amplified by financial investors, referred to by the report of the G20 Study Group on Commodities (G20 2011a, b).

[7]For soybeans, see http://www.cmegroup.com/trading/agricultural/grain-and-oilseed/soybean.html (accessed on 29 April 2014).

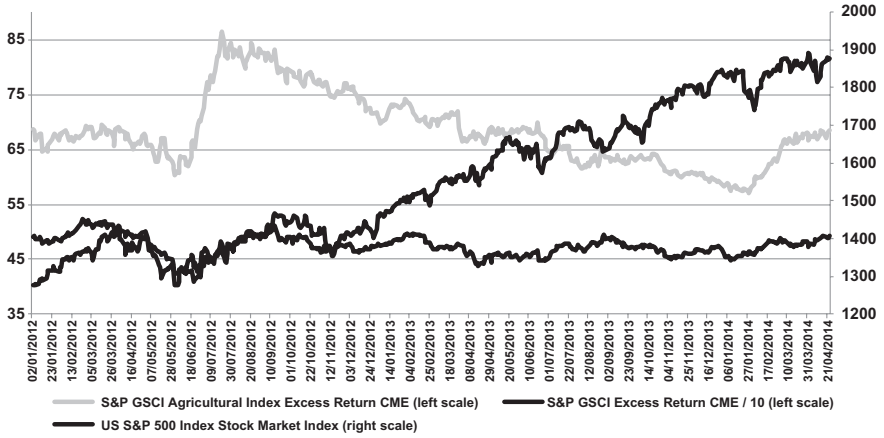

Chart 8.6 United States equities and commodity prices January 2012–April 2014. *Source* Author's calculations based on Bloomberg

Combined with the fact that geo-political tensions in the Black Sea persist and that a revival of investor interest in commodities as a financial asset can be observed across commodity categories[8] this would imply that it may have been premature to conclude from the decline of financial positions on commodity exchanges in 2012 and in 2013 that the "tide of financial flows into commodities markets, seemingly unstoppable over the past decade, appears to be ebbing" (Berg 2013, p. 2). Increased regulatory burden, such as greater capital requirements,[9] but especially stagnant or declining prices, which often led to negative returns, may have tarnished the earnings potential of investment in commodities relative to other asset classes. Evidence indicates that the return on investment in commodities overall stagnated during the period 2012–2013 and that returns on investment in agricultural commodities steeply declined throughout 2013 (Chart 8.6). By

[8]According to data provided by Barclays (personal communication), commodity assets under management between January and May 2014 was on average $321 billion, which is significantly higher than the average of the same period in 2008, at $236, i.e. the period that prompted increased questioning about the role of financial investors in commodity markets.

[9]As part of its work agenda concerning stricter financial market regulation, especially of over-the-counter (OTC) trading, the G20 took a number of commitments at the Pittsburgh summit in 2009 that included moving towards stricter commodity derivative regulation with an emphasis on improving transparency, mitigating risk related to over-the-counter trading, and protecting against market abuse. It commissioned the International Organization of Securities Commissions (IOSCO) to provide guidelines on globally harmonized stricter financial regulations, which were published in IOSCO (2011). In its most recent assessment of the extent to which G20-members have implemented OTC-reform commitments, the Financial Stability Board (2014) concludes that progress remains uneven with greatest progress made in terms of transparency and capital requirements.

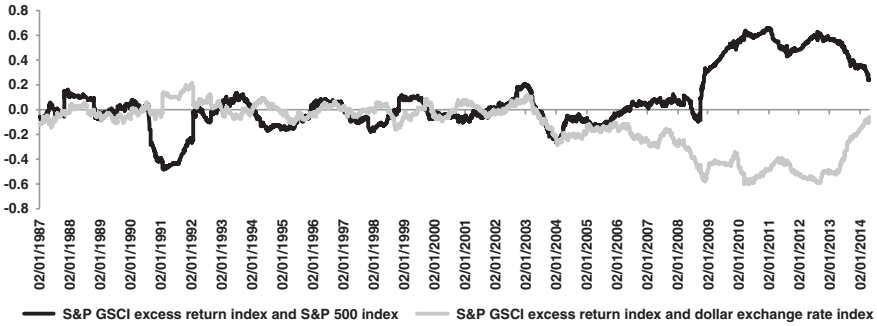

Chart 8.7 Asset market correlation: financial investment in commodities vis-à-vis equity markets and the United States dollar, January 1987–April 2014. *Source* Author's calculations based on Bloomberg, *Note* The data reflect one-year rolling correlations of returns on the respective indexes, based on daily data

contrast, returns on investment in equity markets strongly increased between late 2012 and late 2013. The combination of these developments may have led a number of financial investors to reduce their exposure to commodities as an asset class. Yet, while some of the largest banks are scaling down or exiting investment in commodities, such as Barclays, JPMorgan and Deutsche Bank, other banks, such as Goldman Sachs and Morgan Stanley, are increasing their commodity exposure.[10] This increase may have occurred in response to the fact that, during the first four months of 2014, equity returns stagnated while returns on investment in agricultural contracts strongly increased.[11] Commodity trading companies, which are non-bank entities and thus can leverage less stringent capital requirements, are also assuming a greater role in financial commodity trading.

An important reason for the rebound of financial investment in commodity markets is most likely related to the United States Federal Reserve's starting to "taper" (i.e. gradually reduce) quantitative easing, an announcement first made in June 2013 and enacted since December 2013. The gradual ending of quantitative easing may have contributed to the sizable reduction in the positive correlation between commodity and equity markets, as well as in the negative correlation between commodity markets and the dollar exchange rate (Chart 8.7), as it may have resulted in a decline in the return on equity investment at a time when the return on investment in agricultural products started to go up again. To the extent

[10]Onstad E, Commodity investor inflows rebound as sector outperforms shares, CNBC, 17 April 2014, available at: http://www.cnbc.com/id/101592310. See also "Amid frigid winter, Goldman, Morgan Stanley see commodity gains", Reuters, 17 April 2014, available at: http://www.reuters.com/article/2014/04/17/us-goldman-morgan-commodity-idUSBREA3G12320140417 and "Investors starting to look at commodities again", Financial Times, 24 April 2014, http://www.ft.com/intl/cms/s/0/96abe9be-ca42-11e3-8a31-00144feabdc0.html?siteedition=intl#axzz30HNHhLlb.

[11]Deutsche Bank (2014) notes that, by 20 June 2014, Commodities was the world's best performing asset class since the end of 2013.

that such a shift back to less positive correlations with other asset classes continues, commodities could well re-establish themselves as a viable alternative asset class that allows profitable portfolio diversification, as the pattern of correlation with other asset classes prior to 2009 supposedly did. This means that a decline in return correlations should not be interpreted as indicating the end of the financialization of commodity trading.[12]

8.4 Impacts of Price Volatility on Food Security and Related Policy Responses

The impact of high price levels and high price volatility on food security has both a short-term emergency and a longer-term availability dimension. Moreover, it may occur at the national or the household level. Food security at the household level often is a distributional issue. Poor households may lack access to adequately priced food even if at the national level governments can ensure the availability of the quantity and quality of food its citizens require. Governments can address such distributional issues, which are present even in developed countries, by developing or enhancing targeted domestic safety net policies. These policies would aim to maintain the living standards of poor non-farm households. Such households are particularly vulnerable to food price surges because they depend on purchased food and generally spend a considerable share of their income on food. Maintaining these households' living standards would limit the risk that they reduce spending on health and education and shift their diet towards less nutritious food, or proceed to distress asset sales. Any of such responses would cause adverse effects well beyond the duration of a price spike.

At the national level, governments may rely on emergency, often donated, food imports to bridge short-term gaps in the availability of food. To guarantee longer-term food security, they may combine measures towards supply expansion through productivity growth with the accumulation of public food stocks and the adoption of food-security oriented trade policy. However, it is important to note in this context that trade-related factors, such as export restrictions, have often been seen as a crucial factor behind the food price spike in 2008 (e.g. Headey 2011). While such measures by food-exporting countries reduce the exposure of domestic actors to global market developments, they do so at the expense of increased adjustment pressure for net-food-importing countries.

On the side of producers, price instability discourages investment because of uncertain return prospects and complicates farmers' access to credit. It also exposes storage to increased price risk. This means that price volatility can ignite a vicious circle where high volatility will reduce investment which, in turn, will

[12]For further discussion of the evolution of cross-market return correlations, see UNCTAD (2011).

reduce the supply of food and raise both price levels and the risk of supply/and or demand shocks triggering significant price changes.

Until the 1980s, both developed and developing countries widely used interventionist food security policies, such as tariff protection, domestic buffer stock holdings and input subsidization. Such policies generally aimed at insulating domestic producers and consumers from the world market, and sometimes also targeted national food self-sufficiency. However, they became increasingly questioned because of the associated large fiscal costs and distortionary effects for global food markets. During the 1980s and 1990s, these considerations led to a move towards the adoption of a system relying on international trade for food security and comparative advantage for production. This system considers it preferable not to impede price fluctuations but concentrate on mitigating the adverse effects of price volatility on food security through international trade, the management of price risks through financial instruments, and the use of emergency aid in acute food crises. It is premised on the expectation of continued abundant and relatively cheap global food supply, supply shocks occurring in an uncorrelated fashion across countries, and commodity exchanges providing correct signals regarding physical supply and demand relationships (Galtier 2013).

However, the increasing reliance on this system came with an erosion of public investment in agriculture (UNCTAD 2009). The ensuing slowdown in yield growth contributed to a gradual decline in global food stocks, leaving the global food market ill-prepared to cope with sudden price spikes through a drawdown of accumulated stocks and an increase in international trade. This may have led many developing country governments to consider that trade fails to ensure food security in precisely those circumstances in which it is required (Chritiaensen 2009). Moreover, the financial instruments supposed to reduce the income effects of price volatility came to be perceived as being subject to outside financial investment and, in any case, as not widely accessible to most market participants, especially the poorest ones. Finally, the operation of safety nets has confronted many problems in targeting aid to the most vulnerable and preventing vulnerable households from suffering decapitalization and falling resilience (Galtier 2013).

The recognition that the prevailing global food system is ill-equipped to cope with the current challenges to global food security has led to a number of policy initiatives.[13] At the international level, the G20 Ministers of Agriculture adopted

[13]In should also be noted that, in April 2008, the United Nations (UN) Chief Executives Board established a High-Level Task Force (HLTF) on the Global Food Security Crisis. Under the leadership of the UN Secretary-General, Mr Ban Ki-Moon, the Task Force brings together the Heads of the UN specialized agencies, funds and programmes, as well as relevant parts of the UN Secretariat, the World Bank, the International Monetary Fund, the Organization for Economic Cooperation and Development and the World Trade Organization. Its primary aim is to promote a comprehensive and unified response to the challenge of achieving global food security, including by facilitating the creation of a prioritized plan of action and coordinating its implementation. Moreover, Mr Ban Ki-Moon launched the zero-hunger challenge at the Rio + 20 Sustainable Development Conference in June 2012 to encourage action by all stake holders to eliminate hunger in our lifetimes.

an action plan on food price volatility in 2011 (G20 2011b). The action plan, whose commitments were reaffirmed in the 2011 G20 Leaders' Declaration (paragraph 44 of the Cannes Declaration), was based on the recommendations elaborated in an inter-agency report (FAO et al. 2011). Its most important element is the creation of the Agricultural Market Information System (AMIS) whose main objectives are to improve market information and transparency and to promote coordination of policy action in response to market uncertainty, with a view to reducing the likelihood of price volatility for four food commodities (maize, rice, soybeans and wheat). A main element of AMIS activities concerns the provision of regular reliable, accurate, timely and comparable data regarding the supply and demand position, and its probable short term development, which are provided on a monthly basis through the AMIS Market Monitor.

At their summit in Cannes in November 2011, G20 leaders also recognized that combating continued high price levels and volatility will require the adoption of longer-term policies and ensure food security through increased agriculture productivity growth in a sustainable way. They committed "to further invest in agriculture, in particular in the poorest countries, and bearing in mind the importance of smallholders, through responsible public and private investment" (paragraph 43 of the Cannes Declaration). In early 2012, the Mexican presidency of the G20 invited relevant international organisations to examine practical actions that could be undertaken to sustainably improve agricultural productivity growth, in particular on small family farms. The resulting report (Biodiversity et al. 2012, p. 23) recommended, *inter alia*, that "G20 governments should … introduce, as an on-going feature of G20 work, a process of analysis and peer review to identify best policy options to increase agricultural productivity growth sustainable, and more generally to promote coherence between food security, agricultural productivity and sustainability objectives." At the summit of Los Cabos in November 2012, G20 Leaders supported this recommendation and called on relevant international organisations to propose a consistent framework for analysis to that effect. The draft framework was presented for information at a G20 meeting of the Development Working Group in May 2013 and the OECD undertook (in collaboration with Australia, Brazil and Canada) three pilot country reviews to test the draft framework. The initial findings of these self-assessments, based on existing data and analysis and the use of the draft framework as a systemic guide, were presented during a G20-OECD workshop in Canberra in March 2014.[14] A major objective of this on-going process is facilitating cross-country comparisons through the use of comparable indicators and identifying best policy practices.

While the G20-initiatives see a limited role for active public policies, the questioning of the appropriateness of the prevailing global food system has also led to a more thorough reconsideration of public sector involvement in food markets. Such involvement would go beyond the provision of short-term emergency relief through national safety nets targeted to the needs of vulnerable populations, as

[14]For further detail, see https://www.g20.org/news/g20_oecd_agricultural_productivity_framework_workshop. See also Moreddu (2013).

well as general support for the development of market infrastructure and institutions and the provision of inputs for agricultural production (such as agricultural research). More generally, it would imply a shift away from an exclusive focus on ensuring food security through measures that help cope with price volatility towards the adoption of complementary instruments designed to reduce price volatility. Among such complementary instruments are production incentives in the form of subsidies and the use of food inventories.

One important initiative[15] in this context regards the proposal on government purchases of food from low-income and resource-poor farmers and public stockholding for food security reasons that the G33 launched at the World Trade Organization (WTO) in November 2012.[16] Based on Annex B of the "Revised draft modalities for Agriculture" of December 2008, the proposal involves three amendments to the existing Agreement on Agriculture (AoA). They relate to domestic farm support payments that would be exempted from any cuts or ceiling under WTO rules on the basis that they would be considered as causing no more than minimal trade distortion (i.e. they would be considered "green box" subsidies). The first amendment would allow an extension of the general services category under the green box, with a view to giving a government greater flexibility in applying policies in support of rural development and, by implication, food security of rural populations. The other two amendments relate to public procurement and stockholding programmes for food security reasons. They aim at modifying the current requirement for food purchases for such programmes to be made at current market prices and to consider any deviation of the procurement price from the external reference price as a trade-distorting subsidy to be counted towards the country's Aggregate Measures of Support (AMS). Under current circumstances, this implies that for most developing countries the calculated subsidy cannot exceed 10 % of the production value of the respective product.

The main element of the proposed amendments is that government purchases of food for food security reasons should not be included in the calculation of the AMS, mainly for two reasons. First, developing countries regard the existing rules pertaining to agricultural subsidies as unfair. This is because these rules allow very sizable subsidies for the long-standing programmes that are usually provided only by developed country, which accordingly declared high levels of AMS for their schedules in the AoA, while they strictly constrain the intended subsidies for food security reasons by developing countries because these subsidies would be new, given that most developing countries declared low amounts of AMS for the AoA. Second, the reference price used to calculate the subsidy is defined as the average international price during the period 1986–1988. Given that food prices in the mid-1980s were significantly below current levels (Chart 8.1), this implies that governments can purchase only very small amounts of a crop in order not to

[15]The author is grateful to Tanoh Adou for inputs to this account.

[16]The G33 is a coalition of developing countries with a large number of smallholder farmers in the WTO that currently includes 46 members (see http://www.wto.org/english/tratop_e/dda_e/negotiating_groups_e.htm).

exceed the 10 % limit. Subsidies exceeding that limit are considered illegal and allow WTO-member states to bring a case against the country before the Dispute Settlement Mechanism (DSM).[17]

Some observers have expressed concern about the potentially high fiscal cost of public procurement programmes, which would impede their use by the most vulnerable countries. Moreover, the accumulation of food stocks for the implementation of such programmes would tend to cause food prices to increase and further jeopardize food security of the poorest populations.[18] There is also a debate on the extent of price and trade distortions that such programmes may cause, and on how the specific set-up of mechanisms required to implement these programmes should be designed to ensure that public procurement actually improve food security for smallholder farmers and poor consumers (Bellmann et al. 2013).

The 9th Ministerial Conference of the WTO in Bali in December 2013 agreed on a peace clause for existing stockholding programmes for food security for an interim period during which a permanent solution should be negotiated for adoption by the 11th Ministerial Conference, and that a developing country cannot be challenged through the DSM provided that it has notified the Committee on Agriculture that it is exceeding, or is at risk of exceeding, its AMS limits.[19] However, some member States demanded that a permanent solution for public stockholding programmes for food security reasons be found prior to adopting the protocol on the amendment of the trade facilitation agreement (TFA), which was also part of the so-called "Bali package", and that the TFA be implemented only as part of a single undertaking that includes a permanent solution on food security. Given that such a permanent solution has not been found, the TFA-agreement was not adopted by the membership in Geneva by the proposed deadline of 31st of July 2014. It is not yet clear what missing this deadline means for the various elements of the Bali package. In any case, the post-Bali work programme will need to deal more generally with the challenges that many countries face in designing trade policies for food security reasons in an environment of high and volatile prices.

[17]For example, this rule would limit application of the Indian Food Security Act 2013 (available at: http://egazette.nic.in/WriteReadData/2013/E_29_2013_429.pdf) according to which the government spends approximately US$ 20bn to buy food, especially rice and wheat, from smallholder farmers and arrange for the monthly provision of 5 kg of this food to eligible poor households, amounting to about two third of the population.

[18]See, for example, Office of the United States Trade Representative, Executive Office of the President, Statement by U.S. Ambassador to the WTO Michael Punke at a Meeting of the Trade Negotiations Committee at the World Trade Organization, 11 April 2013. Available at: http://www.ustr.gov/about-us/press-office/speeches/transcripts/2013/april/amb-punke-statement-wto-tnc.

[19]See "Ministerial Conference: Ninth Session, Bali, 3–6 December 2013, WT/MIN (13)/38, WT/L/913, Public stockholding for food security purposes" Available at: http://www.wto.org/english/thewto_e/minist_e/mc9_e/desci38_e.htm.

8.5 Conclusions

The food price spikes in 2007–2008 and 2010–2011 have considerably influenced both thinking and action regarding food security. This is because the current global food system has proven ill-equipped to avoid nutritional problems and de-capitalization of the most vulnerable populations. It has also been accompanied by underinvestment in agriculture and a slowdown in agricultural productivity growth to levels that will be insufficient to ensure sustained food security for a growing and more affluent global population.

The way in which the current global food system addresses food security is based on the challenges of structural oversupply on global markets that characterized the 1980s and 1990s. The current situation radically differs. Food prices have been rising and more volatile, and there is widespread expectation that this situation will continue to predominate in the years ahead. Food prices are likely to increase as growing demand faces uncertain supply prospects and the use of food crops for non-food purposes (such as biofuels). Price volatility is likely to remain high as climate change will tend to cause extreme weather events more frequently. The probability that such weather events will adversely affect harvest simultaneously in several producer regions implies limits to the extent to which food deficits can be covered through international trade. Moreover, the financialization of commodity trading implies the risk that price signals on commodity exchanges insufficiently reflect underlying supply-and-demand balances.

This change in situation requires a reconsideration of how the use of a broader range of instruments could help ensuring food security. Public inventories could help stabilize prices and further contribute to the stimulation of investment that will be achieved through better information and the delivery of better public goods (such as research and extension services, as well as infrastructure and institutions). The management of price volatility could be improved not only by making the related financial instruments available to a larger number of people but also by continuing regulatory efforts aimed at reducing the adverse effects of financial investors on the appropriateness of price signals emanating from commodity exchanges. Finally, the international trading regime may require adding to the existing set of rules and mechanisms that address the concerns of exporting countries a similar regulatory framework that would help importing countries ensure stability and predictability in the availability of food commodities on world markets.

It is also worth mentioning that some observers argue that nearly all green revolutions have been accompanied and facilitated by food price stabilization schemes and that the successful development experiences of East Asian economies included moderation of food price volatility as an instrument to enable rapidly rising agricultural productivity and ignite a dynamic process of structural transformation and rapid economic growth (e.g. Timmer 2013). This would imply that the G20's objective of coherence between food security, agricultural productivity and sustainability objectives should not exclude government efforts towards direct

prevention of extreme price changes and explicitly consider measures aimed at food price stabilization, such as public stockholding for food security purposes and less reliance on international trade. It is also important to recognize that the optimal mix of instruments dealing with food price volatility and fostering food security will depend on the context, and especially the cause of the instability. There is unlikely to be a universal solution to food price volatility. Hence, making use of a broader range of instruments will be preferable to a narrow focus on instruments that merely mitigate the adverse effects of price volatility on food security.

References

Anzuini A, Lombardo MJ, Pagano O (2013) The impact of monetary policy shocks on commodity prices. Int J Cent Banking 9(3):119–144

Bellmann C, Hepburn J, Krivonos E, Morrison J (2013) G-33 proposal: early agreement on elements of the draft Doha accord to address food security. Geneva, September, International Centre for Trade and Sustainable Development (ISTSD)

Berg A (2013) Structural change in the agricultural futures markets? Document AMIS: IG/4—2013/2. http://www.amis-outlook.org/fileadmin/user_upload/amis/docs/market_group_4/IG4_2013_2.pdf

Biodiversity et al (2012) Sustainable agricultural productivity growth and bridging the gap for small-family farms. Interagency Report to the Mexican G20 Presidency. With contributions by bioversity, CGIAR Consortium, FAO, IFAD, IFPRI, IICA, OECD, UNCTAD, Coordination team of UN High level task force on the food security crisis, WFP, World Bank, and WTO. 12 June 2012. http://unctad.org/en/PublicationsLibrary/sucmisc2012d1_en.pdf

Christiaensen L (2009) Revisiting the global food architecture. Lessons from the 2008 food crisis. Rev Bus Econ 54(3):345–361

Committee on World Food Security (2012) Coming to terms of terminology. Document CFS 2012/39/4. Rome, September

Deutsche Bank (2014) Commodities weekly. Deutsche Bank markets research, Frankfurt am Main, 20 June 2014

FAO (2009a) The state of agricultural commodity markets. High food prices and the food crisis—experiences and lessons learned. Rome

FAO (2009b) Global agriculture towards 2050. Food and Agriculture Organzation of the United Nations (FAO), Rome, October. http://www.fao.org/fileadmin/templates/wsfs/docs/Issues_papers/HLEF2050_Global_Agriculture.pdf

FAO et al (2011). Price volatility in food and agricultural markets: policy responses. Policy Report including contributions by FAO, IFAD, IMF, OECD, UNCTAD, WFP, the World Bank, the WTO, IFPRI and the UN HLTF. http://unctad.org/en/Docs/2011_G20_FoodPriceVolatility_en.pdf

FSB (2014) OTC Derivatives market reforms—seventh progress report on implementation. Financial stability board. Basel, April. https://www.financialstabilityboard.org/publications/r_140408.pdf

G20 (2011a) Report of the G20 study group on commodities under the chairmanship of Mr. Hiroshi Nakaso. November. http://www.cmegroup.com/education/files/G20Nakaso-November202011.pdf

G20 (2011b) Action plan on food price volatility and agriculture. Meeting of G20 agriculture ministers, Paris, 22 and 23 June 2011. http://un-foodsecurity.org/sites/default/files/110623_G20_AgMinisters_Action_Plan_Agriculture_Food_Price_Volatility.pdf

Galtier F (2013) Managing food price instability in developing countries. A critical analysis of strategies and instruments. Agence Française de Développement, Paris

Gospodinov N, Jamali I (2013) monetary policy surprises, positions of traders, and changes in commodity futures prices. Working Paper No 2013–12, Federal Reserve Bank of Atlanta, November

Hamilton JD (2009) Commodity prices and the Fed. Econbrowser, December. http://econbrowser.com/archives/2009/12/commodity_price_2

Headay D (2011) Rethinking the global food crisis: the role of trade shocks. Food Policy 36(2):136–146

IOSCO (2011). Principles for the regulation and supervision of commodity derivatives markets. Document FR07/11. International Organization of Securities Commissions. http://www.iosco.org/library/pubdocs/pdf/IOSCOPD358.pdf

Irwin SH, Sanders DR (2011) Index funds, financialization, and commodity futures markets. Appl Econ Perspect Policy 33(1):1–31

Kawamoto T, Kimura T, Morishita K, Higashi M (2011) What has caused the surge in global commodity prices and strengthened cross-market linkage? Working Paper No. 11-E-3, Bank of Japan, Tokyo, May

Mayer J (2011) Financialized commodity markets: the role of information and policy issues. Economie Appliquée 44:5–34

Mayer J (2012) The growing financialization of commodity markets: divergences between index investors and money managers. J Dev Stud 48(6):751–767

Moreddu C (2013) Improving agricultural productivity growth sustainably: towards a framework for analysis. In: Presentation to the 2nd G20 meeting of agricultural chief scientists, Moscow, 24–25 July 2013. http://ecfs.msu.ru/docs/Framework%20for%20Analysis_Moreddu_OECD.pdf

Timmer CP (2013). Preface. In: Galtier F (ed) Managing food price instability in developing countries. A critical analysis of strategies and instruments. Paris, Agence Française de Développement

UNCTAD (2013). Trade and development report. United Nations publication, New York and Geneva

UNCTAD (2011). Trade and development report. United Nations publication, New York and Geneva

UNCTAD (2009). Trade and development report. United Nations publication, New York and Geneva

UNCTAD (2008). Trade and development report. United Nations publication, New York and Geneva

Part III
The Road to Energy Sustainability—Towards Third Industrial Revolution

Chapter 9
Third Industrial Revolution and India's Approach to Sustainable Energy Development

Ramprasad Sengupta

9.1 Introduction

The planet earth is a finite entity and describes a non-growing, but ever changing system. Since the beginning of the era of industrial revolution humans of industrial societies as capitalist beings developed the ambition of achieving an indefinite economic growth induced by the growth industrial capitalism. The latter has been characterized by the ever expanding scale of production, and changing structural and commodity composition, technology and social relations of production. This was accompanied by change in the value system of the society which promoted the objective of production as the generation of greater profit or surplus and indefinite accumulation of wealth. There exists, however, only a limited store of material and energy resources in their surroundings and an upper bound on the maximum support that can be provided by the ecosystems of the earth to the process of growth of a human economy by supplying various kinds of eco-services. These services have included both the supply of natural resources as well as the absorption of wastes arising from the entropic nature of their use in economic processes. In human history whenever there has been an acute scarcity of natural resources resulting from the demand for eco-services exceeding the carrying capacity of the ecosystems to supply, there emerged signs of depletion or decline of the actual stocks of deposits of resources (e.g., declining stock of mineral resources or standing forest biomass) and degradation of the ecosystems in terms of decline of their primary productivity for regenerating resources (e.g., decline in the annual yield

R. Sengupta (✉)
Emeritus Professor of Economics, School of Social Sciences,
Jawaharlal Nehru University, New Delhi, India
e-mail: rps0302@gmail.com; rps0302@mail.jnu.ac.in

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_9

of growth of forest biomass due to acidic pollution of air in the local atmosphere). Alternatively there have been interregional or inter-continental migrations of people for adaptation to such changes. Different segments of the human society like nations, races, tribes, etc. have often waged war against each other, each wanting a lion's share of eco-service benefits at the cost of others. In this scramble for the right to self-indulgence in consumption and right to resources, the result has been iniquitous distribution of resources, wealth and income among people favouring the economically, politically and militarily strong at the cost of the poor and weak and a widening of the gap between the rich and strong and the poor and weak in this world.

It is however undeniable that human civilisation made immense progress in the last three centuries since the beginning of industrial revolution in Western Europe through scientific and technological discoveries and could achieve substantive development of human well-being. However, this has not been achieved without incurring any cost of growth which was mainly propelled by the growing use of fossil fuel energy resources resulting in the growing accumulation of Greenhouse gases in the atmosphere and climate change due to Global warming among various externalities including others. These latter environmental externalities arise from the extraction and burning of fossil fuels as well (e.g., environmental damage to land and ground water due to mining and extraction of coal, or acid rain damaging the photosynthetic ability of plant biomass caused by the NOX emission from the burning of fossil fuels, or health damage caused by the suspended particulates in air arising from the exhaust emissions from diesel combustion in the internal combustion engines of automobiles). Such growing demand for eco-services as exceeding ecosystem's absorptive capacity of wastes have resulted in both environmental and economic losses which are to be conceived as costs of economic growth. One may however legitimately question here: What then went wrong with the development of economic science and policy that the global community faces today a situation of environmental resource crisis including that of climate change which represents the case of greatest market failure in human history?

The basic assumption of the modern neoclassical economics that underlies in conceptualizing the relationship between the economy and the natural environment or ecosystem is that the ecosystem is a subsystem of the human economy as it comprises merely a resource extraction (i.e., harvesting resources as flows from the sources of ecosystem) and a waste disposal (i.e., disposal of the return flow of wastes into the sink of the ecosystem) sector. Any problem of growing scarcity of resources or concentration of un-degraded wastes as pollution would be conceived as resulting from the misallocation of economic resources between this environmental subsystem of sectors on the one hand, and all other non-environmental goods and services sector on the other. A greater spending of economic and financial resources for raising the efficiencies of resource extraction or waste treatment can resolve such problems of environmental sustainability according to such perception of neoclassical economics. Economic growth can in fact therefore continue even if the natural capital becomes scarce, as technology can grow around the sub-sector ecosystem by the substitution of natural capital by man-made

capital provided the price-tax system signals the true scarcity of the natural capital inducing appropriate investment allocation for technical change.

As per such vision, nature is thus conceived to be a system which is supplier of indestructible building blocks which are substitutable and super abundant (Daly 1999). At any stage of history all these building blocks are not well discovered or adequately known. The real limit to growth has been the constraint of knowledge capital and technology. There is supposed to be no limit to the discovery of new technology as per such vision in the very long run, provided appropriate investment is made. Technology can provide substitution of natural capital by man-made capital or knowledge capital and may raise the supply of ecosystem services in efficiency unit or degrade waste in an eco-friendly manner. It also presumes that a growing economic system would provide enough surplus which can be invested for the growth of knowledge capital for such development of technology. The modern endogenous growth theory among others searches for the conditions for indefinite steady state economic growth through endogenous investment in knowledge capital, keeping the ecosystem in equilibrium.

9.2 Third Industrial Revolution for the Creation of a Sustainable Economy

Let us review here quickly the history of development since the industrial revolution in the Western Europe to develop an understanding and perspective so as to appreciate the responsibility of the role of energy in the current state of unsustainability of development due to the pace of growth of demand for eco-services as exceeding bio-capacity of the concerned ecosystems as evidenced by the calculus of ecological footprint, bio-deficit and carbon footprint of various countries. This would also point to the importance of the choice of right energy policy accordingly for the future. The experience of industrial revolution of the Western Europe can be viewed not merely as a process of explosion of labour productivity facilitated by the use of machine and technology permitting the division of labour, but essentially as a process triggered by the discovery of new energy resources along with the associated technologies which had great revolutionary impact on the process of division of human labour and social organization of production. The development of energy technologies were accompanied by the development of technologies of transport and communication which had radically transformed human society by reducing spatial distance and effecting wide diffusion of knowledge, information and technology. The first revolution revolved around coal and steam power and the second one around hydrocarbons—oil and gas—and electricity, the latter as a converted clean highly efficient energy for final use as fuel. The first industrial revolution gave us coal and steam power which led to the emergence of railways and factory economy. The steam powered printing technology with rollers and later rotary press and linotype technologies caused an explosion of print materials in the forms of newspapers, books, journals, magazines and led

to the emergence of a print literate work force capable of organizing the complex operations of railways and factory economy.

In the second industrial revolution discovery of use of hydrocarbons led to the innovation of the internal combustion engine and this converged with the development of electrical communication. The two together brought out the automobile revolution and the use of clean electric power replacing the steam power in the industry, commerce and transport. While the automobile revolution led to the development of highways of Europe and North America, and locational reorganization of production and human habitats, the development of technology of transport of power and electrical communication led further to the emergence of power grid, telecommunication networks of telegraph, telephone, radio, television etc. having a vast impact on the organization and efficiency of society and economy in delivering human welfare, the nature of impact depending on the phase of the industrial, technical and social phase of transformation in history.

Both the first and second industrial revolution have however been driven by the development of fossil fuels which are non-renewable in human time scale and which involved high intensity of pollution arising due to essentially the highly entropic nature of economic processes of production. In view of the implication of climate change, desertification, physical and chemical degradation of soil and water bodies and air and atmospheric pollution, the concern has developed for saving the world and humanity by creating an ecologically sustainable economic order. In order to save the world and humanity from the adverse impact of the fossil fuel based economic order, the search and thrust of research in science and technology are now for the discovery and development of carbon free or carbon neutral renewable resources and that of communication technology like internet which can ultimately permit phasing out of the fossil fuel and greenhouse gas and other harmful emissions altogether through a Third Industrial Revolution. It may be noted here that the application of information technology has revolutionized the productivity condition in all industries due to the feasibility of automated co-ordination of various industrial processes and activities involved in the various stages of the entire life cycle of production.

In the context of power sector development the application of internet technology for information flow needed for the co-ordination and management of varying resource supply and load demand at the various nodal points has to play a crucial role. The latter would require the development of a wide network of a smart grid aided by wide information flow through internet and their digitized co-ordination for demand supply matching and automated energy sharing. According to Rifkin (2011), the Third industrial revolution is visualized as a construct resting on five pillars of energy resource and technology development as follows:

1. Every building/home/factory etc., to be developed or turned into a virtual power plant by appropriate redesigning and change of technology of the building material and construction, and share excess energy output with others in shortage through the power grid.
2. Power to be produced mainly out of renewable resources of wind, solar, biomass and wastes, geothermal, etc.

3. Such energy resource development is to converge with the development of internet and information technology to convert the power grid into smart grid of energy internet for energy sharing and or efficient use of energy resources at the systems level. Such grid would rest on both way flow of both electricity and information along the network.
4. Automobiles are to be driven by electricity using plugging in or fuel cell technology replacing hydrocarbons and internal combustion engine.
5. Hydrogen and fuel cell are to be developed to provide the technology of storage of energy and release of electricity as per the requirement particularly in transport. Renewable energy may be used to create hydrogen to be stored in the vehicle to power fuel cell and to release in turn electricity for the supply of motive power for the vehicles.

The development of electronics and IT would further lead to following distinctive feature of this new era as an associated fall out outside the mainstream story of energy driven technical and social changes.

(1) Digitization of manufacture as a fall out of developments in information technology and computerization to guide the operations by automated processes.
(2) Development of new and complex material by the use of new technologies like 3D printing (adhesive manufacture) and others.
While the energy technology and the information and material sciences have interacted with each other, energy has been however, the prime moving factor in this review of the history of industrialization in this paper.

In the new era of industrialization there is expected a major structural change in the scale and organization of power production and supply. Given the spatial and temporal distribution of new renewable resources like wind, solar, water and the distribution of ownership of land resources yielding biomass, the economic scale of production is likely to come down and induce decentralized generation of power in a large number of smaller scale units though they may all be grid connected. This would permit wider participation of people as entrepreneurs or workers in electricity generation since the economies of large scale generation would no longer have a cutting edge over small scale generation. The development process in the new energy era can thus be expected to herald an era of widely distributed capitalism, inclusive growth, and vast increase in the energy system efficiency.

While clean energy production and use have been growing at an accelerated rate in the recent years relative to that in the preceding decades, the world is still grappling with the problems of the second industrial revolution and resolve them mainly through focusing on the issue of energy efficiency both in its end use in the non-energy sectors (energy conservation) and in the supply of primarily electrical energy by reducing conversion loss, auxiliary loss and T&D losses. The other way by which that the countries are trying to get out of the current problem of pollution and unsustainability of fossil fuel use has been by reducing the share of fossil fuel (coal an oil) in the gross electricity generation, and by raising that of the natural gas or coal bed methane (cleanest of the fossil fuels),

nuclear, micro-hydel, biomass and wastes and other abiotic renewable like wind, solar, geothermal, tidal, etc. People are resisting the development of new hydro-storage because of its adverse impact on the river ecosystems although it provides by itself a clean energy resource like water. The development of bio-liquids and electric vehicles has also been initiated in some countries and the governments are setting goals to support the advancement of new vehicle market. Although the growth of deployment of clean technologies in the first decade of the present century shows the growth rate to be varying across countries mostly in the range of 27–56 % as per the Global Carbon Capture and Storage Institute (GCCSI) data base 2011, the world is still largely dependent on fossil fuels to satisfy the growing energy demand. In the last decade fossil fuel has supplied 50 % of the new energy demand, oil has supplied 94 % of the total fuel requirement of the transport sector and non-hydro power from renewables has supplied only 3 % of the final energy produced in 2009 in the world.

This trend of development has resulted in the steady rise in the CO_2 emission by G-20 countries and the world over the last decade. In spite of a slight decline in 2009 due to global recession, the emission level in 2010 reached a record high of 30.6 G tonne—5 % more than the previous peak in 2008. Besides, it is to be noted that 80 % of the projected emissions are to arise from the infrastructural investments already made (International Energy Agency 2011).

The G-20 countries today account for 80 % of energy related CO_2 emission although per capita CO_2 emission widely varies cross countries in the range from 1.4 to 17.7 tonnes as was found in 2009. It is also to be noted that some of the Afro-Asian countries including India are still energy poor. In India about 35 % rural households have no access to reliable supply of electricity and about more than 80 % of the rural households are primarily dependent on unclean unconverted polluting biomass for meeting their cooking fuel need which is posing a big problem of health hazard due to serious indoor air pollution that would result from the use of such resource use (66th Round of NSS). In order to alleviate energy poverty by removing the supply side bottlenecks, there has to be rise in the supply of modern clean energy of electricity and natural gas in countries like India implying an upward pressure on CO_2 emission. To ensure the control of GHG emission the G-20 countries need to co-operate and give special thrust to the following sets of issues:

1. Energy conservation by raising efficiency of end use of energy
2. Higher efficiency of energy resource conversion into electricity and its distribution
3. Rise in the share of carbon free or carbon neutral resources in electricity generation
4. Carbon Capture and Storage (CCS) as and when technology stabilizes and attains maturity.

The CCS technology involves capturing of CO_2 from the exhaust gases of any outlet arising from the combustion of fossil fuels, compressing it into liquid form and then storing the liquid CO_2 in underground storage so that it may not leak into the atmosphere. It has till now developed more as a possible option of abatement of

global warming based on scientific principle at theoretical level. More of practical experiments and experiences are required to yield robust and reliable results on the cost and productivity of efforts and also an idea about the level of risk in capturing and storing the CO_2 as envisaged. The ushering of a third industrial revolution as conceptualized and described above at an early date has in fact to be induced by deliberate policy initiative and international energy co-operation. This would be achieved mainly through accelerated introduction of non-hydro renewables, development of energy internet for energy sharing through a smart grid of power transmission and through the digitization of manufacture and infrastructural operation.

9.3 Energy Scenario of India: Towards an Ecologically Sustainable Energy Economy

It is still really a far cry for India to reach the stage of ushering in of third industrial revolution. While there has been the emergence of the renewables as beginning to play a more than negligible role in supplying the growing new power demand, the most challenging task in the revolutionary era is going to be the development of energy internet through that of smart grid of power and information flow. The development of new renewables has been particularly significant as a source of off-grid power generation and power in remote areas as it could save the transmission and distribution cost supply. India has however, made an important progress in conserving energy by raising end-use efficiency and efficiency of energy conversion and supply, and also in reducing thereby the carbon intensity of GDP in its approach to the basic objectives of sustainable energy society of the Third industrial revolution in spite of her slow progress on the front of the renewables.

The energy system of India primarily consists of the energy carriers—fossil fuel, hydro and nuclear resources, and biomass, combustible biomass and wastes which are largely non-traded resources having a share of 24.5 % in the total primary energy supply. There are also other new renewable resources whose current use has a negligible share in the total energy balance, but which can emerge as significant resources in India's future energy balance if greening process is given due priority. As of 2009 the following has been the composition of the total primary commercial energy supply of 366 million tonnes of oil equivalent (see Table 9.1).

The shares of coal, oil and natural gas have been 70, 1.7 and 11.5 % in the total gross generation of electricity, while the carbon free resources of hydro, nuclear and new renewable in the same have been 13, 2.3 and 1.5 % respectively in 2010. Since the economization of cost of delivery of power at the bus bar after generation and accounting for auxiliary losses has to be one of the important determining factors of choice of fuel or energy resource for generating power such choice would be primarily driven by the energy resource endowment of a country as determined by the ecosystem characteristics. It may be noted here that such cost of power at bus bar would depend on the tariff or price of the basic energy resource,

Table 9.1 Composition of primary commercial energy

Coal	55.2
Oil	31.1
Natural gas	10.1
Total fossil fuel	96.4
Hydro	1.9
Nuclear	1.3
New renewables	0.38
Total carbon free fuel	3.58
Total	100

Source GOI (2012), Energy Statistics (2012)

cost of its extraction, conversion into electrical energy and that of delivery at the bus bar including the incidence of shares of conversion loss and auxiliary loss, which would vary from one energy resource and associated technology to another, while all the downstream cost after bus bar is independent of such resource and technology choice. However, the high dependence on coal in India is involving increasingly risks of electrical energy supply in the Indian context due to the various reasons like unreliability of geological estimates of resource deposits, slow rate of mines development and an uncertainty of arrival of imports of coal from the various sources. All these have led all the more to the emphasis on the strategy of energy conservation, enhancement of energy supply side efficiency and most importantly diversification of energy resource-mix in favour of new renewables for energy security and green development.

9.3.1 Energy Efficiency

(a) Macro-View In developing countries like India there exists enormous scope of energy conservation by upgrading technology, equipment and appliances in a wide range of areas of application furnace, motors, insulation system, automobile engine, cooking burner, power generating system, and innumerable others. However, it is first of all important to note that India's energy consumption per capita is very low being only 565 equivalent kg in 2010, a share of 24.6 % of which was supplied in the forms of unclean unconverted inefficient combustible biomass and waste. The use of electricity which is the cleanest and most efficient form of final energy has also been 778 kWh only on per capita basis in 2009 while the world average in that year has been 2964 kWh. It is also important to note that at the macro level, India's efficiency of energy use has been lower than that of USA and high income countries but higher than that of China and marginally lower than the world average (see Table 9.2).

(b) Sectorial View A disaggregated sectorial level econometric analysis of energy consumption behavior during the post reform period as estimated by this author, however shows such partial GDP (income) elasticities and partial (real) price

Table 9.2 Energy use and energy efficiency indicators for selected regions kgoe: kilogram oil equivalent

Country	Purchasing power parity gross national income (per capita $) (2010)	Energy per capita Koe (2009)	Energy intensity of GDP (Koe/PPP 2005$) (2009)	Share of biomass in total primary energy (%) (2009)	Gross electrical energy gen per capita (2009)
Brazil	11,000	1243	0.087	31.6	2408.36
China	7640	1695	0.270	9.0	2775.74
India	3400	560	0.196	24.5	778.49
Japan	34,610	3700	0.126	1.4	8158.30
Russia	19,240	4561	0.333	1.0	6976.74
South Africa	10,360	2921	0.312	9.8	5006.08
USA	47,310	7051	0.169	3.9	13568.07
World	11,066	1788	0.181	10	2963.64

Source World Development Indicators (2011, 2012)

elasticities of final energy demand that indicates that indicate that India has already been moving along a final end use commercial energy conserving trajectory (see Gupta and Sengupta 2012). These also indicate that raising energy and fuel prices would have significant energy conserving impact on the demand side enabling the attainment of higher energy efficiency at macro level. An individual industry level econometric analysis further reiterates such energy and fuel saving impact of own price increase for seven most energy intensive industries of India (e.g.: steel, aluminum, cement, paper, chlor-alkali, fertilizer, textile). The cross price elasticities do not on the other hand always confirm the common perception that energy conserving move through price rationalization would necessarily be capital intensive. So far as the scope of conservation is concerned, Tables 9.3 and 9.4 give illustrative estimates of energy savings potential for selected manufacturing and infrastructural sectors as estimated respectively by the current author and energy experts.

For the realization of these potentials it is important to remove the barriers which arise essentially due to high initial cost of new appliances and devices,

Table 9.3 Potential of energy saving in % of the actual consumption in 2007–08

Name of industry	Range of saving in %
Textile industry	46–88
Paper and pulp industry	43–94
Iron and steel industry	51–92
Fertiliser industry	26–94
Chlor-alkali Industry	37–95
Cement industry	30–84
Aluminium industry	9–58

Source Author's own calculation based on Gupta and Sengupta (2012)

Table 9.4 Energy saving potential in infrastructure

Intervention	Sector	Potential energy savings (%)
Various motors, drives capacitors, etc. for energy intensive industries like steel, cement, aluminum, glass, etc. building	Cross-cutting	10–20
Lighting	Commercial/industrial/ institutional	50–60
Efficient pump set	Agriculture	30

Source Suki (2010) which obtained from Bureau of Energy Efficiency (BEE) and India Renewable Energy Development Authority (IREDA)

inadequate dissemination of information regarding life-cycle cost and benefit of such energy conserving investment and high discount rate of the energy consumer. Energy policies need to address these issues as well. However, transport and electricity are the two major sectors which are responsible for a large share of primary commercial energy consumption and CO_2 emission and other pollution. While electricity sector consists mainly of large stationary point sources of pollution and fuel use, transport sector describes the fugitive sources of pollutant emissions. While the intercity transport offers substantive scope of energy conservation through modal switch from road to rail, energy consumption in the urban transport can be significantly reduced by switch from a private to public transport in India, particularly mass rapid transport by electric traction. Apart from fuel efficiency of transport, the up-gradation of petroleum fuel quality and that of transport logistics for reducing congestion would have also significant environmental benefits which should also deserve attention in the context of energy policy to lead us to the cleaner world which the Third industrial revolution envisages.

(c) Efficiency of Electricity Industry While electricity is a high quality clean efficient fuel used widely across every segment of the economy and society, the power sector causes substantial material and energy loss and pollution in the process of its generation, transmission and distribution. The total energy loss as a share of throughput energy has been of the order of 78.5 % in 2009 in India. The economization of such losses is of critical importance for the supply side efficiency improvement in the power sector. This can be achieved through higher boiler efficiency of coal fired subcritical units and oil based thermal units up to 35–38 % efficiency and also by up-gradation of CCGT gas turbines to the range of 45–60 %. Apart from raising the conversion efficiency, the reduction of auxiliary losses from 6.8 % on the average for all types of plant technologies to 5 % and the transmission and distribution losses from 25.8 % in 2005 to 15 should be easily achievable by 2031. The power sector reforms are supposed to provide an enabling legal and institutional framework so that the unbundled generating and distributing companies can work efficiently following the commercial principle of efficiency and the regulatory commissions can rationalize the power tariff structure in India. However, the persistence of regulatory regime in power sector particularly in the

distribution sector, political interference in tariff fixation in the states of India and cross subsidization of power for agriculture and household sectors are standing in the way of inadequate investments for up gradation and growth of the power sector.

9.4 Macroeconomic and Environmental Unsustainability of the Pattern of India's Energy Resource Use

Apart from energy conservation and raising efficiency of use of energy resources in the energy industry, the replacement of fossil fuel by carbon free renewable resources has been considered to be the other important strategy for greening the energy sector development of India, although the progress of India in this direction has been disappointing. The high dependence on fossil fuel has become unsustainable not only because of high share of carbon footprint in the total ecological footprint, but also because of (a) other adverse environmental externalities from which all the energy resources suffer to a larger or smaller extent and (b) macroeconomic unsustainability due to heavy financial requirement for imports arising from the growing eco- scarcity of the fossil fuel resources.

The shares of import in the total apparent consumption of coal, oil and natural gas have risen over time and reached the levels of 16.4, 76.0 and 19.5 % respectively in 2010–11. This implied a high share of import of 35.9 % in the total apparent consumption of all fossil fuels together in oil equivalent unit in the same year. Meanwhile, the unit price of total fossil fuel per unit of oil equivalent kg has increased in nominal rupees and dollar terms at the rates of 10.23 % per annum and 5.75 % per annum respectively in the last two decades. These resulted in the growth of India's total net import bill of energy at an alarming rate of 19.92 % per annum in nominal rupee terms. The total energy import bill has also been growing over time as a percentage share of India's total export which reached 38 % in 2010–11. This has become a source of concern for the macro-economic sustainability of such pattern of growth of energy use in India, particularly in view of the sharp decline in the rate of growth of IT related service export earnings to 10 % per annum and of the slowing down of inflow of foreign direct investment.

9.5 Carbon Free Abiotic Conventional Energy Resources: Hydro and Nuclear

Nuclear and hydro resources in large storage are two options which can contribute to green development of energy. The prospect of nuclear route of energy development depends on our success at the stage of breeder reactor and that in developing thorium–uranium cycle so that we can use our huge stock of thorium reserves. The availability of suitable site for nuclear reactors is also a constraining factor. The twelfth plan has however boldly set the target of raising the share of nuclear in

Gross electricity generated from 3.17 % in 2011–12 to 5 % in 2016–17 and 12 % in 2031–32. While it is too early to assess the situation of successful prospect of nuclear development, we need to engage in trade in uranium and light water reactor market so that we are in a position to successfully experiment with uranium–thorium reactor.

The share of all kinds of thermal power (i.e., steam, gas, diesel, etc.) together in the total gross generation of power in the utility system increased from 51 % in 1950 to 70.6 % in 1990–1991 and 82 % in 2011–2012, while that of hydro-electricity declined from 49 % in 1950 to 27.1 % in 1990–1991 and 12.4 % in 2011–2012. As the non-utility power generation has been mostly thermal based, there has thus been an imbalance of hydro-thermal mix from the point of view of efficiency for meeting the varying load of power demand, hydropower being known to be more convenient and efficient in meeting fluctuating peak load.

The reason of declining share of hydro has been due to the long gestation lag of storage dam projects and various socio-ecological constraints of such projects like displacement of human settlements, degradation of the ecological landscape due to inundation of the catchment and dam area, disturbances in the riverine water flow with consequent adverse impact on flora and fauna in the upstream as well as the downstream. This option is in fact fraught with too many socio-political and political economic problems of environmental externalities arising from too much disturbance in the local and regional ecosystems as well as from the destabilization of human settlements.

The twelfth Plan envisages decline of share of the thermal power to 61 % with coal 58 % and gas 3 % and that of hydro marginally declining to 11 %. This would mean definite expansion of the absolute size of the hydro-power system in the growing capacity of the overall system. However, it is the decline of share of natural gas which is the cleanest component of fossil fuel which is not satisfactorily explained in the plan document.

9.6 Carbon Neutral Biotic Resource Based Renewable Energy Resources

(a) Biomass Biomass constitutes about a quarter of the total primary energy supply even as of today in India. In 2009, the total primary energy supply in the form of combustible biomass and wastes in India was 164.278 mtoe (which was been 24.45 %) of the total primary energy supply. It is only a negligible fraction (0.69 % approx. in 2009) of such biomass including wastes that was converted into electricity. Most of such biomass fuel is used in conventional country chullah (oven) for cooking causing problems of serious health hazards for women and children in the households of the lower income groups who are exposed to such emissions.

Besides, valuable time and effort are devoted by mostly women and children for biomass fuel collection at a high opportunity cost of earning from productive employment or that of education. In India, a case study points out that 85 million households spend 30 billion hours annually in fuel wood gathering (Parikh et al. 2005).

Over harvesting of biomass, particularly fuel wood as collected from forests has also the adverse impact of deforestation. In poorer regions of India, particularly in the Himalayan regions where access of the people to commercial energy is limited, there has been degradation of forests due to such overuse (Baland et al. 2006). A decrease in forest area or its degradation due to the lowering of crown density would adversely affect the carbon sequestration and would contribute further to the global warming.

These biomass resources themselves can however be converted into clean gas fuel like biogas by way of gasification in bio digest. Such gaseous fuel can be further converted into electricity to meet the requirement of household or agricultural operation of the rural sector. It is possible to organize for example, both family sized and community sized plants if a critical minimum dung of animals or other biomass can be mobilized for the plant involving voluntary cooperation of all the stakeholders in an incentive compatible way (Parikh and Parikh 1977). However, such biogas based electricity constituted only 0.22 % of total gross generational electricity.

(b) Bio-liquids So far as biotic renewables are concerned, bio-liquids in the form of bio-diesel and bio-ethanol are important substitute fuels for petroleum particularly for the security of transport energy. In both the cases energy security may conflict with the issue of food security as there may be diversion of land use from food to energy cultivation, like jatropha replacing food grain production. However, government policy in this regard, has been that such cultivation of jatropha would be confined to waste land only. There is however a problem regarding the estimate of availability of waste land for the use of such purposes as the estimates widely vary across the reports of different expert agencies. There also remains the problem of regulating land use in a market driven system as international oil prices may raise the ground rent for such use as energy cultivation (see Singhal and Sengupta 2012). This points to the importance of fuel switch from hydrocarbons to electricity so far as the transport sector is concerned. Hydrogen and fuel cell technology have to play an important role in making Indian transport system ecologically sustainable.

9.7 Abiotic Source of New Renewable Energy

Finally, it is the abiotic energy resources of wind and solar radiation, geothermal heat and tidal waves which would constitute the major energy resources in the new era of Third industrial revolution. In India, wind power can be generated from the energy potential of on shore wind flow but only at a low load factor of about 20 %.

The solar thermal, on the other hand, is an economically feasible option mainly for water heating. The solar power has been a high cost option, with cost per unit varying in the range of Rs. 10–13/kWh (see Table 9.7) although the cost is coming down fast with increasing deployment of technology and R&D efforts overtime. However, India has substantive potential of wind and solar energy as indicated later in Table 9.6.

For wind energy, the estimates of such potential would depend on the hub height and spatial distribution of strength of the wind flow and that of its power generation potential per unit of land area across the different regions of India. While the land requirement for wind power does not cause any major land use diversion, the solar power generation would involve such use of land for constructing the solar panels that may cause diversions of land use. The potential of solar power would therefore depend on the temporal and spatial distribution of strength of solar radiation and the land space availability for solar power for other than roof top generation, solar pumping etc.

We show in Table 9.5 the distribution of Installed capacity of Indian electricity industry across technology in 1991 and 2012 showing the relative growth of different technologies, while Chart 9.1 shows the technology wise composition of such capacities as on March 2012. It is important to note that the installed capacity of grid-interactive power capacity reached the level of 24.5 GW in March 2012 which amounted to 2 % of the total installed power capacity in the country. Of the total renewable grid interactive power capacity the major share has been that of wind energy amounting to 65 %, followed by biomass and bagasse and waste which had a share of 16–17 %. The share of small hydro has been about 12 % only and solar PV had the lowest share of around 6.5 %, i.e., on the same date, i.e., the end of March 2012 (see Chart 9.2). So far as the off grid renewable power capacity is concerned Table 9.2 shows the total installed capacity as at the end of August 2013 has been negligible amount of 0.9 GW. However, Chart 9.3 further shows the share of biomass and waste in such off grid capacity to have been the dominant

Table 9.5 Installed capacity of India's electric power industry (GW)

Sector and mode	March 1991	March 2012	Annual average growth Gr. rate (%)
Total utility (a+b+c)	66.1	199.96	5.41
(a) Hydro	18.8	38.99	3.53
(b) Thermal	45.8	131.7	6.02
(c) Nuclear	1.5	4.78	5.67
(d) Renewables grid interactive		24.49	
Non utility	8.6	36.5	7.13
Total installed capacity (utility)	74.7	236.39	5.64
Offgrid capacity of renewables	–	0.9*	–
Grand total	74.7	237.3	5.66

Source GOI (2012), Energy Statistics (2012) and GOI (2013), Twelfth Five Year Plan and other Planning Commission Sources

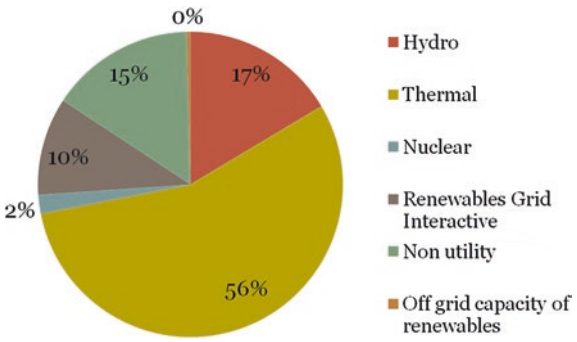

Chart 9.1 Source wise composition of installed capacity as on March 2012

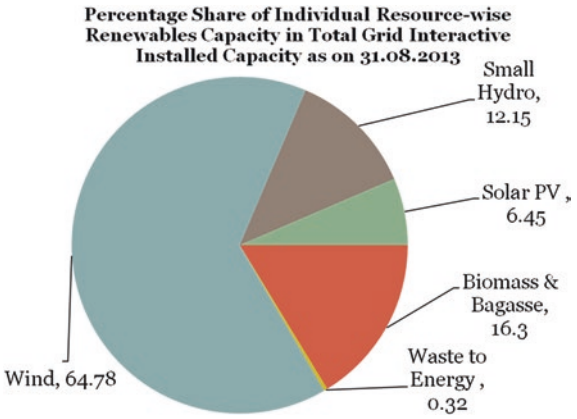

Chart 9.2 Percentage share of individual resource-wise renewables capacity in total grid interactive installed capacity as on 31.08.2013

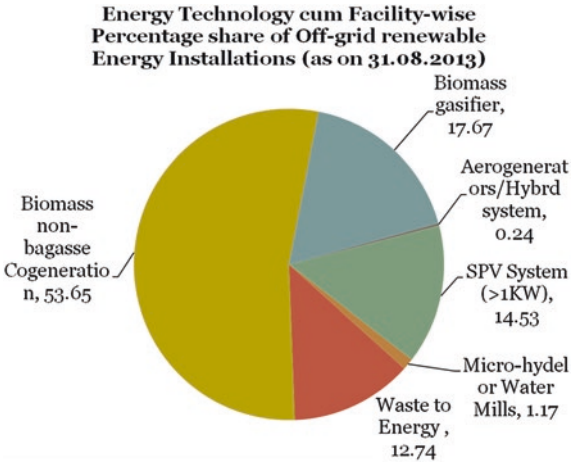

Chart 9.3 Energy technology cum facility-wise percentage shaare of off-grid renewable energy installations (as on 31.08.2013)

one in 2013 constituting about more than 80 %, while solar PV with greater than 1 kW capacity unit had a share of 14.5 %. Although the cost of solar PV energy is declining, it is yet not near competitive with conventional power in India. The prospect of wind and biomass in producing electrical energy as of now stand a better chance in off grid renewables based power supply in isolated remote areas.

In any case, the pace of progress of India in introducing new renewable to replace fossil fuel has been very slow. Apart from cost of technologies, the lack of entrepreneurship in the deployment of such capital and technology, lack of institutional support at the grass root level, poor focus on training and management for using and maintaining such new technologies and the lack of awareness of rural community have been important additional factors which all together contributed to the poor achievement in this direction. We present in Tables 9.6 and 9.7 the medium term potential of such power capacity creation over 2023 horizon and its cumulative achievement till 2007 in India along with the capital and the generation costs of the different renewable technologies as on March 2012.

Table 9.6 Estimated medium term (2023) potential and cumulative achievement

Source	Units	Estimated potential	Cumulative achievements as on 31.03.2007	Capacity factor (%)	Potential generation (BkWh)
Power from renewables					
Grid interactive renewable power					
Bio power from agro residues etc.	MW	16,881	524.8	60	88.72654
Wind power	MW	45,195	7092	25	98.97705
Small hydro (<25 MW)	MW	15,000	1975.60	20	26.28
Cogeneration (Bagasse)	MW	5000	615.83	60	26.28
Waste to energy	MW	7000	43.45	60	36.792
Solar	MW	50,000	2.92	20	87.6

Source Eleventh Plan Document (Planning Commission), Expert Group on Low Carbon Strategies for Inclusive Growth of the Planning Commission (2011) and Interview with World Institute of Sustainable Energy (WISE) in 2012

Table 9.7 Cost of power for various renewable resources (March 2012)

	Estimated initial capital cost (Rs Crore/MW)	Estimated cost of electricity generation (Rs/kWh)
Small hydro	5.50–7.70	3.54–4.88
Wind power	5.75	3.73–5.96
Biomass power	4.0–4.45	5.12–5.83
Biogass generation	4.2	4.61–5.73
Solar power	10.00–13.00	10.39–12.46

Source CERC regulation regarding tariff determination dated March 2012

In spite of all the limitations of the new and renewable energies the total potential of generation of electrical energy from such sources is thus really huge while only a miniscule fraction of it has been really exploited. While the Eleventh Plan document shows the wind power potential to be 45195 MW as assesses on 31st March 2007, this has been reassessed by the Centre for Wind Energy Technology (C-WET) to be 49,130 MW in 2010 at 50 m hub height, with 9 MW/km^2 land requirement and 2 % of land availability for such purpose for all states other than the Himalayan ones and 0.5 % land availability for others. The Lawrence Berkeley Laboratory under a study "Reassessing Wind Potential Estimates for India-Economic and Policy Implications" put the estimates to be 2006 GW at 80 m hub height and 3121 GW at 120 m hub height and higher land availability in the range of 7–11 % in various states of India. For higher capacity utilization factor with greater than 25 MW unit, the potential would however be in the range of 543–1033 GW. The offshore wind potential can further provide an additional 15 GW at less than 60 m hub height in India.

The solar power potential was set at 45.195 GW in the Eleventh Plan document of the Planning Commission. Most parts of India however receive solar radiation of 4–7 kWh per square meter per day. As several parts of India receive good radiation, the Expert Group on Low Carbon Strategies for Inclusive Growth of the Planning Commission set the solar potential at over 500 GW assuming 1 % of land area of India. There are other expert views like that of World Institute of Sustainable Energy (WISE) which puts the estimate of potential in the range of 700–1000 GW assuming additional possibility of setting up grid connected solar power capacity in several states, roof top solar power generation and solar pumping of water facility.

9.8 Projections on Primary Commercial Energy Requirements and CO_2 Emissions of India in the Long Run

In view of the potential of power generation by the alternative resources of solar, wind and other new renewable energy technologies, how fast can India achieve the transformation of its energy economy so that it can evolve into an environmentally sustainable system and approach the goal of the Third industrial revolution? This author developed in a separate research work a model of simulation of possible growth paths of primary energy requirements, and gross generation of electrical energy along with its implications of CO_2 emission as worked out for alternative combinations of GDP growth rate of the economy (8 or 6 %), real energy price increase (at the rate of 0 or 3 % per annum), and share of new renewables in power generations (a business as usual scenario based on the National Action Plan of climate change and a scenario of accelerated introduction of new renewables) (Table 9.8). Such model involved use of the results of an econometric model of sectorial energy demand behavior, assumptions of higher supply side efficiency

Table 9.8 Gross generation of electricity (in BkWh) for 8 % GDP growth

Year	With 0 % energy price rise			With 3 % energy price rise		
	Gross generation (in BkWh)	Per capita gross generation	Installed capacity requirement (MW)	Gross generation (in BkWh)	Per capita gross generation	Installed capacity requirement (MW)
2009	979.87	811.33	186,429	979.87	811.33	186,429
2021	1537.28	1096.58	292,481	1356.25	967.45	258,038
2031	2577.99	1679	490,485	2057.70	1340.15	391,495

Source Author's calculation

Table 9.9 Share of fuels in electricity generation- baseline growth in electricity from renewables scenario

Year	Coal (%)	Gas (%)	Fuel oil (%)	Hydro electricity (%)	Nuclear (%)	Renewables (%)
2009	70	11.5	1.7	13	2.3	1.5
2021	65	14	1.7	13	2.3	4.0
2031	60	16	1.0	13	2.3	7.7

Source Author's own calculations

Table 9.10 Share of fuels in electricity generation-accelerated generation using renewables

Year	Coal (%)	Gas (%)	Fuel oil (%)	Hydro electricity (%)	Nuclear (%)	Renewables (%)
2009	70	11.5	1.7	13	2.3	1.5
2021	60	14	1.3	13	2.3	9.4
2031	50	16	1.0	13	2.3	17.7

Source Author's own calculations

in the electricity industry, and the alternative scenarios of fuel mix for generation reflecting different shares of the carbon free new renewable. Any increase in the share of the new renewables has been assumed to take place at the cost of coal thermal power generation in these projections (see Tables 9.9 and 9.10). These would yield the results of the total gross generation of electrical energy over the time horizon up to 2031–32 as given in Table 9.8 which would in turn imply the primary commercial energy intensity of GDP to decline from 9.89 g/Rupee to 3.74–5.92 g/Rupee and the CO_2 intensity of GDP of India from 63 g/Rupee to 18.6–31.6 g/Rupee over the same time horizon of projection, the projections being conditional upon the realization of such assumptions. We want to make it clear that these projections are not predictions of India's future energy scenario, but represent certain alternative energy scenarios which may be considered to be feasible for India to attain under reasonable conditions. This would indicate how low carbon and environmentally sustainable India's growth and energy development can be within the time horizon up to 2031 provided the assumptions of the concerned scenarios get realized in future.

The projections of the alternative energy scenarios are here in fact premised upon certain policy driven assumptions on real energy price rise, share of new renewables in the gross generation of electricity and conservation of energy by forcing initiatives of efficiency rise in both electrical energy use and conversion and supply of electrical energy. The scenarios represent the results of different simulations of projection model based on the alternative assumptions. However the prediction of future energy scenario on the other hand require data on the forecasts of the values of the variables or factors on which the assumptions of the alternative scenarios were made and which would describe how they would actually unfold through their realization over historical time. However, the assumptions as implicit in the base case of 0 % annual real energy price rise on the base year of 2009 in future and business as usual rate of growth of share of new renewables in total gross generation and of other scenarios were considered to be feasible as per the opinion survey of the experts by the author.

Given the above projections, it is quite clear that the Indian economy will be on an energy conserving and low carbon growth trajectory in the future in continuation as per the extrapolation of the pre-existing trend of declining primary energy intensity and CO_2 intensity of GDP (see author's basic report of the study referred to here and other earlier papers on the subject for details: Sengupta (2010), Sengupta (2012), World Institute of Sustainable Energy (2013) and World Institute of Sustainable Energy (2014). The author was one of the lead authors of these two latter WISE publications.

However, the extent of primary commercial energy conservation which is the ultimate determinant of the pressure of the economic system on the ecosystem or on the carbon foot print would depend on the policy scenario that is adopted as a strategy for the growth of the energy system.

It is interesting to observe here that raising energy price is possibly marginally more effective than accelerated introduction of new renewables as defined here in reducing primary commercial energy intensity as well as CO_2 intensity of GDP. The reduction of the growth rate of GDP is on the other hand clearly counterproductive for the purpose of low carbon intensity of economic growth.

As per the projections of the study as outlined above, the total CO_2 emission which is supposed to be responsible for the carbon footprint, would rise from 2.3 billion tonnes in 2009 to somewhere in the range of 3.7–5.4 billion tonnes in 2031–32 for 8 % GDP growth depending on the assumptions of the other policy variables of real energy pricing, penetration of electricity and the share of new renewables in the fuel mix of power generation, etc. The Integrated Energy Policy Committee Report of the Planning Commission (GOI, Planning Commisson 2006) also projected the total primary commercial energy requirements and the CO_2 emissions for supporting 8 % growth rate under the alternative assumptions of technology, fuel choice and energy conservation using a different model. The latter report of the committee showed that the total CO_2 emission to vary in the range of 3.9–5.5 billion tonnes in 2031–32.

It is thus a robust conclusion that India would be able to substantively weaken the CO_2 emission-growth linkage by reducing the CO_2 intensity of GDP and the

GDP elasticity of CO_2 emissions in the coming decades. The Delinking of CO_2 growth and economic growth is to be understood here as relative delinking and not as absolute delinking. The former implies CO_2/GDP ratio declining over time while the latter would mean absolute decline in the volume of CO_2 emissions irrespective of growth of GDP. Such relative delinking of CO_2 growth with GDP growth has actually happened In India during the post-reform period (see Sengupta 2010).

9.9 Conclusion

Given the present landscape of industry and technology and the ground reality in India, the vision of the Third industrial revolution is more of the nature of a distant goal than an objective for action of immediate implementation. However, the Indian economy has already been moving along a low carbon growth trajectory. The Indian ecological resource system provides adequate potential for the further realization of the long term goal that Third revolution envisages.

The energy saving potential in the existing industrial system of India through higher energy efficiency in both non energy end use and energy conversion and supply, is quite substantive. Such saving of energy constitutes an important resource by itself with the potential to meet the growing final energy demand at lower resource cost. The Government of India should continue to give due priority to the policies for energy conservation and thereby faster delinking of carbon emission with economic growth.

It is however further important to realize what are the constraints or barriers in the ways of achievement of the goals of the Third Industrial Revolution by way of substitution of fossil fuels by carbon free or carbon neutral energy resources and how to remove them. Besides, one major issue in this context would be the cost effectiveness of the transition to the new industrial order of the Third revolution through the technological and socio economic transformation. As new technologies representing the five pillars of the third revolution as described earlier in this paper would be highly knowledge intensive and as the patented knowledge market is highly imperfect and monopolistic, the capital cost may become high, standing in the way of cost effectiveness and the distribution of capitalism in the new order. So far as the inclusiveness of the development process is concerned, wide sharing of knowledge, transfer of technology and control of price of the knowledge capital by governmental intervention become important for both the sharing of benefit of the new industrial revolution between the rich and the poor and between the developed and the developing countries. Co-operation among G-20 countries in joint research on science and technology and in sharing and transferring technologies across borders would only enable the developing countries to leapfrog to a higher stage of development characterized by the Third revolution. The intellectual property right regime would be of critical importance in such knowledge sharing and delivering the R&D output to the users at affordable prices and in converting the knowledge into a global public good at the earliest.

It is to be further noted that all the renewable energy resources like solar radiation, wind flow, tidal-wave, micro hydel and storage hydroelectricity which are to replace fossil fuels are ultimately solar powered. All these renewables including storage based hydroelectricity as already pointed out are ultimately solar-powered. However, the maximum of solar radiation reaching the earth is a finite, non-storable and dilute form of energy. The potential of electric power generation from the wind or tide or micro hydel water resource flows in any given geographic region is limited and the time distribution of their availabilities is determined exogenously for the human economy by the ecosystem behavior of the nature. The divergence between the time distribution of demand for electric power and the time distribution of availability of such non-storable basic energy resources creates the problem of full utilization of opportunities as well as meeting the demand unless there is a grid connection with such renewable resource based power supply. If the grid connectivity be imperative for the best utilization of such abiotic resources like solar and wind whose supply may widely fluctuate at times, it would require quite a strong and wide transmission and distribution network which would be high cost to make the system viable. As the new energy scenario in the era of third industrial revolution envisages all electricity to be supplied mostly from new renewables, it is difficult to conceive how the supplies of a large number of small to medium scale power generation units or stations can be synchronized with the demand of large sources of load demand for power like steel, aluminum, paper, railway traction etc. unless the industrial landscape of the economy drastically changes to be one of cottage and small to medium scale units. Can digitization and automated control of production processes and new material based technologies effect such a transformation of the industrial economy? Even if it can, one needs to assess carefully the socio economic implication of such changes in terms of impact on employment, capital intensity and nature of participation of the people in the new order of the Third revolution.

However, in the context of short to medium run policy for sustainable energy development it has already been noted above that, of all the non-conventional or new energy options, the hydro, wind, biomass and dung based biogas have the advantage of no significant land use diversion, while the solar power and any plantation based fuel would require land which may have high social opportunity cost of diversion if it impinges on the food security of the country. The exploitation of such options for greening the energy scenario would therefore require careful land use planning for maintaining inter sectorial balance and maximization of the social welfare of the people. This issue is important for our long run planning as land use has become politically and economically a sensitive issue in a high population density developing country like India.

The government of India has however, recently given a new thrust on the development of renewables for power generation particularly for solar power development. The Twelfth Five Year gives a target of capacity addition of 30.000 MW of renenewables based electrical energy over the time horizon up to 2031–32. As part of the National Action Plan on climate change it has mandated certain share of new renewable energy supply in the total annual electrical energy supply to the

meet requirements over the time horizon 2009–10 to 2016–17 starting with 5 % in 2009–10 and ending up with 12 % share in the terminal year of 2016–17. However, the actual capacity addition of new renewables is falling short of the requirement to implement such mandates as their exist great uncertainties regarding their implementability in view of the unwillingness of distributors to buy such high cost power in a regulated regime of fixed tariffs. The Twelfth Five year Plan however, proposes the introduction of certification of renewable energy which would be viewed as a product along with power for power generated by renewables. These certificates would be tradable and make the mandating a share of renewables of power sold by the Distribution companies operationally viable.

To elucidate the point we may elaborate as follows. For any production of electricity from renewables the generator of power would be entitled to obtain certification of such generation, number of certificates being proportional to units of such generation, from the certifying agency. The generator will be permitted to trade them at a price if there is a market for such certificates to augment their total earning which would now consist of sales proceeds of electrical power and those certificates. Such a market will emerge to the extent the procurement of retail seller of renewables based power falls short of the mandated requirement of renewables based power's share in the total sales by them. Under competitive condition, such market will ensure the emergence of a price of certificates which would reflect the shadow price of renewables based power from the view point of environmental sustainability.

The process of transition to third revolution through the development of renewables as energy source, hydrogen along with fuel cell technology, IT based energy internet for energy sharing, digitization of manufacture and infrastructural operations among others likely to require large mobilization of capital whose financing is a big challenge for the process. Both the state policy initiative and international cooperation are imperative for meeting the challenge. The cooperation between the developed and the developing countries in R&D and knowledge sharing can significantly reduce some of the financial costs in the long run. It has to be noted here that the economic reforms of the kind introduced in India to induce greater competition in the energy industry and ensure flow of financial resources to meet the need of the infrastructural sector has not met with adequate success. The economic reforms in the power sector as carried out for spinning competition in the markets of generation and distribution of electrical power and for ensuring equity in resource allocation and fixation of tariff under the new regulatory regime as witnessed in the power sector in India have unfortunately not been able to deliver the objectives. The political economic interference in tariff fixation by regulators, poor quality of governance, lack of appropriate legal order and finally lack of political will has in fact been responsible for poor rate of transforming our energy economy. A transition to the third industrial revolution and India's becoming a partner in guiding and participating in the transition process would demand long range vision and political will of the leaders and policy makers and institutional capability development.

References

Baland JM, Bardhan P, Das S, Mookherjee D, Sarkar R (2006) Managing the environmental consequences of growth: forest degradation in the Indian Mid-Himalayas. Paper presented at the Indian policy forum 2006, at NCAER, New Delhi

Daly HE (1999) Uneconomic growth in theory, fact, in history and in selection to globalization. Ecological economics and ecology of economics. Edward Elgar, U.K, Cheltenham, pp 8–24

Global Carbon Capture and Storage Institute (GCCSI) data base (2011)

Government of India, National Sample Survey Organisation, Survey Report No. 542. Energy Sources for Indian Households for Cooking and Lighting 2009–10

Government of India, Central Statistical Organisation. Energy Statistics 2012

Government of India, Planning Commission 2006. Integrated Energy Policy: Report of the Expert Committee, New Delhi

Government of India, Planning Commission. Twelfth Five Year Plan 2013

Gupta M, Sengpta R (2012) Energy savings potential and policy for energy conservation in selected indian manufacturing industries, Working Paper No: 2012-105, National Institute of Public Finance and Policy

International Energy Agency, G-20 Clean Energy, Energy Efficiency Deployment and Policy Progress. Developed in co-operation with G-20 Clean Energy and Energy Efficiency Working Group, 2011, OECD, Paris

Parikh JK, Parikh KS (1977), Mobilisation and impacts of biogas technologies. Energy 2

Parikh J, Parikh KS, Laxmi V (2005) Lack of energy, water and sanitation and its impact on rural india. In: Parikh KS, Radhakrishna R (eds) India development report, 2004–05. Oxford University Press, New Delhi

Rifkin J (2011) Third Industrial Revolution. Palgrave Macmillan

Sengupta R (2010) Prospects and Policies for Low Carbon Economic Growth of India. National Institute of Public Finance and Policy, New Delhi, 2010

Sengupta R (2012) Macroeconomic Sustainability of Fossil Fuel and Coal based Power Development in India. Report of a study for World Institute for Sustainable Energy (mimeo) (2012)

Singhal R, Sengupta R (2012) Energy security and bio-diesel: implications for land use and food security. Econ Polit Wkly 47(40), 6 Oct 2012, Mumbai

Suki L (2010) Drivers of Energy Efficiency Industries. In: India Infrastructure Report 2010, Infrastructure Development in a Low Carbon Economy, 3i-Network, Infrastructure Development Finance Company, Oxford University Press, New Delhi. World Bank

http://en.wikipedia.org, Third Industrial Revolution, 9 Oct 2013

World Bank, World Development Indicators, 2011 & 2012

World Institute of Sustainable Energy (2013) Future of coal electricity in India. World Institute of Sustainable Energy, Pune

World Institute of Sustainable Energy (2014) Coal in India: time for a verdict. World Institute of Sustainable Energy, Pune

Part IV
Reforming the Global Financial System—Implications for Long Term Investment Finance

Chapter 10
Financial Regulatory Reform: A Mid-term Assessment from an Emerging Market Perspective

Alok Sheel and Meeta Ganguly

10.1 Introduction

From around the beginning of 2007 there was growing turbulence in, and following the collapse of Lehman brothers in September 2008 a near collapse of, the US financial system not seen since the Great Depression of the 1930s. The proximate cause of this collapse lay in the US sub-prime housing sector, a relatively small segment of the US financial system.[1] As things turned out, however, what came to

[1]According to the Congressional testimony of July 2007 testimony of Ben Bernanke, Chairman of the US Federal Reserve at the time, sub-prime losses, though significant, were estimated at just $50–100 billion. http://money.cnn.com/2007/07/19/news/economy/bernanke/index.htm?postversion=2007071914. At that time the size of the US residential mortgage market was estimated at around $10 trillion, with the sub-prime component at just 12 % of the total. Weaver, Karen, *The Sub-prime Crisis: A Synopsis*. Deutsche Bank, *Global Securitisation and Structured Finance 2008, Chapter 4, pp. 22–31*. http://www.globalsecuritisation.com/08_gbp/gbp_gssf08_022_031_db_us_subprm.pdf.

A. Sheel (✉) · M. Ganguly
Planning and Economic Affairs, Member Secretary State Planning Board,
Special Representative in New Delhi for Union Finance Ministry
and Niti Ayog, Government of Kerala, New Delhi, India
e-mail: aloksheel@aloksheel.com

M. Ganguly
e-mail: meetaganguly@yahoo.co.in

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_10

be known as the US "sub-prime crisis" pricked a gigantic asset bubble[2] and led to a run in shadow banking that brought the entire western financial system to its knees and tipped the global economy into recession.

The rationale for a major regulatory overhaul of the financial system in major advanced economies was apparent even before the cataclysmic collapse of Lehman Brothers,[3] an event which in the popular imagination marked the onset of the global financial crisis. Once it was clear that both the global financial system and the global economy were in a tailspin, G20 Leaders mounted a globally orchestrated rescue by systemically important countries to steer the global economy out of recession, stabilize financial markets and address what in their estimation were the two root causes of the breakdown, namely escalating global imbalances and major regulatory failures in the international financial system whose excesses took perhaps the chief blame for the financial crisis. The G20 spearheaded a number of global initiatives through its own deliberations and through four Working Groups,[4] and based on their reports steered the global reform agenda. This was supplemented by a number of national initiatives, such as the monumental Dodd-Frank Act (US),[5] the Vickers Commission (UK),[6] and the Liikanen[7] Reports (EU).

---

[2]Asset bubbles involve mispricing of assets over an extended period, and are preceded by a period of low volatility when financing is easily accessible, speculators are very active and there is a prominent buildup of leverage. The bubble bursts with the arrival of the 'Minsky moment' leading to distress sale by speculators as they fail to roll over short-term debt, eventually resulting in systemic collapse of asset prices through fire sales as the value of assets used as collateral for the borrowing also falls. Brunnermeier Markus and Oehmke Martin, "*Bubbles, Financial Crises, and Systemic risk*" *NBER working paper # 18398,* September 2012, http://www.nber.org/papers/w18398.pdf. Nobuhiro Kiyotaki and John Moore, "*Credit Cycles*", *Journal of Political Economy*, 1997, vol. 105, no. 2. http://econweb.ucsd.edu/~grondina/pdfs/Econ211_KiyotakiMoore1997.pdf.

[3]In a paper published in April 2008, the authors had specifically anticipated nine problems with the western financial system that needed to be fixed, namely, capital adequacy norms, strengthening the existing safeguards to address maturity mismatches, the banking emolument structure, integrity of credit quality, consumer protection, shadow banking, mark to market, credit rating agencies and monetary policy. Alok Sheel and Meeta Ganguly, "*The Rise and Fall of Securitized Structured Finance*?" (with Meeta Ganguly), *Economic and Political Weekly*, vol. 43, no. 16, April 19–April 25, 2008. pp. 44–51. http://www.epw.in/perspectives/rise-and-fall-securitised-structured-finance.html.

[4]G20 Working Groups 1 and 2. http://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/20_010409.pdf. http://www.astrid-online.it/Dossier--d1/Documenti/The-London/G20_wg2_27_03_09.pdf.

[5]A brief summary of the *Dodd Frank Wall Street reform and Consumer Protection Act* is available at http://www.banking.senate.gov/public/_files/070110_Dodd_Frank_Wall_Street_Reform_comprehensive_summary_Final.pdf.

[6]A brief summary of *The Independent Commission on Banking: The Vickers Report* is available in the House of Commons Library, SNBT 6171 by Timothy Edmonds, dated January 3, 2013. www.parliament.uk/briefing-papers/sn06171.pdf.

[7]A brief summary of the main recommendations of the *High Level Expert Group on Reforming the Structure of the EU Banking Sector* is available in Tom Burgis, *The Liikanen Report Decoded*, *Financial Times*, October 2, 2012, http://www.ft.com/intl/cms/s/0/0ff0b3a4-0c8a-11e2-a73c-00144feabdc0.html#axzz2h1uncatz.

The G20 approach to reforming global finance was comprehensive, spanning four broad areas: regulatory reform; improving regulatory co-operation and supervisory oversight of the global financial system; putting in place orderly resolution structures to avoid taxpayer bailouts; and a mechanism for periodic risk assessment and implementation of the new standards in major financial jurisdictions. The G20 perspective was logical and progressive: agreeing the new regulations, supervising their implementation, putting in place resolution mechanisms in case financial institutions failed, and finally, subjecting the entire system was to periodic assessment and stress tests for robustness. The Financial Stability Forum (FSF), hitherto a preserve of advanced economies, was expanded to include all G20 countries. The restructured entity was renamed the Financial Stability Board (FSB) and tasked by Leaders to coordinate the reform agenda, along with the Basel Committee on Banking Supervision (BCBS) (for Basel III); the International Monetary Fund (IMF) (for Financial Sector Assessment Programs (FSAPs)); the OECD-Global Forum (making tax havens compliant); other specialized international regulatory bodies like the International Organization of Securities Commissions (IOSCO) for reforming the OTC derivatives market, High Frequency Trading platforms and dark pools of private capital; and the Financial Accounting Standards Board of the US and the International Accounting Standards Board for harmonizing international accounting standards. The FSB itself worked directly on important areas such as shadow banking, systemic risks posed by Systemically Important Financial Institutions (SIFIs), bank compensation practices, reforming the over-the-counter (OTC) derivatives market, etc.

So far there has been notable progress on the first pillar in the form of the agreement—regulatory reform—on the new Basel III capital and liquidity standards for commercial banks. The progress in regulatory co-operation and co-ordination has been rather patchy so far. With regard to the third pillar, namely resolution, the Financial Stability Board has also come out with guidelines and a list of 44 G-SIFIs, and the Dodd-Frank Act in the US has put in place a framework for orderly resolution of failure of large financial institutions. On the fourth pillar, the FSB has moved to strengthen the Financial System Assessment Programme (FSAP) of the IMF and stress tests are now routinely used by regulators. It is not possible to address the full gamut of the regulatory reforms underway. This paper therefore focuses on what the authors believe are the most critical financial regulatory reform initiatives under the aegis of the G20, namely Basel III, macro-prudential regulation and shadow banking, the Volcker Rule, and dealing with financial institutions deemed too big to be allowed to fail, from an emerging market perspective.

The broad objective of these core reforms of the international financial system is to make commercial banking safer by upgrading its regulatory framework from Basel II to Basel III, and to insulate it from the activities of shadow banking that was the source of recent instability in financial markets. Recognizing that sources of systemic instability in the financial system may remain outside commercial banking, efforts are also afoot to evolve a regulatory and monitoring framework for shadow banking, and to put in place mechanisms to ensure that taxpayer funded bailouts are no longer necessary to infuse capital into financial institutions that are too big and systemically important to be allowed to fail.

10.2 Basel III: Capital, Leverage, Liquidity

Around 2007, just before the crisis, American and European banks had built up significant leverages on its balance sheet. Deutsche bank's leverage was more than 50 times in 2007 which is now down to 30 in 2013 (as per the financial data supplement for 4Q2013 released by Deutsche Bank on 29th January 2014). To be noted that Lehman Bros, during the year of its collapse in 2008, had a leverage of around 31 times, almost on par with what Deutsche is currently operating at. Lehman publicised and emphasised on a net leverage of 16 times by not factoring in notional derivatives, significant off balance sheet exposures to SPVs and SIVs, contractual payments, obligations and intelligent use of the accounting gimmick like repo 105. (Lehman used this tool to move around $50 billion worth of assets off its balance sheet.)

The Basel III initiative should be viewed against the build-up of leverage relative to capital during the financial crisis. As asset prices plunged in response to fire sales triggered by the inability to rollover short-term debt from financial markets that was used to purchase assets of longer duration, their entire capital was quickly wiped out. While smaller banks could be allowed to fail or be bailed out by FDIC where they were covered, systemically important banks that were too big to be allowed to fail had to be bailed out by taxpayer money. The regulatory reform process addresses these problems in two ways, first by improving the quality and quantity of regulatory capital and liquidity under Basel III, and second, through initiatives like the Volcker Rule to insulate commercial banks from reliance on short-term funding from capital markets and losses on their balance sheets through proprietary trading.

10.2.1 Capital

The major focus of the revised Basel-III norms for commercial banks was on strengthening global capital and liquidity rules. Basel-III is equated to a reform package with emphasis on improving risk management, governance, transparency and disclosure norms of banks. Comparing Basel II and Basel III Capital Ratios (Table 10.1).

While the basic capital requirements under Basel II and Basel III are identical at 8 %, the core equity component has been increased, and regulated institutions are expected to build up an additional capital conservancy buffer of 2.5 % to absorb losses during economic downturns, comprising entirely of additional core tier 1 capital, which effectively raises the capital adequacy ratio from 8 % under Basel II to 10.5 % under Basel III. The core equity component has been enhanced from 2 to 7 %. Over and above this, as and when regulators/designated authorities are of the view that a bubble is in the making they can mandate up to an additional 2.5 % of core tier I capital to RWA as a hedge against the boom-bust cycle of

Table 10.1 Comparing Basel II and Basel III capital ratios

Capital ratios	Basel II (%)	Basel III (%)
Core Tier I capital (common equity requirement) to risk weighted assets (RWA)	2	4.5
Tier I capital + RWA	4	6
Total capital to RWA	8	8
Capital conservation (core Tier I) buffer to RWA	–	2.5
Countercyclical buffer to RWA	–	0–2.5
Leverage ratio *(unweighted)*	–	3

credit growth to address the issue of pro-cyclicality. Thus, the maximum regulatory capital to RWA under Basel III has been increased to 13 % from 8 % under Basel II, while at the same time tightening the definition and quality of capital held.

10.2.2 Leverage

Basel III recognized that regulated entities could game the system by reducing capital requirements by lowering risk weights, as these are determined by the regulated entities' internal ratings-based models. It therefore mandated a Leverage Ratio of 3 %, which is a risk neutral measure (calculated as a percentage of "capital measure" over "exposure measure") introduced to prevent excessive build-up of leverage on the institution's balance sheet. It is noteworthy that this minimum leverage ratio of 3 % is the same that the largest banks in the US held around the time that the crisis erupted. The Vice Chairman of Federal Deposit Insurance Corporation (FDIC), Thomas Hoenig, therefore advocates a ratio of 10 %.[8] The Federal Reserve, OCC and the FDIC have fixed a ratio of 5 % for the largest US bank holding companies and 6 % for the subsidiary banks to be rolled out by January 1, 2018.[9]

[8]Douwe Miedema, Regulators push for 6 % leverage ratio for banks: Bloomberg, Reuters article dated June 21, 2013. http://www.reuters.com/article/2013/06/21/us-banks-regulation-capitalidUSBRE95K0R220130621.

[9]JP Morgan Chase, Citigroup, Bank of America, Wells Fargo, Goldman Sachs, Morgan Stanley, Bank of New York Mellon and State Street. It needs to be recognized, however, that under US GAAP banks can net off derivative exposure while calculating the leverage ratio, unlike under IFRS rules and BASEL III in Europe. It is therefore not clear whether the new US ratio would be effectively higher in all cases. Gina Chon and Tom Braithwaite, *Biggest US banks forced to hold $68 billion in extra capital*, Financial Times, April 8, 2014. http://www.ft.com/intl/cms/s/0/a8fc5db6-bf47-11e3-b924-00144feabdc0.html#axzz2yRJ07hfr.

10.2.3 Liquidity

During the global financial crisis a number of financial institutions, such as Northern Rock, Bear Stearns and Lehman Brothers, suffered a liquidity crunch due to over-reliance on short term wholesale funding from the market. Basel III has therefore proposed two new liquidity enhancing ratios, in addition to the capital adequacy and leverage ratios, to reduce the likelihood of such liquidity crises in commercial banks in future. The Net Stable Funding Ratio (NFSR) seeks to calculate the proportion of long-term assets which are funded by long term, stable funding, usually over a 1 year stress scenario. The minimum requirement for this ratio is 100 % to be rolled out from January, 2018 onwards.[10] The second liquidity ratio is the Liquidity Coverage Ratio (LCR) that mandates banks to hold sufficient high quality liquid assets to cover net liquidity outflow over a minimum 30 day stress scenario, such as a credit rating downgrade, or difficulty in accessing funds from wholesale markets. The minimum LCR which banks are expected to maintain is 60 % on introduction (from January, 2015 onwards) and would be revised upwards to 100 % from January 2019. While the leverage and liquidity coverage ratios can be effective in addressing the moral hazards arising from internal risk weights, and liquidity concerns during periods of financial stress, these are new tools whose working and implementation by regulators have still to be seen in practice. On the one hand there is a danger that some assets—especially those off balance sheet, or those currently considered risk free (such as sovereign debt)—may be eventually excluded from the ratio. On the other hand there is a risk that banks may take these low-risk high volume liquid instruments such as sovereign bonds and repos off their balance-sheets in order to raise returns on their portfolio.[11] There are lingering fears that the battle over asset classification may defeat the original objective of disincentivizing riskier, higher-yielding assets on bank balance sheets.[12]

---

[10]BCBS's latest issue of final standards for NSFR in October 2014 has been the cause of friction between banks and regulators as the revised norms suggest changes in required stable funding (RSF) for inter-bank short term exposures, equities, derivatives and assets posted as margins. A higher multiplier factor like say 50 % RSF was assigned in case of repo trades, where the bank was the lender. This put significant pressure as capital and funding requirement increased. This multiplier factor is now reduced to 10 %. A conservative NSFR approach for equity market transactions undertaken by banks will significantly increase the cost of equity trades and also curtail their participation. Banks support/undertake several critical functions that are vital for vibrant performance of equity markets. Fleming Sam, "*Banks say funding rules will make key equities trades more expensive*" Financial Times, September 1, 2014. http://www.ft.com/cms/s/0/b05a87da-31f3-11e4-b929-00144feabdc0.html#axzz3QryA5sAQ.

[11]Alberto Gallo, Taking the Capital out of Capitalism, Wall Street Journal, January 15, 2014. http://online.wsj.com/news/articles/SB10001424052702304149404579322353754599412. Christopher Thompson, hit Europe repo market, Financial Times, February 6, 2014. http://www.ft.com/intl/cms/s/0/4f1f6ca8-8f3a-11e3-be85-00144feab7de.html#axzz2xcp93B7Z. Daniel Shafer, *Regulation pushes banks on to a riskier path*, Financial Times, August 5, 2013. http://www.ft.com/intl/cms/s/0/6f14e23e-fdc4-11e2-8785-00144feabdc0.html#axzz2h1uncatz.

[12]Shearman and Sterling, LLP, Basel III Framework: The Leverage Ratio, February 5, 2014, http://www.shearman.com/~/media/Files/NewsInsights/Publications/2014/02/BaselIIIFrameworkTheLeverageRatioFIAFR050214.pdf.

10.2.4 Debate Over Impact of Basel III and Macro-prudential Regulation

The relatively quick international consensus on the new Basel III standards is a remarkable achievement by any standard. The revised norms have understandably attracted strong criticism from both sides of the ideological spectrum. On the one hand there is intense lobbying to dilute their stringency by arguing that both commercial banking and the economy are struggling to get back to their feet, as a result of which banks are finding it difficult to raise additional capital. Too aggressive a regulatory push could induce banks to shrink their balance sheets, which would have a particularly adverse fall out on SMEs that are dependent on bank lending, and have historically led employment growth out of recessions, thereby hampering the economic recovery.[13]

Thus Jamie Dimon, chief executive of JP Morgan has warned that customers face higher credit costs, denial of some financial products and in some cases loss of credit access altogether, pushing them towards 'sophisticated' shadow banks. Escalating deleveraging has already resulted in a sharp decline in cross-border claims of international banks, or financial de-globalization,[14] and there are fears that this could eventually adversely affect capital flows into developing countries. The space vacated by commercial banks has led to a rebound of shadow banking—from where the recent financial crisis emanated—to pre-crisis levels.[15] The confident rebound of shadow-banking may also reflect the new moral hazard

[13]Eavis Peter, "With new capital rule, Fed nudges big banks to shrink", New York Times, December 9, 2014. http://dealbook.nytimes.com/2014/12/09/with-new-capital-rule-fed-nudges-big-banks-to-shrink/?_r=1 The European financial structure characterised by relatively small players in the corporate bond market and mortgage finance, could see significant "credit constrained pain" inflicted on mortgage and corporate borrowers as European banks may need to shrink their asset base to comply with the Basel III norms. A smaller asset base while keeping capital constant will immediately improve leverage ratio. A higher leverage ratio implies a self-imposed cap by banks on borrowing and lending thereby hindering profitability. Samuels Simon, *Withering regulations will make for shrivelled banks*, Financial Times, January 13, 2015. http://www.ft.com/cms/s/0/346cbe4c-9a79-11e4-8426-00144feabdc0.html#axzz3PAfmlWx6.

[14]McKinsey Global Institute, Financial Globalization: Retreat or Reset? Global Capital Markets 2013, March 2013, http://www.mckinsey.com/~/media/McKinsey/dotcom/Insights%20and%20pubs/MGI/Research/Financial%20Markets/Financial%20globalization/MGI_Financial_globalization_Full_report_Mar2013.ashx. Rijckeghem Van Caroline and Mauro Beatrice, *Financial Deglobalization: Is The World Getting Smaller?* September, 2013. http://www.econ.boun.edu.tr/content/wp/EC2013_14.pdf.

[15]Brooke Masters, *Shadow banking surpasses pre-crisis level*, Financial Times, October 27, 2011. http://www.ft.com/intl/cms/s/0/39c6a414-00b9-11e1-930b-00144feabdc0.html#axzz2h1uncatz. Anne-Sylvaine Chassaney and Henny Sender, Finance: Forced into the Shadows, Financial Times, June 6, 2013. http://www.ft.com/intl/cms/s/0/a0984be0-ce88-11e2-8e16-00144feab7de.html#axzz2h1uncatz. Tom Braithwaite, *Dimon warns regulation will push credit costs higher*, Financial Times, April 9, 2014. http://www.ft.com/intl/cms/s/0/c5bff9cc-c027-11e3-bfbc-00144feabdc0.html?siteedition=intl#axzz2yRJ07hfr.

arising out of the US Federal Reserve extending liquidity support to shadow banks through reverse repos during the financial crisis. The market may well have factored in this de facto central bank backstop now available for shadow banking.[16] The biggest irony is not that Basel III is inapplicable to the shadow banking system, but that it may have the unintended impact of expanding shadow banking at the expense of the safer component of the financial system. It is on account of such concerns that Basel III has a long phase-in period, extending right up to 2019.

This long phase in period, however, only increases fears at the other end of the ideological spectrum that Basel III has not done enough to prevent future financial crises and associated sovereign bail-outs,[17] and that much of what has been done would be further diluted as the memory of the crisis fades. Three major concerns stand out in particular. First, notwithstanding an element of counter cyclicality in the new capital, leverage and liquidity buffers, it mostly retains the pro-cyclicality of Basel II because of the retention of the mark-to-market[18] principle that tends to artificially inflate balance sheets during a boom and deflate them in a crisis, resulting in excessive risk taking on the one hand and fire sales that aggravate financial panic on the other. While there may be some value in notionally valuing assets at their market value, caution needs to be exercised while using such values for collateral while borrowing in a rising market, as this could result in insolvency and fire sales if asset prices decline. This would also keep leverage in check. Likewise, caution needs to be exercised in marking down the value of assets during a financial panic beyond what the underlying loan defaults warrant. Regulators also need to be firm in not permitting profits to be booked and distributed on the basis of indices that are opaque and based on thin trades at best, and manipulated at

[16]Paul McCulley, *Make shadow banks safe and private money sound*, Financial Times, June 16, 2014, http://www.ft.com/intl/cms/s/0/f5b30bce-f321-11e3-a3f8-00144feabdc0.html?siteedition=intl#axzz34zaoUUix.

[17]In an influential work, Admati and Hellwig have made a persuasive case for banks being mandated a much higher capital ratio of 20–30 %, as was the case till the early twentieth century, before deposit insurance and implicit sovereign guarantees created new moral hazards by which much lower ratios became acceptable to investors on account of transfer of risks to the tax-payer. They also argue that higher capital norms on their own will not affect credit off take and, with a higher equity stake, bank owners would adopt more prudent lending practices. Anat Admati and Martin Hellwig, The Bankers' New Clothes: What's Wrong with Banking and What to Do About It, March, 2013.

[18]It is for this reason that Sheila Bair, former Chairman of the US *Federal Deposit Insurance Commission*, has been consistently critical of mark-to-market accounting. See her interview in Forbes Magazine, August 2, 2010. http://www.forbes.com/2010/07/30/bair-lehman-bank-failure-intelligent-investing-fdic.html. According to FSB's Global Shadow Banking Monitoring Report, published on Nov 14th, 2013, the total size of the shadow banking system in the Euro nations and 20 other jurisdictions, including US and UK, rose rapidly from $26 trillion in 2002 to a peak of $62 trillion in 2007, before declining slightly to $59 billion in 2008, only to rebound strongly to $71 trillion in 2012, or roughly equal to nominal global GDP. The share of shadow banking in financial intermediation in these countries was 27 % in 2007 and 24 % in 2012. http://www.financialstabilityboard.org/publications/r_131114.pdf.

worst,[19] instead of actually clearing the market. This would at least to some extent keep runaway price asset inflation in check.

Second, while Basel III does endeavour to disincentivize commercial banks from taking on dodgy debt through higher risk weights, and also tries to rein in leverage through a new leverage ratio under Basel III, the attempt to build-up of leverage in the financial system as a whole has been feeble even though it is widely recognized that excessive leverage underlies every financial crisis. Past experience indicates that financial risk, asset inflation, bubbles and leverage are all strongly correlated.[20] The build-up of leverage was accompanied by the financialisation of advanced economies, with a rapid expansion of claims between financial entities themselves through claims and reclaims of the same underlying assets, rather than through expansion of claims on real sector activities that expand the production frontier.[21] It is the latter which is the source of value addition and therefore ultimately services all forms of leverage.

However, even as it classifies debt according to its risk profile, by failing to distinguish between good and bad forms of leverage, and putting in place mechanisms to contain total leverage in the system (which includes sovereign debt and shadow banking) at levels commensurate with economic growth,[22] it does little to reverse the financialisation of advanced economies that had added to overall riskiness of the financial system without commensurate gains through economic growth. Historical experience possibly tells us that the relationship between financial depth and growth is not linear. This relationship is more like the Kuznets curve, where high growth is associated with greater financial depth up to a point, beyond which the association breaks down and the risks increase.[23]

---

[19]Brooke Masters, *IOSCO drafts guidelines after Libor scandal*, Financial Times, April 9, 2013. http://www.ft.com/intl/cms/s/0/1c71c518-a132-11e2-bae1-00144feabdc0.html#axzz2yw3u5tZB.

[20]Reinhart, Carmen and Rogoff, Kenneth, This Time is Different: Eight Centuries of Financial Folly. Princeton University Press, 2011. Kindleberger, Charles P and Aliber, Robert Z, Manias, Panics, and Crashes. A History of Financial Crises. Fifth Edition, John Wiley and Sons, Inc. 2005.

[21]Bezemer, *Dick, Big finance is a problem, not an industry to be nurtured*, Financial Times, November 3, 2013. http://www.ft.com/intl/cms/s/0/10c43a5a-4300-11e3-8350-00144feabdc0.html?siteedition=intl#axzz2ymsnoDq0. This issue has also been pointedly flagged recently by Lord Adair Turner, former Chairman of the UK Financial Services Authority. Adair Turner, *Too Much of the Wrong Sort of Capital*, Conference on Capital Management and Macroprudential Regulation for Financial Stability and Growth, Centre for Advanced Financial Research and Learning (CAFRAL) and Reserve Bank of India, New Delhi, January 13, 2014. http://www.cafral.org.in/sfControl/content/DocumentFile/117201484504PM_IPD1.pdf.

[22]In other words it does not take a 'balance sheet' view of the economic system that is necessary to prevent the build up of bubbles that ultimately lead to financial crises. Caruana, James, Global economic and financial challenges: *A Tale of Two Views* Bank for International Settlements, April 9, 2014. http://www.bis.org/speeches/sp140409.pdf.

[23]Cecchetti, Stephen G and Kharroubi, *Reassessing the Impact of Finance on Growth*, in Mohanty, Deepak ed., Monetary Policy, Sovereign Debt and Financial Stability. The New Trilemma. Foundation Books and Reserve Bank of India, 2014.

Overall leverage in advanced economies has not declined since the crisis began, as private—especially housing—debt has mostly been nationalized.[24] Hence, while the source of financial risks may have shifted, it is debatable whether the system has become less risky, or whether the market and regulators are adjusting to this shift. Since sovereign bonds provide the risk-free benchmark in key financial markets, such as repos, any threat of default can be hugely destabilizing.[25] The enormous problems associated with phasing out and reversing quantitative easing by central banks, and aligning asset prices with real income growth rather than leverage, reflect this conundrum.

Third, as Basel III has the same weakness as its precursors, in that it is not a system wide risk management system for the financial sector as a whole. The reform measures rolled out or envisaged do not capture the risk that emanates from interaction and inter-linkages between financial institutions, market participants, jurisdictions and various kinds of risks that face a financial system.[26] A mere caution on individual bank balance sheets and its health will not help avert the next crisis. A corollary to this failure to move beyond micro-prudential regulation of individual institutions to address the problem of systemic risk through macro-prudential regulation is that it does not prevent migration of systemically important financial activity beyond the regulated umbrella into shadow banking. One of the key lesson of the crisis, that effective regulation of commercial banks alone is inadequate to prevent financial crises, has not been suitably addressed in Basel III.

10.3 Shadow Banking

The G20 without doubt recognized that simply inoculating the regulated banking system against excessive exposure to shadow banking through tweaking risk weights and leverage and liquidity ratios of commercial banks may not make the financial system safer than before. FSB's ongoing work on separately evolving norms for shadow banking,[27] and the manner in which the discretionary authority

[24]Nick Timiraos, *Five Years Later, Fannie Mae, Freddie Mac Remain Unfinished Business*, The Wall Street Journal, Sept. 6, 2013, http://online.wsj.com/article/SB10001424127887323423804579022672911329450.html. Karen Croxson, Susan Lund and Charles Roxburgh, The Working Out of Debt, Mckinsey Global Institute, Mckinsey Quarterly, Jan. 2012. https://www.mckinseyquarterly.com/Working_out_of_debt_2914.

[25]Gillian Tett, *Debt impasse exposes Achilles' heel of Finance*, Financial Times, October 11, 2013. http://www.ft.com/intl/cms/s/0/2fa2f0ec-31c1-11e3-a16d- 00144feab7de.html?siteedition = intl#axzz2hgYD7Ejl.

[26]Claessens, Stijn and Kodres, Laura, *The Regulatory Responses to the Global Financial Crisis: Some Uncomfortable Questions*, IMF Working Paper # 14/46, March 2014. http://www.imf.org/external/pubs/ft/wp/2014/wp1446.pdf.

[27]Financial Stability Board, Strengthening Oversight and Regulation of Shadow Banking. An Overview of Policy Recommendations. August 29, 2013. http://www.financialstabilityboard.org/publications/r_130829a.pdf.

given to the Financial Stability Oversight Council (FSOC) under the Dodd-Frank Act in this regard is exercised,[28] both of which are still works in progress, are therefore both critical to keeping systemically important financial activities within the regulated perimeter.

The FSB defines shadow banking as "the system of credit intermediation that involves entities and activities outside the regular banking system". Hedge funds, money market funds, structured investment vehicles are some examples of non-banking financial institutions that were the main carriers of shadow banking activities in the run up to the recent financial crisis.

Shadow banking was the medium through which advanced economies have become highly financialized and its extent is a good measure of such financialization. Shadow banks operate on a model of leverage and maturity transformation similar to the commercial banking system. They too extend long term credit from short term borrowings (mostly through repos and asset backed commercial paper, as opposed to bank deposits of commercial banks) which create similar problems of asset liability mismatch. They can heighten pro-cyclicality by accelerating credit supply and thereby inflating asset prices when the economy is in a growth phase, and also aggravate the credit freeze and prick asset bubbles during a depression in economic activity and/or financial panic. While banks are guided by prudential regulation and have a backstop option of falling back on the central bank as "lender of last resort", shadow banks have no such regulatory leanings.

Through the shadow intermediation process, long term risky loans made by banks are eventually converted into short term highly rated—and therefore apparently risk free—money like liquid financial paper. Thus the loan moves out the walls of one institution and is so processed as to support a chain of wholesale funding and securitisation based lending involving multiple institutions, including the formal banking sector. Herein lies the rationale for the regulatory concern to rein in shadow banks and somehow bring them under the regulatory umbrella. The banking system is closely entangled and involved in the activities of shadow banks. This entanglement lay at the heart of the financial crisis. It would not be an over-exaggeration to state that the financial crisis was essentially a crisis in the shadow banking system and the traditional banking system got majorly hurt by the crisis because of the high level of inter connectedness between the two parallel systems, leading to an increase in systemic risk. Banks also own, support or float shadow banking entities. Apart from this, there is cross funding between the two, inter-holding of debt securities, where there is direct linkage. Shadow banking is a complex web of financial intermediaries involving dealer banks, traditional banks and non-banks, all bounded together by a chain of equally complicated and inter linked transactions. The Volcker Rule in the US, the Liikanen proposals in the EU

[28]Title 1, Section 111 of the Dodd Frank Act authorized the creation of FSOC which is empowered (vide section 113 of the Act) to regulate any financial institutions, that it declares systemically important. This authority has already been exercised, and AIG, Prudential Financial and GE Capital have been declared as non-bank SIFIs to date. https://www.sec.gov/about/laws/wallstreetreform-cpa.pdf.

and Vickers Commission in the UK are all struggling to break this umbilical cord between the two which strengthened greatly with the rise of universal banking and the repeal of the Glass Steagall Act in the United States.

10.3.1 Securitization

"Securitization", "collateralization" and "Money Market Fund" are three economic activities or functions that constitute the core of shadow banking. Securitization involves re-packaging expected cash flow from loans (made by banks) into securities, slicing them into tranches (depending upon the quality of loans and the statistical risk of default) and marketing these to investors. It is a measure of both the extent of financial innovation, and how detached the financial system had become from the real economy, that paper rated triple A by credit rating agencies could contain loans that were individually sub-prime and therefore risky.[29] The instruments created were asset backed commercial papers (ABCP) and asset backed securities (ABS), like Collateral Debt Obligation (CDOs), Mortgage backed securities (MBS) and Residential Mortgage Backed Securities (RMBS). There instruments were deemed to be highly liquid, safe, short term instruments, and in great demand by corporate and asset management companies seeking to earn quick short term return on cash pools. Banks demanded these instruments to be further used as collateral for repos and also for regulatory arbitrage to reduce capital charges. Thus shadow banking is not merely driven by regulatory arbitrage but also by demand pull factor.

10.3.2 Collateralization

Collateralization includes secured funding, i.e. short term loan against collateral paper, mostly government securities or asset backed securities. The problem with collateralization arises when the underlying loans are used to buy other financial assets, which are then used as collateral serially in an ascending spiral of leverage. A singular collateral document can pass through multiple institutions to support various chains of transactions on the basis of the same security. These chains are systemically risky, especially when good quality collaterals (mainly risk free treasury bonds) are not easily available. In the event of a sharp fall in the market price of the underlying collateral, the collaterals are given a 'hair-cut' following which the borrower has to come up with increased margins precisely when liquidity in

[29]JP Morgan issued bad quality mortgages and sold these off as MBS. Five years after the crisis it has been penalised for this with a fine of $13 billion, one of the largest settlements so far connected to the financial crisis, Devlin Barrett and Dan Fitzpatrick, J.P.Morgan, U.S Settle for $13 Billion, The Wall Street Journal, Nov, 19, 2013. http://online.wsj.com/news/articles/SB10001424052702304439804579207701974094982.

the funding market is drying up. This can result in a fire sale of assets that escalates the financial crisis through a further fall in asset prices.

10.3.3 Money Market Funds

"Money market fund" (MMF) is an essential component of the shadow banking system which is a mutual fund that invests in high rated short term debt like treasury, commercial papers, repos and debt instruments. These funds are considered relatively safe and are an important provider of liquidity to financial intermediaries. The key feature of these funds is that they do not let their NAVs fall below $1. If it does, it is termed as "breaking the buck". Reserve Primary Fund, one of the oldest MMF, registered a drop in its NAV to below $1 (i.e. it "broke the buck", with its NAV touching 97 cents) on 16th September, 2008, a day after the bankruptcy of Lehman Bros. The fund held $785 million of Lehman debt. The collapse of Reserve Primary Fund was one of the key drivers of investor anxiety, run on money market funds and credit freeze that ensued subsequently.

FSB's note on shadow banking carries distinct recommendations that are expected to set the platform for regulation and management of MMFs. The significance of MMFs as a channel for liquidity to financial institutions, its systemic importance and its vulnerability to run (Reserve Primary Fund(1)) justifies a separate set of prudential guidelines to manage MMFs. The guidelines for MMFs proposed by FSB touch upon general regulation, valuation, liquidity management (these funds, like banks, face maturity mismatch as assets mature over several months whereas redemption demand by investors can arise any time), credit rating, disclosure and practice in relation to repurchase agreements.

10.3.4 Dark Pools

Dark pools aid secretive trading and facilitates "lack" of price discovery and transparency. These bulk, high frequency trades are not exchange driven, not reported and not in the public domain till after deals are done. They are conducted in the "shadows" of exchange driven trades in dealing rooms of major investment banks and shadow banks. Hardly any policing goes into these dark pool systems. Despite host institutions claims to have systems and processes in place to bar toxic and high frequency trade, Barclays recently got into trouble with regulators for failure on these counts and for re-routing customer trades through its own dark pool system called Barclays LX.[30] It is expected that IOSCO's final report on "Principles

[30]"Dredging Wall Street's dark pools", Financial Times, June 26, 2014. http://www.ft.com/intl/cms/s/0/5c05f9da-fd23-11e3-bc93-00144feab7de.html#axzz36V77Z7vi.

of dark liquidity",[31] would provide some guiding principles on transparency, information and regulation of this shadowy financial market.

10.3.5 Commodity market

Commodity futures have evolved as a new asset class over the years, with significant volatility in prices across metals, energy and agricultural products, raising alarm bell among regulators and policy makers as this can destabilize business cycles. Volumes recorded in commodity derivatives are significantly higher (almost 20 to 30 times[32]) than those generated in the markets and out of synch with production levels in the real economy. Indeed, as Chart XX indicates, oil prices rose sharply as the uncertainty about the global economy rose on account of growing financial instability in the run up to the great crash coinciding with the collapse of Lehman brothers. While commodity prices collapsed dramatically between 2008 and 2009 following the global financial crisis, they turned buoyant again, and remained so right up to 2014, despite all major economies facing an uncertain future. While the recent slide in oil prices from the high of $110 per brings with it both winners and losers in the global economy, the much larger concern is that oil may now be as financialized as housing markets. There are therefore lingering fears that financial linkages could transmit stress from oil markets to the wider financial system, just as the housing bubble burst of 2008 eventually led to the financial crisis.[33]

10.3.6 The Run on Shadow Banks

The entire system in the shadows was apparently working fine until the Federal Reserve started raising interest rates and the trend of rising housing prices started reversing. Sub-prime housing mortgages were predicated on being self-financed in an ever rising housing market, as the value of the underlying collateral increased relative to the loan, rather than through stable labour incomes. As housing prices

[31]"IOSCO principles of addressing dark liquidity". http://www.iosco.org/news/pdf/IOSCONEWS210.pdf, May 20, 2011.

[32]UNCTAD report, "Don't blame the physical markets: Financialization is the root cause of oil and commodity price volatility", Policy brief, September, 2012. https://www.unctad.org/en/PublicationsLibrary/presspb2012d1_en.pdf.

[33]Tett Gillian, *"Finance can cope with cheap oil"*, Financial Times, January 15, 2015. http://www.ft.com/cms/s/0/f3a430a6-9cbd-11e4-971b-00144feabdc0.html.

declined and credit became costlier, refinancing mortgages became difficult, and delinquent loans and foreclosures started rising. Supposedly liquid and safe securitized assets (assured cash flows) were no more deemed to be so; leading to a run on money market funds which held huge quantities of such securitized assets. Structured investment vehicles thrived on the lifeline of re-financing its maturing short term obligations through fresh issue of papers like ABCP. As there were no takers for these commercial papers at the rates previously transacted at during the erstwhile low interest rate economy, SIV assets had to be liquidated at a significant discount. A chain of events followed like liquidity freeze in the interbank market, erosion of trust, withdrawal of credit lending and huge losses at several erstwhile banking giants. Non-financial corporate giants were also caught in this vicious spiral, since all kinds of loans had been securitized. Auto major like General Motors and Chrysler had to be bailed out with TARP funds. Again, it is a measure of the extent to which the financial system was detached from the real economy that the crash in asset prices was out of proportion to the underlying defaults in the loans comprising the security. The actual default on loans and mortgages was not significantly high. The complexity and opacity of the financial instruments of shadow banking however made it impossible to predict which balance sheets would take hit from the underlying defaults, leading to financial institutions becoming fearful of transacting with each other, a collapse of the inter-bank market and fire sale of assets. The mark-to-market regulatory norm necessitated significant write down in asset values as prices came crashing down in a panic driven market.

10.3.7 More Robust Shadow Banking?

Although shadow banking is back to levels it existed prior to the crisis,[34] there is some evidence that its complexion could be changing. According to data published by SIFMA (Securities Industry and Financial Markets Association), global CDO issuance in 2012 was only $58 billion (2011—$31 billion), which is far lower than the all-time high of $481 billion in 2007. The appetite driving securitization has also changed, as underlying loans are mostly good quality corporate loans, and auto loans which had a good repayment record right through the recent financial crisis, rather than dodgy subprime home mortgages that now seem to be an extinct species. A number of other shadow banking instruments, like ABCPs, SIVs and CDSs, which were in big demand before the crisis, have similarly significantly shrunk or become extinct.

However, speciality lenders like Real Estate Investment Trusts (REITS), finance companies, private equity and business development companies have also grown

[34]Sam Fleming, *Shadow banking nears pre-crisis peak*, Financial Times October 30, 2014. http://www.ft.com/intl/cms/s/0/71f5fd1e-6045-11e4-98e6-00144feabdc0.html?siteedition=intl#axzz3HiBqbOe9.

their asset size over the last 5 years taking advantage of the low interest rates and also to fill in the vacuum left by banks which refused to lend to non-prime companies in the aftermath of the crisis. This also lays bare why regulators, aware as they now are of the systemic risk these shadow credit institutions generate; are hesitant to intercept the loan book growth of speciality lenders, by whatever names they are called, through stringent norms. Regulators recognize the need for these shadow credit lending institutions to continue to fuel loan growth as the banking sector grapples with de-risking its loan portfolio. Regulators have also been tolerant of dark pools to enable financial institutions trade large blocks of assets without destabilizing wider market prices.

Private equity firms or asset managers like Apollo Global Management, KKR and Blackstone Group have been on the regulatory radar for their ability to grow their portfolios comprising of risky corporate loans and mortgages. The Dodd Frank Act does cover private equity to the extent of reporting and disclosure to SEC by companies managing assets more than $150 million. What acts in favour of private equity is that it does not create risk of a systemic nature leading to knock-down financial shocks to the system as they are not highly leveraged (mostly 3:1). The possibility of fire sale of assets or panic driven withdrawal of capital at short notice is also remote as there is a commitment to stay invested for a longer duration. The post crisis era has given way to new players (private equity funds, pension funds, sovereign funds) to emerge on Wall Street whose profitability and returns in the new regulatory environment is something to reckon with as traditional banks shy away from feeding the credit starved sections of the economy.[35] So far shadow banking has been much more prominent in the US than in Europe. Only about 25% of overall lending in the Euro area is derived from shadow banks, compared with 50 % in the US.[36] The more stringent capital adequacy ratios under Basel III, and a tighter overall regulatory structure might however make traditional bank lending less profitable. This could create headroom for the expansion of shadow banking, thereby making the European financial system mimick the US.[37] With much of the crisis behind us and banks in the process of repairing its asset quality; shadow banking like hedge funds and money market investment funds in Europe are witnessing a revival.

---

[35]Tett, Gillian, *The real titans of finance are no longer in the banks*. Financial Times, February 13, 2014. http://www.ft.com/intl/cms/s/0/28a6bcb0-93e6-11e3-a0e1-00144feab7de.html#axzz2ymsnoDq0. FT Reporters, *Hedge fund chiefs and former bankers enter the shadows*, Financial Times, June 19, 2014, http://www.ft.com/intl/cms/s/0/f14991aa-f7a6-11e3-b2cf-00144feabdc0.html?siteedition=intl#axzz34zaoUUix.

[36]IMF Global Financial Stability Report, October 2014, Chapter 2- Shadow banking around the globe: How large, and how risky?, http://www.imf.org/external/pubs/ft/gfsr/2014/02/pdf/c2.pdf.

[37]Simon Samuels, Withering regulations will make for shriveled banks, Financial Times, January 13, 2015. http://www.ft.com/intl/cms/s/0/346cbe4c-9a79-11e4-8426-00144feabdc0.html?siteedition=intl#axzz3OhltPntv.

10.3.8 Regulating Shadow-Banks

Considering that the recent global financial crisis emanated from the lightly regulated shadow banking system, regulators are naturally focused on reducing these risks[38] http://www.wsj.com/articles/europe-should-regulate-shadow-banking-says-european-central-banks-vitor-constancio-1413809526. But the jury is still out on whether shadow banking in the post crisis period would be less destabilizing than what it was prior to the crisis. Given the experience with shadow banking during the recent crisis, and because it does not have the liquidity buffers of commercial banking to prevent runs and panics, regulators across jurisdictions are agreed on the need for tighter control of shadow banks. Under Basel III, BCBS has issued guidelines for strengthening the resilience of the banking system against some of the risks posed by shadow banks. These guidelines include measures for higher capital requirement for banks re-securitisation exposure, funding the short term liquidity needs of securitisation vehicles, and for exposures to unregulated financial institution, under the Internal Risk Based Approach (IRB) of Basel Norms. There is also an additional disclosure requirement under the third pillar of the Basel Norms when a bank has exposure to securitization vehicles. However, the regulatory standards for shadow banking itself are being developed by the FSB. In November, 2012, it issued consultative documents suggesting a framework for regulation that mitigated risks arising from the spill-over effect between the regular and shadow banking systems, vulnerability of money-market funds to runs, and systemic risk emanating from shadow banking institutions. In the United States, the Federal Reserve appears to be fashioning a new tool, namely the 'reverse repo' to rein in systemic risk of shadow institutions by controlling credit creation through hair-cuts and also act as lender of last resort as it is for the formal banking sector.[39]

In August, 2013, FSB released the final set of policy document for strengthening oversight and regulation of shadow banks.[40] The emphasis remained on controlling:

a. Spill over effect of shadow-banking on commercial banking.
b. Vulnerability of "money market funds" to runs.
c. Securitization, including minimum risk retention requirements. The Dodd Frank Act also mandates a minimum 5 % 'skin in the game' thumb rule for mortgage originators.

---

[38]Hannon Paul, "Europe Should Regulate Shadow Banking, Says European Central Bank's Vitor Constancio", The Wall Street Journal, October 20, 2014. http://www.wsj.com/articles/europe-should-regulate-shadow-banking-says-european-central-banks-vitor-constancio-1413809526

[39]Paul McCulley *Make shadow banks safe and private money sound*. Financial Times, June 16, 2014. http://www.ft.com/cms/s/0/f5b30bce-f321-11e3-a3f8-00144feabdc0.html#axzz36JUlOG3k.

[40]*Strengthening Oversight and Regulation of Shadow Banking, An Overview of Policy Recommendations*, Financial Stability Board, August 29, 2013. http://www.financialstabilityboard.org/publications/r_130829a.pdf.

d. Risks associated with repos (trillions of dollars of short term loans are secured every day by banks and other big FIs through the repo route), securities lending (loaning out shares and bonds to investors who then bet on the fall in price). Regulators fear that repeatedly loaning out the same asset (re-hypothecation) could fuel asset bubbles and instability as a long chain of investors would have claim on the same asset.
e. Systemic risks posed by the shadow banking sector.

It is expected that by the time of the ninth G20 Summit in Brisbane, Australia, the Basel Committee on addressing risks from banks' interactions with shadow banks, IOSCO would report on the implementation of agreed reforms to money market funds and the alignment of incentives in securitisation, and the FSB has developed a policy framework for securities lending and repos and would also develop and start operating an information sharing process to support its members' oversight and regulation of shadow banking entities.[41] The G20 initiative on shadow banking however remains work in progress, and the effectiveness of the final framework has still to be seen, especially since shadow banking is by definition a shifting target that hides in the shadows of the regulated system.

10.4 Ring-Fencing: Volcker, Vickers and Liikanen

While Basel III tries to insulate commercial banking from financial instruments embedded in shadow banking, and the FSB tries to regulate the latter, policy makers in the US, the Euro area and the UK are endeavouring to ring-fence or separate the operations of commercial and shadow banking through national legislation. There are subtle differences between the national approaches. The 'Volcker rule' in the US is based on the principle that banks exist only to conduct genuine customer business. The EU regulation seeks to isolate risky activities and eliminate purely speculative trading. The UK norms proposes to separate the deposit taking arm of the bank from the investment banking counterpart of the larger group, as the latter is more prone to short term and volatility induced losses and risks of a systemic nature. Therefore, while there is a fair degree of overlap between the G20 and national initiatives, a key common ground amongst these three national initiatives is to try and re-instate a 'Glass-Steagall' type firewall that existed in the era prior to universal banking between conventional deposit banking, with its focus on lending for real sector activities, and financial institutions reliant on funding from capital markets and more focused on trading.[42]

[41]Financial Stability Board, Strengthening Oversight and Regulation of Shadow Banking. Regulatory Framework for hair-cuts on non-centrally cleared securities transactions. October 14, 2014.

[42]The Liikanen Review. Into the Ring, The Economist, October 6, 2012. http://www.economist.com/node/21564233.

10.4.1 Volcker

The eponymous Volcker rule was proposed by a former Federal Reserve governor for the US. It seeks to place restrictions on risky speculative business activities of banks that are unlikely to have been done to benefit customers and puts their money at risk. Section 619 of the Dodd Frank Act, commonly known as the "Volcker Rule", proposes to limit "proprietary" trading by banks, or trading on the institution's own account that is unrelated to customer needs, such as investing in and sponsoring hedge funds or private equity funds. The Rule also limits a bank's investment in proprietary trading to 3 % of its Tier I capital.

The Volcker rule was finalized on December 10th, 2013, by all five US financial sector regulators, i.e. the Federal Reserve, Securities Exchange Commission (SEC), Office of the Controller of Currency (OCC), Federal Deposit Insurance Corporation (FDIC) and the Commodity Futures Trading Corporation (CFTC) after three long years of hard-nosed deliberations to arrive at a consensus to strike the right balance between banning proprietary trading and permitting certain hedging and market-making activities. In the end, portfolio "hedging activity that is designed to reduce, and demonstrably reduces or significantly mitigates, specific, identifiable risks of individual or aggregated positions of the banking entity" was allowed.

A number of concerns have been raised regarding the hedging provisions of the Volcker rule, for even as it prohibits proprietary trading (done with the intention of booking a profit), it allows hedging, which can often be difficult to distinguish from proprietary trading. The catch lies in the ability or inability of the management and the regulator to identity a certain trade as entered into for profit (trading profit) or for hedging (risk management). This difficulty was highlighted in the derivative losses caused by the "London Whale" at JP Morgan, and the subsequent questioning by the Congress of its Chief Executive Jamie Dimon highlighted this difficulty. He maintained that the trade was a hedge for its overall credit exposure. Would this trade have been disallowed under the Volcker rule? That would have depended upon how the bank proved it to be a hedge, and not a proprietary trade. Although the finalized rule lays down standards for differentiating between trading and hedging, since the dividing line between the two can be tenuous, there is a fear that large and complex organisations might be able to sign off on such trades as a hedge and the main intent behind the Volcker rule to restrict speculative trading would then have failed. It could always be argued that such complex deals serve some economic purpose, effectively putting such proprietary trades beyond the scope of regulation of both the bank's management and the prudential regulator.

10.4.2 Vickers

The Independent Commission on Banking headed by Sir John Vickers set up by the UK government made a recommendation in September, 2011, to ring-fence consumer banking units from the riskier trading activities of the bank. The ring fenced

unit would be an independent legal entity within the larger banking group. The ring fenced arm would conduct retail and commercial banking activities, including corporate lending. Wholesale and investment banking would be kept outside the fence. The ring fenced arm would be allowed to accept deposits from large companies and extend loans to them. The ring fenced unit is expected to adhere to higher capital standards (10 %) than what is prescribed under Basel III. It is expected that in case of financial stress, or reputational risk to the group, the retail ring fenced arm will be able to isolate itself from the group and continue with its operations without needing any solvency capital. Critics of the Vicker's report have questioned the efficacy of ring fencing by pointing out the probability of contagion as problems in the investment banking arm could do reputational damage to the retail banking arm. It is precisely this risk that constrained commercial banks to bail out their off balance sheet SIVs during the global financial crisis despite no legal obligation to do so. The other concern pertains to higher cost of funds for the retail arm, which could impact loan pricing, on account of the additional capital burden over and above the stringent new Basel III norms.[43] The core recommendations of the Vickers report were adopted by the UK government and given effect through the provisions of the Financial Services (Banking Reform) Act, 2013 approved in December, 2013. The recommendations will come into force from January 1, 2019.

10.4.3 Liikanen

Erkki Liikanen, governor of Finland's central bank, mandated by the European Commission to make recommendations for European banks in the aftermath of the crisis has, in its report of October, 2012, suggested "separation" of proprietary and other significant trading activities. According to the Liikanen plan, if a bank's assets held for trading constituted more than 15–25 % of total assets (or had a value of more than €100 bn or $129 bn), then it would be required to transfer all its investment activities to a separate legal entity within the banking group, somewhat on the lines of the Vicker's plan. Such a distinct entity would have its own capital and would not be allowed to tap into the retail deposits of the bank.

Since the Liikanen recommendations allow for hedging to remain within the fence of retail operations, there are concerns similar to those in the case of the Volcker rule with respect to the grey area between proprietary trading and hedging, as financial innovation tends to blur these boundaries. Likewise, as in the case of Vicker's, there are concerns that since the retail and trading arms remain within the same banking group, the retail arm may not be immune to the reputation risk if the trading arm runs into trouble. In early 2014 the European Commission

[43]Caplen Brian, "Ring-fencing raises fresh challenges for UK banks", The Banker, January 6, 2015 http://www.thebanker.com/Editor-s-Blog/Ring-fencing-raises-fresh-challenges-for-UK-banks?utm_campaign=Copy+of+The+Banker+e-news+13th+January+Regulation&utm_source=emailCampaign&utm_medium=email&utm_content.

released a "proposed draft regulation" that would prohibit some large and systemically important banks from undertaking proprietary trading. This is on par with the US Volcker norms and would facilitate regulatory convergence at an international level. The proposed norms also authorize respective EU regulators to mandate "ring fencing" of risky trading activities including complex derivatives, securitization and market making deals. The retail deposit taking arm would not be allowed to hedge vanilla exposures like f mortgage pre-payment risks through interest rate options. The only risk management tool proposed to be allowed is cleared swaps. This may act to the detriment of deposit taking banks.

What is being proposed in the Euro zone is a mix of "prohibition on proprietary trading" and "ring fencing". If approved by the European Parliament and individual EU country legislatures, the two would become effective from Jan, 2017 and July, 2018 respectively (Table 10.2).

10.4.4 Back to Glass-Steagall?

There is a thin line that separates the old Glass Steagall Act from the Volcker rule, and also the other national initiatives. The Glass Steagall Act prohibited the existence of an entity which could undertake both commercial banking and investment banking activities. The Volcker rule, however, merely prohibit an entity which accepts deposits from the public to undertake certain types of trades. Would the Glass Steagall Act have prevented the financial crisis of 2008? It is widely believed that the collapse of the firewall between commercial banks and investment banks was one of the key factors that led to the build-up of the crisis. However, institutions like Bear Stearns, AIG, Merrill Lynch, Goldman Sachs and Lehman Bros which ran into trouble during the crisis were never commercial banks. Even if the Glass-Steagall act had prevailed, these institutions would still have existed and continued to invest in illiquid subprime mortgage backed securities, which were the perennial cause of their collapse. Deposit taking commercial banks that had to be bailed out also got into trouble because of their holdings of the same illiquid securities and investment in these securities were not restricted by the Glass Steagall Act. The Volcker Rule, and the Vickers and Liikanen proposals, while making commercial banking safer, does not address this underlying flaw in the Glass Steagall Act in safeguarding the financial system as a whole, which is being attempted through the FSB initiative on shadow banking.

10.5 Financial Institutions Deemed Too Big to Fail (TBTF)

Financial markets historically have been hit by crises driven by institutions who have assumed a special role in the market by virtue inter alia of their size, role, complexity of operations, and the volume of transactions handled across a huge range of

Table 10.2 Comparison of proposed US, UK, EU, French and German Banking reforms

	Volcker	Vickers	Liikanen	France	Germany
Proprietary trading/ring fencing	Ban on proprietary trading	Ring fenced bodies (deposit taking) banned from proprietary trading	Proprietary trading banned for deposit taking banks. Trading activities placed in the ring fenced arm which would be an affiliate of the legally independent deposit taking bank	Proprietary trading to be conducted only by a ring fenced subsidiary of the banking group	Deposit taking banks prohibited from undertaking activities deemed to be risky. Such activities to be transferred to a "financial trading institution" where separate and more stringent regulations would apply
What is proprietary trading?	Acting as "principal" for the trading account of the banking group for financial instruments	Act of dealing in financial investments in the capacity of a "principal"	Activities that lead to taking positions purely on its own account (for booking profits) unrelated to client need or to hedging	Conducting transactions involving financial instruments using bank's own capital or leveraged funds	High risk activities like proprietary trading (not leading to any service to its clients), high frequency trading on own account, extending credit and guarantees to hedge funds or highly leveraged alternative investment funds or their respective managements
Exemptions from prohibition/ring fencing	*Hedging* if it is risk mitigating	*Hedging* if done to counter financial risks	*Hedging* permitted for prudential capital and liquidity management	*Hedging* permitted if the instruments used are related to the identified risks	*Hedging* permitted if done for mitigating risks

(continued)

Table 10.2 (continued)

	Volcker	Vickers	Liikanen	France	Germany
	Underwriting related to client needs	*Securitisation* allowed when the ring fenced entity transfers securities to SPV in lieu of a loan extended by the ring fenced bank	*Underwriting, securitisation and market making* as decided by the respective national regulator	*Underwriting services* exempt from the need to ring fence	*Market making and underwriting* permitted as these are client related
	Market making—for client benefit	*Derivatives* permitted for account holders if the total risk exposure from these products (including hedging) for an individual account holder does not exceed 20 % of the bank's credit risk capital	*Derivatives* allowed when providing risk management services by selling derivative products to its customers	*Market making* no need to ring fence if the activity is undertaken in the normal course of business, provided applicable thresholds are met as laid down by the Finance Ministry	*Investment operations* permitted if intended to be held long term
	Securitisation might be restricted, however picture still unclear about how the Volcker rule will deal with this			*Investments* Permitted if done with a long term view or investments are made in securities issued by other entities of the banking group	
Legal Separation	N/A	Restrictions on shares or voting power that a ring fenced body (deposit lending arm) may hold in another company to be determined by FCA (Financial Conduct Authority) or PRA (Prudential Regulation Authority)	The deposit taking arm to be legally, economically and operationally separate from the trading arm. Deposit taking arm to not hold voting rights or capital instruments in the trading arm unless such holding is indispensable and permitted by the respective national regulator	Trading arm to be financially independent. Deposit taking arm to seek approval of its central bank before subscribing to share of the trading arm	Both the deposit taking and trading arms to be economically and legally independent of each other

Shearman and Sterling LLP, *Comparison of New EU Proposals on Proprietary Trading and Ring-fencing Against US, UK, French and German Rules,* February 26, 2014. http://www.shearman.com/~/media/Files/NewsInsights/Publications/2014/02/ComparisonofNewEUProposalsonProprietaryTradingFIAFR022614.pdf

products, services and financial institutions. These "systemically important financial institutions" (SIFIs) play a critical 'public utility' role in the smooth functioning of financial markets and are therefore considered "too-big-to-fail" (TBTF) as problems within a single SIFI can trigger a major financial and economic crisis.

The near collapse of the American financial system between 2007 and 2008 following the decision by the US Federal Reserve and Treasury not to bail out Lehman Brothers underscored this systemic fragility. Following this, the Financial Stability and Oversight Council (FSOC), a kind of advisory body created under the Dodd Frank Act in the US, has been assigned the responsibility of identifying institutions, bank and non-banking, as a Systemically Important Financial Institutions (SIFI). Any bank holding company or any non-bank incorporated in the US with banking operations in the US and holding worldwide with assets of $50 billion or more, and any non US bank having banking operations in the US and holding worldwide assets of $50 billion or more, was deemed to be SIFI. The US Fed would subject these institutions to stringent prudential regulation like enhanced risk based capital and liquidity requirements, stress testing, single counterparty credit limits, early remediation regime, risk management and resolution planning under sections 165 and 166 of the Dodd Frank Act.[44] As observed earlier, US regulators have imposed a higher leverage ratio than that agreed under Basel III for SIFIs. In Europe, the FSB releases a list of G-SIFIs each November who would be required to hold extra capital in the range of 1–2.5 % of risk weighted assets w.e.f 2016 as envisaged in the new BASEL III banking norms to facilitate higher loss absorbency and enable resolvability of failing systemically important financial institutions. In November, 2013 FSB identified HSBC and JP Morgan Chase as most central, critical, interconnected and systemic to the financial system. These two banks would be subjected to a capital surcharge of 2.5 % over and above the minimum capital applicable under Basel III norms. Citigroup and Deutsche Bank are in the 2 % bucket, while the Industrial and Commercial Bank of China was added to the 1 % bucket. In July, 2015 the Federal Reserve announced the imposition of additional capital surcharges (equivalent to systemic risk charge) on the 8 largest US banks in the scale of 1% to 4.5%. These US banks were same as those listed in the FSB G-SIFI list of November, 2014. The parameters identified by FED and FSB for calculation of surcharge factors are interconnectedness, substitutability, complexity and cross jurisdictional activity. The rationale was the same: larger the base of perpetual own equity, greater the cushion during an economic crisis.[45]

[44]In exercise of its powers, FSOC assigned SiFI status to three non-bank financial companies, i.e. AIG, Prudential Financial and GE Capital Corporation Inc. Several Financial market utilities (mostly clearing corporations) were also assigned SIFI Status. For a complete list of FMU-SIFI, see http://www.treasury.gov/initiatives/fsoc/designations/Pages/default.aspx.

[45]Understanding The Fed's Proposed Capital Surcharges For The Largest U.S. Banks", Forbes, December 11, 2014, http://www.forbes.com/sites/greatspeculations/2014/12/11/understanding-the-feds-proposed-capital-surcharges-for-the-largest-u-s-banks/ Tracy Ryan, Mcgrane Victoria and Baer Justin, "Fed lifts capital requirements for big banks", The Wall Street Journal, July 20, 2015, http://www.wsj.com/articles/fed-set-to-finalize-amount-of-capital-big-banks-must-maintain-1437410401.

Despite all the prudential norms being in place, financial institutions are bound to collapse and it may well be advisable to let them collapse as part of a process of creative destruction rather than to keep them alive as zombies through expensive capital infusions at the expense of the tax payer.[46] The regulatory system must however provide an effective system to handle the collapse of SIFIs in an orderly manner to safeguard the financial system as a whole. While the FSB has stepped into prepare a roadmap for recovery and resolution planning of Global Systemically Important Financial Institutions (GSIFIs) through the formation of Crisis Management Groups (CMGs), the roadmap in the US is more advanced and concrete.

10.5.1 Dodd-Frank Act

The financial crisis of 2007 in the US led to the creation of an "orderly liquidation authority" (OLA) under the Dodd-Frank Act, as the existing bankruptcy code and judicial process in the US was deemed inadequate to handle resolution of complex and insolvent SIFIs. The OLA regime makes shareholders and creditors responsible for the losses of the financial institution so that taxpayers' funds are not used for liquidation of the institution. FDIC is authorized to capitalize failed financial institutions by converting the deposits of unsecured creditors into equity stock in the manner done recently in Cyprus.[47] This effectively means that the bank survives through bail-in by creditors rather than bail-out by taxpayers. UK, EU, New Zealand and Canada have similar provisions in their respective banking laws. Although FDIC is authorized to provide temporary borrowing from Treasury for the purpose, this is expected to be repaid from various options such as liquidation of failed assets of the SIFI and return of excess proceeds received by creditors under OLA if the institution had gone through the bankruptcy route, and in the event this is inadequate, through assessments on large financial companies based on a risk matrix.

In order to facilitate orderly liquidation the Dodd Frank Act all financial institutions classified as SIFIs by FSOC are required to submit resolution plans (also known as "living wills") to regulators. The "living will" lays down the roadmap for an orderly resolution of the financial institution in the event of liquidation. In July, 2012, nine of the US's largest banks with assets exceeding $250 billion released their blueprints on how they could be dismantled in the event of a collapse. A new round of "living wills" was submitted by 11 financial giants to FDIC in October, 2013. Their rejection by both FDIC and the Federal Reserve, and the protection of creditors in the recent bailout package of the Bank of Portugal in

[46]The Japanese experience in the 1990s is instructive in this regard. Akihiro, Kanaya and Woo, David, *The Japanese Banking Crisis of the 1990 s: Sources and Lessons*. IMF Working Paper WP/00/07 January 2000. http://www.imf.org/external/pubs/ft/wp/2000/wp0007.pdf.

[47]In March 2013 Cyprus confiscated around 10 % of all deposits in Cyprus banks as part of a €10 billion Euro zone bail-out.

Europe shows that it may not be easy to avoid bail-outs of TBTF financial institutions in future.[48]

The robustness of the orderly resolution of SIFIs can only be tested in an actual financial crisis. It has been pointed out that that when the market learns that a SIFI is in trouble the immediate impact is to send shock waves across the financial system. There are also several imponderables like the absence of a framework for cross border insolvency, the possible failure of living wills in the face of a market wide crisis and the inherent difficulty in identifying and predicting all possible risks. Indeed it has been pointed out that the implicit government guarantee that would henceforth be enjoyed by SIFIs may result in riskier behaviour. Although the resolution mechanisms being proposed minimizes the likelihood of taxpayer bail-out, it also results in an implicit subsidy for SIFIs, lowering their borrowing costs relative to smaller banks.[49]

10.5.2 The Euro Zone Conundrum: Too Small to Bail-Out

That the prospect of future taxpayer bail-outs cannot be altogether discounted is evident in the European Commission's backing for a Franco German initiative to levy a 'Financial Transaction Tax (FTT) to strengthen the fiscal hand of Eurozone governments. Their banking assets are three times the size of their GDP, compared to the parity that prevails in the US, with about 30 TBTF financial institutions (Table 10.3).

What is especially worrisome is that in a number of cases the assets of individual SIFIs exceed the GDP of the countries in which they are incorporated. This makes them not only too big to fail, but also too big to be bailed out by their sovereigns, especially since their fiscal powers do not have the central bank backstop as only the European central Bank has the authority to create Euros. The assets of Deutsche Bank alone are roughly equivalent to German GDP, and those of PNB Paribas that of France. The assets of both Barclays PLC and HSBC PLC rival the GDP of the UK.[50]

The banking sector in the Eurozone has no doubt de-leveraged slightly over the years. According to data quoted in the report "Is Europe overbanked",[51] released by the European Systemic Risk Board in June, 2014; consolidated assets of banks in Europe stood at EUR 34 trillion in 2013 against EUR 38 trillion in 2008. (This

[48]Sheila Bair,' *No more bank bail-outs*' can be an empty slogan, Financial Times, August 7, 2014.

[49]IMF, Global Financial Stability Report March, 2014, Chapter 3 http://www.imf.org/External/Pubs/FT/GFSR/2014/01/pdf/c3.pdf.

[50]The United Kingdom is part of the wider European Union, but not a member of the Euro Zone, and so its treasury does have the central bank backstop to bail out its banks, albeit at a great macro-economic cost.

[51]Is Europe over banked" European Systemic Risk Board, June, 2014. https://www.esrb.europa.eu/pub/pdf/asc/Reports_ASC_4_1406.pdf.

Table 10.3 G-SIFIs as shares of their country GDP

S. no.	G-SIFIs	Total assets as % of country's GDP
1	UBS	235
2	ING Bank	195
3	Credit Suisse	175
4	Nordea	163
5	Santander	115
6	BNP Paribas	90
7	Group Crédit Agricole	85
8	Deutsche Bank	80
9	Unicredit Group	58
10	Société Générale	57
11	BBVA	55
12	HSBC	110
13	Barclays	105
14	Royal Bank of Scotland	90
15	Standard Chartered	30
16	JP Morgan	20
17	Bank of America	18
18	Citigroup	15
19	Wells Fargo	8
20	Morgan Stanley	5
21	Goldman Sachs	5
22	State Street	2
23	Bank of New York Mellon	2
24	Mitsubishi UFJ FG	47
25	Mizuho FG	35
26	Sumitomo Mitsui FG	5
27	Industrial and Commercial Bank of China Ltd	35
28	Bank of China	30

Data as of Q2, 2012. James R. Barth and Apanard (Penny) Prabha, *Too-Big-To-Fail: A Little Perspective on a Large Problem*, *Federal Reserve Bank of Chicago*, November 15–16, 2012. http://www.chicagofed.org/digital_assets/others/events/2012/international_conference/barth_111512.pdf

data excludes all non European banking assets). The consolidated assets of the European banking sector (excluding foreign owned subsidiary resident in EU) nevertheless accounted for 274% of Eurozone GDP in 2013. The corresponding figure for the US and Japan were 83% and 192% respectively.

At the heart of the continuing financial and economic instability in the Euro zone, however, is the stark fact that a monetary union without a banking and fiscal union is inherently unstable in terms of the Mundel conditions for an 'optimum

currency area'.[52] It was this too big to bail-out problem that led to the creation of first the European Financial Stability Facility, later rolled into the European Stability Mechanism that envisaged directly funding the ailing institution instead of routing it through the sovereign. Ironically, just as the world was focussing on the 'too big to fail' problem, global financial stability was endangered by sovereigns that would have been individually considered systemically too small to matter had they not been part of the systemically important EMU.

10.5.3 Big Banks and Small Sovereigns [53]

The biggest challenge for the Eurozone financial system is to break the "vicious loop" between weak European banks and its weak sovereigns. The Eurozone response to this is to endeavour to move towards euro-wide banking regulation and banking union, based on three pillars, namely a single supervisor mechanism (SSM), a single resolution mechanism (SRM) and a harmonized deposit insurance system under the aegis of the e European Central Bank that has been assigned the task of supervising the banking sector across the Eurozone, arming it with sweeping powers over the entire 17 country bloc (Fig. 10.1).

The first pillar of this union is the "single supervisor mechanism-SSM", to be headed by Ms. Daniele Nouy, a veteran from the French Central Bank. The SSM would have sweeping powers to directly regulate the largest European banks (around 30-mostly the largest SIFI banks), while the smaller banks would continue to be monitored by the respective national supervisor, although the SSM can intervene here too, if necessary. Before the "single supervisor" gets its legal charter by the end of 2014, it is expected to conduct a rigorous Asset Quality Review (AQR) of the banks proposed to come within its purview. The review results showed that 25 of the 124 banks had a capital shortfall that aggregated Euro 19.8 billion, mostly in Italy and Greece. This review, however, has been criticised for not being stringent enough – for instance, it may have overestimated assets through risk weighting, it did not model a deflationary scenario, or consider the possibility of sovereign default. An alternative methodology used in a study at the NYU Stern School found the shortfall to be more than 20 times higher.[54]

---

[52]Mundel, R.A, International Economics. New York: Macmillan, 1968. *A Theory of Optimum Currency Areas*. pp. 177–186. http://www.columbia.edu/~ram15/ie/.

[53]Katy Barnato, Chart of the Day, Too big to fail has not gone away, CNBC article, January 30, 2014. http://www.cnbc.com/id/101376353.

[54]Martin Wolf, *Europe's banks are too feeble to spur growth*, Financial Times, October 28, 2014. http://www.ft.com/intl/cms/s/0/cb939e1a-5dc7-11e4-897f-00144feabdc0.html#axzz3HiBqbOe9 Tom Braithwaite, *Alternative bank tests find that French banks are weakest in Europe*. Financial Times, October 27, 2014. http://www.ft.com/intl/cms/s/0/fad2c772-5dd7-11e4-b7a2-00144feabdc0.html?siteedition=intl#axzz3HiBqbOe9 Viral Acharya and Sascha Steffen, Falling short of expectations? Stress testing the European banking system. January 15, 2014. http://pages.stern.nyu.edu/~sternfin/vacharya/public_html/pdfs/AQR%20stress%20tests%20-%2015%20Jan%202014.pdf.

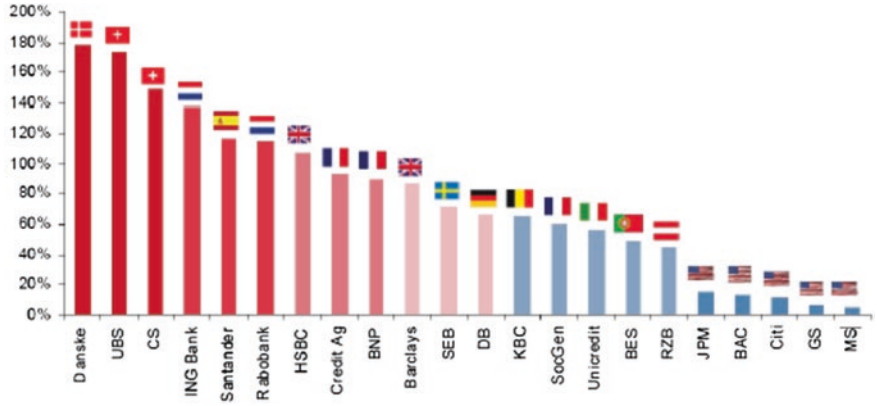

Fig. 10.1 Too big to fail has not gone away: who is too big to fail? bank asset/GDP, by individual institutions

The second pillar of the banking union is a Single Resolution Mechanism (SRM), which was created in December, 2013, to ensure effective and faster resolution of banks failing across the Euro zone. The proposed resolution fund of €55 billion has been earmarked for SRM to be pooled in from bank contributions over the next 10 years, which seems to be a relatively long duration of assignment for a fund of this size. It also seems to be a rather insufficient amount to battle failing banks given the fact that European banks have already injected €275 over the last 4 years and additional capital of €500 billion would be needed to boost its balance sheet. The shortage of capital would almost certainly constrain their ability to stimulate growth in the Euro area going forward.

It remains to be seen how the Euro zone banking union will play out to break the "vicious loop" which has engulfed the banking systems and economies of PIGS and Cyprus, and also address the TBTF problem. There is a strong potential for conflict between national and European supervisors, especially over who pays when things go wrong in member states. Already there are major differences over how, whether, and on what conditions, the existing European Stability Mechanism should roll into the Single Resolution Mechanism. This issue is unlikely to be settled in the absence of a stronger fiscal union. There are also question marks over the geographical scope of the proposed banking union, and the possibility of conflicts between the ECB (responsible for the euro zone) and the wider European Banking Authority (responsible for the European Union). Financial markets can be expected to repeatedly test the resolve of the EU to either move towards a politically difficult monetary and fiscal union, or to backstop sovereigns at risk from time to time through the ECB or through special mechanisms that are equally difficult to agree.

10.6 Financial Regulatory Reform and Emerging Market Economies

The ongoing animated G20 and FSB debates on reforming global finance have so far been mostly between advanced economies. Emerging market economies (EMEs) were largely bystanders, possibly because their deposit and-lending based financial systems are structurally very different from those in advanced economies.

Financial panics are in some way invariably preceded by escalating leverage with maturity mismatches. The primary drivers of leverage in advanced market economies (AMEs) and EMEs are however strikingly different. In the former, the primary driver for leverage was to increase the return on capital through increased trading of claims on real economy assets in an environment of low returns. This led to a rapid expansion of financial assets as a proportion of their GDP through a relatively unregulated shadow banking system which had none of the liquidity buffers of commercial banking. High credit growth in EMEs, like China and India, on the other hand, was primarily to finance high rates of investment and growth through the commercial banking system. Global production has long been migrating to these countries on account of rapid productivity shifts. Their economies are far less financialized on the one hand, and their banking systems mostly deposit based on the other. Ever since deposit insurance and the central bank discount window were put in place, deposit-based banking is no longer susceptible to financial panics and bank runs, as long as capital is calibrated to cover asset quality deterioration during business downturns, which is what Basel II was designed to do. Unsurprisingly, therefore, even as they were affected by sudden stops from abroad, financial intermediation in EMEs held up even as the western financial system with its growing reliance on shadow banking froze.

EME financial systems were already more tightly regulated than the proposed norms. Indeed, their financial systems were made more resilient in the aftermath of the Asian Financial Crisis of 1997 even though some of these economies, such as China and India, were not directly in the line of fire. Central banks adopted a more proactive approach to bank supervision and ensured that system wide risks were addressed too. Macro prudential tools were deployed by these economies much ahead of their western counterparts. There was reduced dependence on wholesale banking for funding credit and leverage was under control. As a result, losses related to subprime write downs were almost negligible.[55] Regulators were wary of opaque structured products that they did not fully understand. Their central banks and governments did not hesitate to prick potential asset bubbles

[55]Phakawa, Jeasakul, Cheng, Lim Hoon and Lundback, Erik, *Why Was Asia Resilient? Lessons from the Past and for the Future*, IMF Working Paper # 14/38, February 2014. http://www.imf.org/external/pubs/ft/wp/2014/wp1438.pdf.

through macro prudential tools.[56] Their 'boring' banking could never afford the outsized compensations that encouraged excessive risk taking in AMEs. EMEs therefore found it easy to sign on to the reforms. Indeed, to the extent that the western financial system became 'safer', they stood to gain. Although they are net savers, much of their own financial intermediation is routed through the international banking system where they park their excess savings. A shock in advanced economy financial systems was therefore automatically transmitted to EMEs through sudden stops and attendant currency crises that derailed their economies from time to time. In the past these stops were usually of their own making through poor macro-economic management, but this time round it was on account of a financial crisis, triggered inter alia by lax regulation, in advanced economies.

The impact of the ongoing financial regulatory reforms on EMEs has also been relatively benign so far. Surprisingly, despite the general decline in cross border claims on financial assets amongst advanced economies, especially in Europe, capital flows to EMEs are back to pre-crisis highs.[57] This is perhaps because of the long phase-in period for Basel III, but also because capital flows to EMEs are more through FDI by transnational corporations (TNCs) than through banking channels. TNCs never lost access to capital markets even at the height of the financial crisis. Indeed, capital flows to EMEs appear to be more impacted by monetary policies in advanced economies than their regulatory reforms.

The chief concerns of EMEs relating to their financial systems remain developmental rather than regulatory: increasing financial savings to accelerate growth and development, and deepening their financial system to develop long term funding instruments for infrastructure financing, absorb large inflows of capital to counter the uphill backwash from EMEs to AMEs, reduce the cost of capital and reduce the leads and lags in monetary policy transmission.[58] AMEs, on the other hand, need major regulatory changes that inoculate them more effectively against the new risks their financial systems face. They need to roll back more extreme forms of financialization that exposes them to greater risk without commensurate impact on growth. Therefore, while financial regulatory reforms are expected to be implemented across all jurisdictions, the immediate impact of most of them would mostly be felt in the relatively lightly regulated AMEs, rather than in the more tightly regulated EMEs. The impact of the new Basel III banking capital adequacy norms, however, will be almost equal across both AMEs and EMEs.

---

[56]Instruments typically used by EMEs included Counter-cyclical capital buffer (IMF recommendation as the first line of defence), loan-to-value caps (LTV's), taxes/levies (sector specific risk weights, high reserve requirements, loan loss provisioning), and constraints on the composition of assets and liabilities of financial institutions. Moreno Ramon, *Policymaking from a 'Macro-prudential' Perspective in Emerging Market Economies*, Bank for International Settlements, January, 2011, http://www.bis.org/publ/work336.htm.

[57]*Financial globalization: Reset or Retreat? Global capital markets* 2013, Mckinsey Global Institute, March 2013. http://www.mckinsey.com/insights/global_capital_markets/financial_globalization.

[58]See fn.21.

10.6.1 Basel III and EMEs

While the rationale for tightening capital adequacy norms for the banking sector in AMEs is self-evident, the case for immediately migrating from Basel II to Basel III in EMEs is not. Ideally, a common set of principles should inform regulation in all jurisdictions to avoid regulatory arbitrage. The arbitrage argument alone is however not very convincing in the case of EMEs because any capital migrating to a more regulated environment would incur additional costs, as regulation is a proxy tax. It is difficult to design a common regulatory framework for systems that are philosophically and structurally so different. For example, while banking capital needs to be strengthened in both jurisdictions, the underlying reasons are entirely different.

Banking capital in advanced countries needs to be enhanced to strengthen existing adequacy norms because the financialization of their economies has heightened systemic risks. In EMEs, on the other hand, it needs to increase rapidly even under existing norms to ensure that credit growth can keep pace with the rapid growth of the real economy. Adherence to Basel II was already stretching bank balance sheets. There is therefore a danger that migration to Basel III may pull scarce savings in EMEs away from investment necessary to sustain current levels of high growth to cover non-existent risks. Basel III constitutes a double whammy for countries EMEs as it could constrain the rapid credit growth necessary to sustain high growth. The cost of capital is already high in EMEs. Enhanced capital requirements of Basel III are almost guaranteed to keep it high in the foreseeable future.

So where should EMEs go from here? There is a stream in the G20 for assessing and monitoring the impact of financial regulatory reform on emerging market and developing economies (EMDEs). However, instead of simply waiting for new rules to be finalized, implementing them mechanically and then evaluating their impact, EMEs need to be better engaged at the rule making stage itself. Ironically, according to a recent BIS assessment, G20 EMEs are actually ahead of advanced countries in implementing Basel III.[59] This is putting them in the vanguard of Basel III related financial instruments that are still little understood by markets, thereby introducing new risks in their financial systems EMEs[60] need to be better engaged at the rule-making stage and at least renegotiate the phase in of Basel III, especially since advanced economies are lagging behind them in implementation.[61] The larger moot point, however, is, why should EMEs be pushed towards a regulatory framework calibrated to risks in AME financial systems that could extract a high developmental cost through foregone growth?

---

[59] *Report to G20 Leaders on monitoring implementation of Basel III regulatory reforms*, Basel Committee on Banking Supervision, August, 2013. https://www.bis.org/publ/bcbs260.pdf.

[60] *Asia's Warning About Basel Bonds*, The Wall Street Journal, October 9, 2013. http://online.wsj.com/article/SB10001424052702303382004579124773181520290.html.

[61] The Reserve Bank of India recently offered one year's extension to Indian banks to implement Basel III norms. The norms will now be phased in from March, 2019 instead of March 2018, on par with the international timeframe. http://rbi.org.in/Scripts/NotificationUser.aspx?Mode=0&Id=8806.

There is, of course, no good reason to suppose that EME financial systems will remain where they are presently. There are two separate issues: first, stage of development, and second, regulatory choice. Tighter regulation could keep shadow banking in check. There are also elements in Basel III that could be applied to Basel II, such as tighter definition of tier 1 capital and a countercyclical buffer. Alternatively, if some EMEs see benefits in the development of innovative shadow banking, they could move towards lighter touch regulation (strengthened by current regulatory changes in the pipeline), in which event these EMEs could migrate to AME type financial systems and associated regulation in future. FSAPs, mandated for all systemically important financial jurisdictions under the current G20 reforms, could periodically assess whether and when Basel II jurisdictions should migrate to Basel III.

10.6.2 Shadow Banking in EMEs

Emerging market economies, such as China and India, like those in advanced economies, have flourishing shadow banking systems. Although shadow banking is less systemically important in India, it is estimated that in China it accounts for a little over 40 % of total financial intermediation, as against about 25 % in the US, UK and the Euro area.[62] However, while there are superficial similarities between the two systems, the driving force, structure and relationship with commercial banks are very different. To a great extent this reflects a more fundamental underlying difference that while shadow banking in advanced economies is a measure of their financial depth, in emerging markets it is a measure of their financial repression[63] as they try to channelize household savings into providing low cost funds for investment and a host of government developmental programmes.

At first glance the similarities between shadow banking in the two areas might appear striking. First, there are strong linkages between regulated and shadow banking in both areas. Second, in both cases regulators and governments may have turned a blind eye to shadow banking to promote financial inclusion, including home ownership[64] Third, the demand for shadow banking stems from a demand

[62]Sherpa, Dawa, *Shadow Banking in India and China. Causes and Consequences*. Economic and Political Weekly, vol. 48, no. 43, October 26, 2013. In India, Non-Banking Financial Companies (NBFCs) account for about only 10 % of total credit.

[63]McKinnon, Ronald I. (1973). Money and Capital in Economic Development, Washington, DC: Brookings Institution. Shaw, Edward (1973). Financial Deepening in Economic Development (New York: Oxford University Press). These works by McKinnon and Shaw have been seminal in both defining and outlining financial repression in financial markets. More recently Hernando de Soto has underscored the link between property rights and access to formal credit markets. De Soto, H. (2000). The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else. New York: Basic Books.

[64]Rangarajan, C, Report of the Committee on Financial Inclusion, February, 2008. http://pib.nic.in/newsite/erelease.aspx?relid=35141.

for higher returns, in advanced economies because of easy monetary policy and a global savings glut, and in emerging markets because of low real returns on account of relatively high rates of inflation.

The differences, however, are perhaps more stark. The exposure of commercial banks to shadow banking was mostly off balance sheet in advanced economies, whereas in emerging markets it was direct because it was permitted, and even encouraged, by regulators to promote financial inclusion. This is because while sub-prime borrowers in the US may not have been credit worthy for housing finance, they were not excluded from the banking system as in emerging markets. And while shadow banking in emerging markets channelized savings to risky borrowers at high rates of interest, in advanced economies shadow banking resulted in money creation through a sharp increase in the velocity of money through repeatedly leveraging—'re-hypothecation'—the same pool of underlying assets. In other words, while shadow banking in emerging markets was through vanilla credit instruments that converted savings into investment, in advanced economies it created money through innovative money market instruments.

This difference is critical. In India, for instance, a good proportion of shadow banking loans and mortgages are refinanced by commercial banks, as is done by Fannie May and Freddie Mac in the US. However, mortgages are not securitized and taken off the balance sheets of both the loan originator as well as the GSEs through market sales. In India, the loan originator retains the loan on its balance sheet, thereby ensuring credit quality. Since these loans are backed by housing assets, the threat of dispossession keeps loan delinquency low.[65]

Because of the fundamental differences in shadow banking in the two jurisdictions, neither the FSB initiative on shadow banking, nor the Volcker, Vickers and Liikanen proposals are currently relevant for emerging markets. In emerging markets shadow banking is really an extension of regulated deposit based commercial banking to remote areas and to those at the lowest end of the socio-economic spectrum whose productivity levels are too low, or because extant inadequacies in the legal and recording framework of property rights makes it difficult for them to provide the collateral necessary, to make them creditworthy.[66] It therefore fulfils the role of traditional money lending., after the US and the UK. The shadow in emerging markets is only relative to the regulated banking system, as it is closely

[65]Home loans delinquency in India is very low, at under 4 %. National Housing Bank, Report on Trend and Progress of Housing in India 2012. http://www.nhb.org.in/Publications/Report-Trend-and-Progress-ofHousing-in-India-2012.pdf. Another reason why housing loan delinquency is low in India is because the borrower tends to collusively/deliberately declare a lower value for the underlying asset in a bid to dodge taxes. This, ironically, makes the loan safer, as the borrower is constrained to bring in more equity from the shadow economy. For estimates of the size of India's shadow economy see Black Money: White Paper. Ministry of Finance, Department of Revenue, Central Board of Direct Taxes, New Delhi, May 2012. http://finmin.nic.in/reports/WhitePaper_BackMoney2012.pdf.

[66]Acharya, Viral V, Khandwala, Hemal and Oncu, T Sabri, *The Growth of a Shadow Banking System in Emerging Markets: Evidence from India*, http://www.cafral.org.in/sfControl/content/Speech/1118201381240PMPaperTheGrowthofaShadowBankingSysteminEmergingMarkets.pdf.

monitored by both regulators and the government. Casting more light on opaque money market, repo and securitization markets will not get such lending out of the shadows in emerging markets, as productivity levels and the property rights framework need to be improved.[67] In China it is currently also fulfilling the role of development finance, as the government strains to keep banking credit in check without an adverse impact on economic growth and employment.[68] Consequently the biggest growth in shadow banking since the onset of the global financial crisis has been in China, propelling it to no. 3 in the global shadow banking league tables, after the US and the UK.[69]

10.6.3 TBTF and EMEs

Just as the structure of financial markets and intermediation is different from that of emerging market economies, so too is the issue of "too big to fail". First, they have very few G-SIFIs, and such as there are they are present only in China, namely the Bank of China and the newly added Industrial and Commercial Bank of China. There are no doubt lingering concerns about the health of financial institutions in China on account a rapid growth in credit since the global financial crisis, and as results are largely camouflaged and state controlled. What seems to bother regulators vis-à-vis ICBC is its growing presence abroad and its increasing inter-linkage with the global financial markets. Banks in the second largest emerging market, namely India, are not anywhere close to those in China in terms of asset size, market cap and global outreach.

Second, although EMEs have D SIFIs, such as the State Bank group in India, and BNDES in Brazil, these are mostly state-owned entities, as financial intermediation is regarded as a public utility committed to universal service through cross subsidies. This is the case also in China. Less attention is consequently given to putting in place elaborate mechanisms for orderly liquidation to avoid taxpayer bail outs, as equity holders and taxpayers are mostly the same. For the same reason it is difficult to envisage the need for any financial sector tax when the cost of intermediation is already high one account of the public utility nature of financial intermediation.

Third, the danger from G SIFIs operating in EMEs is that in the event of crisis in the parent countries, capital may flow out. It is interesting to note that although there was a sudden stop of capital flows into EMEs during the global financial crisis, the parent holding companies of global SIFIs like Citigroup, Deutsche and HSBC, never "pulled the plug" on its emerging market operations in the wake of

[67]De Soto, op.cit; Rangarajan op.cit.

[68]Jamil Anderlini, *China bank regulators caught in turf war*, Financial Times, April 9, 2014. http://www.ft.com/intl/cms/s/0/0eb56cf4-bfc7-11e3-b6e8-00144feabdc0.html.

[69]*Sam Fleming, Shadow banking nears pre-crisis peak*, Financial Times October 30, 2014. Gabriel Wildau, Sliced and diced loans take-off in China, Financial Times, February 19, 2015.

the collapse of Lehman Bros, and indeed provided support and resilience during the crisis, although some other foreign banks exited from some areas under stress.[70] Nevertheless several EMEs, such as India, are now putting in place ring-fencing mechanisms to ensure that problems in the parent company do not result in the withdrawal of capital from overseas branches by incentivizing wholly owned subsidiaries that meet domestic capital adequacy requirements over overseas branches.[71]

10.7 Concluding Remarks

The G20 financial reform agenda is undoubtedly the most ambitious since the Great Depression of the 1930s. But will this time be different? Is the financial system significantly safer through the new regulations? 6 years on, the outcome is mixed and the jury is still out. The regulatory rejig is work in progress at best, arguably a tale of progressive dilution, and infructuous at worst. The overwhelming question, that as normalcy returns, would business be as usual, remains to be answered.

Six years on, the outcome is mixed and the jury is still out. Bonuses have shrunk, revenue growth has stalled and some business lines have been cut, largely in response to the new capital norms.[72] However, the regulatory rejig is work in progress at best, arguably a tale of progressive dilution, and infructuous at worst.

[70]Citibank, HSBC and Standard Chartered, the three major foreign banks in India with a strong retail presence, took major hits on their consumer banking portfolios after 2008 with rising domestic defaults. However, these banks cleared up the mess and focussed on institutional lending. Since 2009 there has been a steady growth in the capital levels of foreign banks of around 14–15 % year-on-year between 2009 and 2013. Barclays and Royal Bank of Scotland, which took similar hits on their consumer and retail banking portfolios during this period, and whose parent banks also faced the prospects of collapse, however exited from retail banking altogether. Arnold Martin and Dunkley Emma, *RBS becomes a shadow of its former self*, Financial Times, January 13, 2015, http://www.ft.com/cms/s/0/a2f39e78-9b1c-11e4-882d-00144feabdc0.html#axzz3PZ5GzNiN Some banks like Morgan Stanley and UBS have given up their bank licenses in India. What is to be noted is that banks based out of US, Europe and UK were severely impacted by the financial crisis and the policy response forced them to raise capital and de-leverage. As a result, these giant organisations with a wide transatlantic presence took a strategic decision to review their investments in non-core segments/markets and withdraw partially or completely where deemed necessary. The pain for foreign banks in India has been the retail arm which has been floundering thanks to a failing macro environment and job losses and it is from this segment that several foreign banks have sought exit (Collated from Reports on Trend and Progress of Banking in India over the last 5 years) http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/04CTP201113F.pdf.

[71]A case in point being the Reserve Bank of India's proposal for setting up wholly owned subsidiaries (WOS) by foreign banks in India, http://www.rbi.org.in/Scripts/bs_viewcontent.aspx?Id=2758.

[72]Nathaniel Popper and Peter Eavis, *New rules spur a humbling overhaul of Wall Street banks*, The New York Times, February 19, 2015.

The overwhelming question, that as normalcy returns, would business be as usual, remains to be answered.

Already there are fears that Basel III is being progressively diluted;[73] that the moral hazards inherent in the banking emolument[74] and credit rating systems have not been addressed; that the underlying source of heightened instability, namely financialization of the economy through 'bad' leverage of the non-productive kind to the extent that there is little correlation between the state of the economy and financial markets,[75] has not been addressed; that shadow banking is back on its feet even as commercial banks struggle with new regulation; whether guidelines to rein in shadow banking will finally see the light of day, and if so, whether they can be implemented effectively against a creature that is chameleon-esque by nature; that the mark to market mechanism continues to expose the banking system to pro-cyclicality, and therefore to systemic collapse in the event of a steep fall in asset prices;[76] that with the collapse of major banks and their merger with existing ones, the biggest banks today are bigger than what they were before the crisis[77]; that banks in the Eurozone, with its flawed monetary union, are too big to be bailed out by their sovereigns on the one hand, and no sovereign seems small enough to be allowed to fail on the other hand because of the interrelatedness of its financial system; and finally, whether we are back to square one, or even beyond, with a new credit bubble, even as the real economy stutters, with market participants taking new risks secure in the belief that governments and central banks will not let things get out of hand.

The overall focus of reform has been on strengthening capital buffers and resolution mechanisms to avoid taxpayer bail-outs. These buffers may be effective in business downturns, but can never be enough to deal with the systemic risks of a financial crisis, during which markets are so dysfunctional that taxpayers may still have to step in.[78] The payments system is so closely integrated with the financial

[73]Satyajit Das, *New rules only lower bank risk in theory*, Financial Times, April 27, 2015.

[74]Michael Skapinker, Executive Pay: *The battle to align risks and rewards*, Financial Times, April 30, 2015.

[75]Barney Jopson and Sam Fleming, *Ex-Fed chief calls for regulatory revamp*, Financial Times, April 20, 2015.

[76]Jenkins, Robert, *Regulators' attempt to hold back the financial tide are futile*, Financial Express, April 16, 2014.

[77]*5 Years After The Crisis, Big Banks Are Bigger Than Ever (CHART)* The Huffington Post, October 9, 2013, http://www.huffingtonpost.com/2013/09/10/biggest-banks-even-bigger_n_3900363.html.

[78]It is in this light that one should view the arguments of Admati and Hellwig (footnote 15) and the recent market guidance of the Fed Chair regarding the likelihood of additional capital buffers, over and above the Basel III requirements and the higher leverage ratios for US banks, for the biggest US banks to feed the economy and also to secure itself from a possible domino collapse of its shadow counterparts as regulation for the latter is still work in progress. Goldstein, Steve, *Fed boss warns capital standards for biggest banks may have to go up more*. Market Watch, April 15, 2014. http://www.marketwatch.com/story/yellen-says-big-banks-may-needmore-capital-2014-04-15.

system as a whole that together they can be considered a public utility underwritten by the taxpayer. The consequences of failing to rescue Lehman Brothers is likely to make governments and central banks hesitant to allow major financial institutions to fail in future. Market participants understand this. The moral hazard deriving from the market perception of implicit sovereign guarantee could therefore be making the financial system more rather than less risky. The all-round rebound in asset prices, including the rebound in the sovereign bonds in embattled Euro Zone countries, despite the old fault lines in place and the gloomy economic outlook, certainly points in this direction.[79]

A new source of instability, already in evidence in the pre-crisis period in the form of the 'central bank (Greenspan) put', which led to monetary easing during downturns without matching tightening during the recovery, has accentuated the disconnect between the real economy (economic growth) and financial markets (asset prices). Macro-economic stimulus program and budget deficits can put an economy back on track from a recession, and also ensure that the financial system does not freeze and financial institutions do not fail one after the other. However, when an economy is in the throes of a balance sheet recession, characterized by simultaneous deleveraging by households and corporate, an extended period of reduction in aggregate demand may follow. The Japanese precedent should have served as a warning, as pointed out by Nomura Chief Economist, Richard Koo,[80] where policy makers tried in vain to stimulate the economy through easy money policy even as deleveraging continued. In such circumstance cheap and easy money policy may then not work to uplift the economy and instead re-inflate the credit bubble that brought about the recession in the first place.

The monetary policy framework therefore also needs to be reformed alongside financial regulation to ensure financial stability.[81] In the absence of this, the new regulatory structure and macro-prudential policies cobbled together by the G20,

[79]Satyajit Das, *The credit bubble redux*. Business Standard, July 4, 2014. Neil Irwin, *Welcome to the Everything Boom, or Maybe Everything Bubble*, The New York Times, July 7, 2014. http://www.nytimes.com/2014/07/08/upshot/welcome-to-the-everything-boom-or-maybe-theeverythingbubble.html?emc=edit_th_20140708&nl=todaysheadlines&nlid=67255145&_r=0.

[80]Koo C. Richard, "The world in balance sheet recession: causes, cure, and politics", Real World Economics Review, December, 2011. Kaminska Izabella, "The balance sheet recession, charted", Financial Times, March 28, 2012, http://ftalphaville.ft.com//2012/03/28/941241/the-balance-sheet-recession-charted/.

[81]Thus Claudio Borio of the Bank for International Settlements has argued that there is a distinct fin ancial cycle, in addition to the business cycle, and that central banks need to take stock of the interface between the two while setting monetary policies. Borio, Claudio, *The Financial Cycle and Macro-economics: What Have We Learnt?* BIS Working Paper #395, December 2012. http://www.bis.org/publ/work395.pdf. In a more recent influential paper Helene Rey argues that the monetary policies of major central banks are what drive global financial cycles. Rey, Helene, Dilemma not Trilemma, The Global Financial Cycle and Monetary Independence, London Business School, CEPR and NBER, August 2013. http://www.voxeu.org/article/dilemma-not-trilemma-global-financial-cycle-and-monetary-policyindependence.

BCBS and FSB may be inadequate to inoculate the financial system against destabilizing bubbles,[82] since a new financial bubble has already developed despite the new regulations, particularly in the shadow banking penumbra where these agencies are still struggling to come up with effective regulation. The core regulatory reforms in advanced economies hold little relevance for emerging markets, whose financial systems are not only very different, and closer to what financial systems were in advanced economies when they were growing much faster. Although repressed, their financial intermediation was nevertheless supportive of high growth, and also survived the financial freeze that occurred in advanced economies. Their financial systems also need to be reformed, but in response to quite different challenges. Perhaps this is why they have so far not been actively engaged in global debate on financial regulatory report, although they have signed on to the global reforms. They now need to step up to the plate, after assessing their relevance and likely impact, instead of blindly assuming that their economies too should be increasingly financialized on the line of the 'gold standard' of advanced economies.

References

5 years after the crisis, big banks are bigger than ever (CHART) (2013) The Huffington Post
Acharya VV, Khandwala H, Oncu TS (2013) The growth of a shadow banking system in emerging markets: evidence from India. CAFRAL, RBI
Adrian T, Ashcraft AB, Cetorelli N (2013) Shadow bank monitoring, September 2013. Federal Reserve Bank of New York, Staff Reports
Alloway T, Fleming S (2013) Shadow banks reap Fed rate reward, November, 2013. Financial Times
Alvarez GS (2013) Statement made on systemic risk and TBTF through Dodd Frank, April 2013. Committee on financial services subcommittee on oversight and investigations, U.S. House of Representatives
Anderlini J (2014) China bank regulators caught in turf war, April 2014. Financial Times
Anne-Sylvaine C, Henny S (2013) Finance: forced into the shadows, June 2013. Financial Times
Asia's warning about basel bonds, October 2013. The Wall Street J
Barker A (2013) EU reaches landmark deal on failed banks, December 2013. Financial Times
Barker A, Spiegel P (2013) Europe agrees to pool control of bank wind-ups, December 2013. Financial Times
Barnato K (2014) Chart of the day, too big to fail has not gone away, January 2014. CNBC
Barrett D, Fitzpatrick D (2013) J.P. Morgan, U.S Settle for $13 Billion, November 2013. The Wall Street J. Basel III: Issues Impl 2011. KPMG Report
Barth JR, Prabha AP (2012) Too-big-to-fail: a little perspective on a large problem, November 2012. Federal Reserve Bank of Chicago
Bartholomeusz S (2013) Eurozone banks face crucial test by ECB ahead of banking union, January 2013. theaustralian.com.au

[82]The current thinking amongst central bankers continues to be their role is to focus on 'price stability', and that it is for macro-prudential policies to ensure financial stability. *Fed Chair, Janet Yellen Speech at IMF Conference, Washington, DC July 2, 2014* http://www.federalreserve.gov/newsevents/speech/yellen20140702a.html.

Basel committee on banking supervision report on Basel III leverage ratio framework and disclosure requirements, January 2014
Bernanke: Subprime hit could top $100B, July 2007. CNN Money
Bezemer D (2013) Big finance is a problem, not an industry to be nurtured, November 2013. Financial Times
Blackstone B, Steinhauser G (2013) ECB nominates French regulator for Euro-Zone Post, November 2013. Wall Street Journal
Borak D (2013) Tougher than Basel? U.S. may have company, Fed's Tarullo Says, July 2013. American Banker
Borak D (2013) Regulators release specifics on the final Volcker Rule, December 2013. American Banker
Borio C (2012) The financial cycle and macro-economics: what have we learnt?, December 2012. Bank for International Settlements, Working Paper
Braithwaite T (2014) Dimon warns regulation will push credit costs higher, April 2014. Financial Times
Braithwaite T, Rabinovitch S (2013) Regulators add ICBC to financial stability risk league table, November 2013. Financial Times
Brook Y, Watkins D (2012) Why the glass-steagall myth persists, December 2012. Forbes.com
Buerkle T (2014) Europe looks to the ECB to restore region's banks to health, February 2014. Institutional Investor
Burgis T (2012) The Liikanen Report Decoded, October 2012. Financial Times
Cameron M, Becker L (2014) EC bank reforms would leave lenders unable to hedge, February 2014. Risk.net
CDOs are back: will they lead to another financial crisis? April 2013. Knowledge@wharton
Cecchetti SG, Kharroubi E (2012) Reassessing the impact of finance on growth, July 2012. Bank for International Settlements
Chon G, Braithwaite T (2014) Biggest US banks forced to hold $ 68 billion in extra capital, April 2014. Financial Times
Claessens S, Kodres L (2014) The regulatory responses to the global financial crisis: some uncomfortable questions, March 2014. IMF Working Paper
Claessens S, Ratnovski L (2014) What is shadow banking?, February 2014. IMF Working Paper
Claessens S, Pozsar Z, Ratnovski L, Singh M (2013) Shadow banking: economics and policy priorities, January 2013. voxeu.org
Corsi JR (2013) Yes, feds can take your deposits, August 2013. Wnd.com
Croxson K, Lund S, Roxburgh C (2012) The working out of debt, January 2012. Mckinsey Global Institute, Mckinsey Quarterly
Daniel G (2013) Banking union with a sovereign virus, the self-serving treatment of sovereign debt, April 2013. Intereconomics, vol 48
Das S (2014) The credit bubble redux. Business Standard, 4 July 2014
De Soto H (2000) The mystery of capital: why capitalism triumphs in the West and fails everywhere else. New York, Basic Books
Deutsche Bank (2014) Financial data supplement, January 2014
Dredging wall street's dark pools, June 2014. Financial Times
Edmonds T (2013) Independent commission on banking: the vickers report, January 2013. House of Commons Library, UK Parliament
Ewing J (2013) E.C.B. nominates new banking regulator, November 2013. New York Times
Financial globalization: reset or retreat? global capital markets-2013, March 2013. Mckinsey Global Institute
Financial Times (2014) Biggest US banks forced to hold $68bn in extra capital, April 2014. Gina Chon and Tom Braithwaite in New York
FSB (2013) Strengthening oversight and regulation of shadow banking. An overview of policy recommendations, August 2013
FSB update of group of global systemically important banks, November 2013

FSOC SIFI designations to NBFC, December 2013. US Department of the Treasury
Gallo A (2014) Taking the capital out of capitalism, January 2014. Wall Street J
Glass-Steagall and the Volcker Rule, December 2012. American Enterprise Institute
Global financial stability report, March 2014. IMF
Global Shadow Banking Monitoring Report, November 2012. Financial Stability Board
Global Shadow Banking Monitoring Report, November 2013. Financial Stability Board
Goldstein S (2014) Yellen speech shows 2008 crisis still haunts regulators, April 2014. Marketwatch
Greenberg J, Protess B (2013) JPMorgan may settle with group of agencies, September 2013. New York Times
Greenberg Silver J, Schwartz DN (2012) Living wills' for too-big-to-fail banks are released, July 2012. New York Times
Gros D, Alcidi C, Giovanni A (2012) Central banks in times of crisis: the FED versus the ECB, June 2012. European Parliament
Gruenberg JM (2012) Testimony on implementing wall street reform: enhancing bank supervision and reducing systemic risk, June 2012. Committee on Banking, Housing, and Urban Affairs; U.S. Senate
IMF (2014) Global financial stability report: moving from liquidity- to growth-driven markets, March 2014
Ingves S (2014) Speech by chairman of BCBS Banking on leverage, February 2014. Asia-Pacific High-Level Meeting on Banking Supervision
IOSCO principles of addressing dark liquidity, May 2011
Irwin N (2014) Welcome to the everything boom, or maybe everything bubble, July 2014. New York Times
James T (2014) Shedding some light on shadow banking, March 2014. Wall Street J
Jeasakul P, Lim CH, Lundback E (2014) Why was Asia resilient? lessons from the past and for the future, February 2014. IMF Working Paper
Jenkins P (2013) Unfinished business in battle to fix the banks, September 2013. Financial Times
Jenkins R (2014) Regulators' attempt to hold back the financial tide are futile, April 2014. Financial Express
Jolly D (2013) The structure of the E.U. bank deal, December 2013. New York Times
Jolly D (2014) Europe's banking risk plan is a long shot, January 2014. New York Times
Jolly D, Higgins A (2013) Deal on banking union will test goal of United Europe, December 2013. New York Times
Jones C, Fleming S, Ross A (2014) Let weak banks die, says eurozone super-regulator, February 2014. Financial Times
Kaminska I (2012) The balance sheet recession, charted, March 2012. Financial Times
Kanaya A, Woo D (2000) The Japanese banking crisis of the 1990s: sources and lessons, January 2000. IMF Working Paper
Kindleberger CP, Aliber RZ (2005) Manias, panics, and crashes. a history of financial crises. John Wiley & Sons
Kiyotaki N, Moore J (1997) Credit cycles. J Polit Econ 05(2)
Koo CR (2011) The world in balance sheet recession: causes, cure, and politics, December 2011. Real World Economics Review
Kuchukulla D (2014) Europe's new banking plan: too little, too late compared to the American Volcker rule?, February 2014. Columbia Business Law Review
Labonte M (2012) Systemically important or 'too big to fail' financial institutions, June 2012. Congressional Research Service Report for Congress
Liikanen E (2012) On the structural reforms of banking after the crisis, October 2012. Centre for European Policy Studies
Liikanen E (2012) High-level expert group on reforming the structure of the EU banking sector, October 2012. European Commission
Liikanen E (2014) The proposed regulation on structural measures for banks, January 2014. BIS Central Bank Speeches

Lund S, Daruvala T, Dobbs R, Harle P, Kwek JH, Falcon R (2013) Financial globalization: retreat or reset-global capital markets, 2013?, March 2013. Mckinsey & Company
Maino R (2012) Tackling the 'too big to fail' conundrum: integrating market and regulation, April 2012. LSE Financial Markets Group Paper Series
Masters B (2011) Shadow banking surpasses pre-crisis level, October 2011. Financial Times
Masters B (2013) IOSCO drafts guidelines after Libor scandal, April 2013. Financial Times
McCulley P (2014) Make shadow banks safe and private money sound, June 2014. Financial Times
McKinnon IR (1973) Money and capital in economic development. Brookings Institution
Miedema D (2013) US regulators push for six percent leverage ratio for banks, June 2013. Reuters
Ministry of finance, department of revenue, central board of direct taxes. New Delhi, Black Money: White Paper, May 2012
Mohanty D (ed) (2014) Monetary policy, sovereign debt and financial stability. The new trilemma. Cambridge University Press
Monk A (2014) Is direct lending the antidote for shadow banking?, March 2014. Institutional Investor
Moreno R (2011) Policymaking from a 'Macro-prudential' Perspective in Emerging Market Economies, January 2011. Bank for International Settlements
Mundel RA (1968) International economics. Macmillan, New York
Murphy EV (2012) What is systemic risk? does it apply to recent JP Morgan losses?, May 2012. Congressional Research Service Report for Congress
Murphy EV (2013) FSOC: a framework to mitigate systemic risk, May 2013. Congressional Research Service Report for Congress
Murphy EV, Bernier MB (2011) FSOC: a framework to mitigate systemic risk, November 2011. "Congressional Research Service" Report for Congress
Pakin Z (2013) The case against Dodd Frank act's living wills: contingency planning following the financial crisis. Berkeley Business Law Journal, Section V
Pozsar Z, Adrian T, Ashcraft A, Boesky H (2013) Shadow Banking, July 2013. Federal Reserve Bank of New York Economic Policy Review
Rangarajan C (2014) Report of the committee on financial inclusion, February 2008, Ministry of Finance, Government of India. "RBI notification on implementation of Basel III norms in India" March 2014, Reserve Bank of India
RBI's proposal for setting up wholly owned subsidiaries (WOS) by foreign banks in India, November 2013. Reserve Bank of India
FSB note on "Financial Reforms—Progress and Challenges", to G20 Finance Ministers and Central Bankers, February 2014
Reinhart C, Rogoff K (2011) This time is different: eight centuries of financial folly. Princeton University Press
FSB report (2013) Monitoring the effects of agreed regulatory reforms on emerging market and developing economies, September 2013
Report on trend and progress of housing in India (2012). National Housing Board
Report to G20 Leaders on monitoring implementation of Basel III regulatory reforms, Basel Committee on Banking Supervision, August 2013. Bank for International Settlements
Rey H (2013) Dilemma not trilemma: the global financial cycle and monetary independence. London Business School, CEPR and NBER
Shafer D (2013) Regulation pushes banks on to a riskier path, August 2013. Financial Times
Shaw E (1973) Financial deepening in economic development. New York, Oxford University Press
Shearman, Sterling (2014) LLP report, Basel III Framework: The Leverage Ratio, February 2014
Shearman & Sterling LLP report "Comparison of New EU Proposals on Proprietary Trading and Ring-fencing Against US, UK, French and German Rules", February 2014
Sheel A, Ganguly M (2008) The rise and fall of securitized structured finance?, April 2008. Economic and Political Weekly

Sheila Bair, "Transcript of her interview", February 2010, Forbes
Sherpa D (2013) Shadow banking in India and China. Causes and Consequences, October 2013. Economic and Political Weekly
Shorter G (2012) JP Morgan trading losses: implications for the Volcker rule and other regulation, August 2012. Congressional Research Service, Report for Congress
Smith GT (2012) FSB urges tough new rules on shadow banks, November 2012. Wall Street J
Stephenson E, Miedema D (2013) U.S. finalizes Volcker rule, curbing Wall Street's risky trades, December 2013. Reuters
Strengthening oversight and regulation of shadow banking-overview of policy recommendations, November 2012. Financial Stability Board
Strengthening oversight and regulation of shadow banking-policy framework, August 2013. Financial Stability Board
Tarullo DK (2012) Testimony on Dodd Frank implementation, June 2012. Committee on Banking, Housing, and Urban Affairs
Tarullo DK (2013) Testimony on Dodd-Frank implementation, July 2013. Committee on Banking, Housing, and Urban Affairs, US Senate
Tarullo DK (2014) (Member of the Board of Governors of the Federal Reserve System), Testimony before the Committee on Financial Services, U.S. House of Representatives, February 2014
Tett G (2013) Markets insight: 'Frankenstein' CDOs twitch back to life, June 2013. Financial Times
Tett G (2013) Insane financial system lives post-Lehman, September 2013. Financial Times
Tett G (2013) Debt impasse exposes Achilles' heel of finance, October 2013. Financial Times
Tett G (2013) The real titans of finance are no longer in the banks, February 2013. Financial Times
Tett G (2014) The real titans of finance are no longer in the banks, February 2014. Financial Times
The Dodd Frank Act (2010) Securities and Exchange Commission
The Liikanen Review. Into the Ring, October 2012. The Economist
Thompson C (2013) EU banks still pose systemic threat, June 2013. Financial Times
Thompson C (2013) Europe banks overexposed to domestic debt, December 2013. Financial Times
Thompson C (2013) New bank rules to hit Europe repo market, February 2013. Financial Times
Timiraos N (2013) Five years later, Fannie Mae, Freddie Mac remain unfinished business, September 2013. The Wall Street J
Trends and progress of Banking in India, November 2009 to 2013, Reserve Bank of India
Turner A (2014) Too much of the wrong sort of capital flow, January 2014. CAFRAL/RBI Conference
Valladares MR (2014) Basel's new leverage ratio: one step forward, two steps back, January 2014. American Banker
Van Rijckeghem C, Mauro B (2013) Financial deglobalization: is the world getting smaller?, September 2013. Bogazici University, Turkey
Veron N (2013) A realistic bridge towards European Banking Union, June 2013. Bruegel Policy Contribution
Viñals J, Pazarbasioglu C, Surti J, Narain A, Erbenova M, Chow J (2013) Creating a safer financial system: will the Volcker, Vickers, and Liikanen structural measures help?, May 2013. IMF Discussion paper
Wahl P (2012) Liikanen report: half-hearted attempt to solve the too big to fail problem, December 2012. Centre for Research on Multinational Corporations Newsletter
Webel B (2012) The Dodd-Frank wall street reform and consumer protection act: issues and summary, June 2012. Congressional Research Service Report for Congress
Yellen J (2014) Monetary policy and financial stability, 2014 Michel Camdessus Central Banking Lecture, International Monetary Fund, Washington, D.C. July 2, 2014

Chapter 11
Cross-Border Spillovers of Financial Stress Shocks: Evidence and Policy Implications

Wang Chen and Takuji Kinkyo

11.1 Introduction

The global financial crisis of 2007–09 has promoted a renewed interest in cross-border spillovers of financial stress shocks. Financial stress is a serious disruption to the proper functioning of financial markets that has adverse effects on real economic activity. The US subprime mortgage crisis developed into a full-blown financial crisis, spreading the financial stress quickly to the rest of the world. The underlying cause of the crisis was the combination of excessive risk taking by private sectors and the failure of public sectors to address systemic risks arising from market failures. In response to the crisis, internationally coordinated efforts have been made to increase the resilience of global financial systems by promoting a range of regulatory reforms. However, the question remains as to whether the global financial systems will become much more resilient by the ongoing reforms.

The purpose of this chapter is to contribute to the ongoing process of global financial reforms by presenting empirical evidence on cross-border spillovers of financial stress shocks and deriving policy implications for financial reforms. The rest of the chapter is organised as follows. Section 11.2 reviews the common features of financial stress and its cross-border spillover effects. Section 11.3 examines the spillover effects of the US financial stress shock and derive some policy implications. Section 11.4 discusses the possible area of cooperation among Group of 20 (G20) members in terms of enhancing the effectiveness of financial regulatory reforms. Section 11.5 concludes.

T. Kinkyo (✉)
Policy Research Institute, Ministry of Finance, Tokyo, Japan
e-mail: kinkyo@econ.kobe-u.ac.jp

W. Chen · T. Kinkyo
Kobe University, Kobe, Japan

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_11

11.2 Financial Stress and Cross-Border Spillovers

11.2.1 Common Features of Financial Stress and Its Measure

Each event of financial stress has its own distinct characteristics depending on the causes and underlying economic and financial structures. However, many events share some common features (Hakkio and Keeton 2009).

One common feature of financial stress is an increase in funding costs for firms and households. An increase in funding costs can arise from the worsening of information asymmetries between lenders and borrowers, exacerbating the resulting adverse selection and moral hazard problems. These asymmetric information problems become worse due to the deterioration of bank balance sheets, a fall in asset prices, a rise in interest rates, and an increase in uncertainty during financial stress (Mishkin 1991). The US subprime mortgage crisis was triggered by the burst of housing market bubbles. The asymmetric information problems in the mortgage markets became serious due to the opacity of the prevailing originate-to-distribute business model and the complexity of asset-backed securities, notably collateralised debt obligations (CDOs).[1]

Another common feature of financial stress is a decline in investors' risk appetite, causing a flight to quality and liquidity. The diminished risk appetite will lead to a widening of the spread for the rate of returns between risky and safe assets, as well as between illiquid and liquid assets. The subprime mortgage crisis developed into a full-blown financial crisis in the wake of the collapse of shadow banking systems.[2] Shadow banking often refers to a mechanism of financial intermediation through securitisation rather through traditional bank lending. It involves a variety of investors, such as structured investment vehicles (SIVs), broker-dealer firms, and hedge funds, which acquire asset-backed securities and finance them with short-term debt (Hanson et al. 2011). The shadow banking system collapsed due to a plunge in the price of asset-backed securities and a run on short-term debt financing as a result of investors' diminished risk appetite. The key channel through which the subprime mortgage crisis was transmitted to banking sectors was the failure of bank-sponsored SIVs. These SIVs raised funds by issuing short-term asset-backed commercial paper (ABCP), leverage excessively and invested in long-term and illiquid assets, such as CDOs. Bank balance sheets deteriorated seriously because banks effectively guaranteed SVIs and thus had to take insolvent and illiquid SIVs back on their balance sheets (Acharya et al. 2009).

[1]In the originate-to-distribute model, the mortgage is originated by a mortgage broker and the mortgage-backed security is distributed to various investors. Asymmetric information problems arise between the mortgage originator and the investors.

[2]Gorton (2009) discusses the banking panic nature of the US financial crisis evolved around the shadow banking system. Mishkin (2010) provides a brief explanation on why the subprime mortgage crisis developed into a full-blown financial crisis and how the US financial crisis spread to the rest of the world.

Finally, financial stress is associated with an increase in the volatility of asset prices. The increased volatility can arise from greater uncertainty about future economic outlook and the fundamental values of financial assets. Greater uncertainty urges investors to draw inferences from the actions of other investors, leading to 'herd behaviours' (Bikchandani et al. 1992; Banerjee 1992). Investors' herd behaviours can be an important source of volatility in asset prices. The collapse of a high-profile investment bank, Lehman Brothers, in September 2008 led to a sharp increase in uncertainty, spreading the financial stress to other advanced economies, particularly in Europe. Emerging market economies were also hit hard by sudden withdrawals of capital, triggering a sharp fall in their exchange rates and stock prices (IMF 2009).

To measure the degree of a country's overall financial stress as described above, a comprehensive index labelled the Kansas City Financial Stress Index (KCFSI) was developed by Federal Reserve Bank of Kansas City. The KCFSI is a composite index designed to measure the level of stress in US financial markets. The index is a principal-component measure of the following 11 financial variables: 3-month TED spread, 2-year swap spread, off-the-run/on-the-run 10-year Treasury spread, Aaa/10-year Treasury spread, Baa/Aaa spread, high-yield bond/Baa spread, consumer ABS/5-year Treasury spread, the correlation between stock and Treasury returns, the implied volatility of overall stock prices, the idiosyncratic volatility of bank stock prices, and the cross-sectional dispersion of bank stock returns. Hakkio and Keeton (2009) discuss in details the key features of the KCFSI.

Figure 11.1 plots the KCFSI from the 1990s until recently.[3] A positive value indicates that financial stress is higher than its longer-term average whereas a negative value indicates the opposite. The figure shows that the KCFSI reached high levels during the periods 1990–91, 1998–2002, and 2007–2009. The first period is associated with the recession of the US economy, which was triggered by the spike of oil prices following the Iraqi invasion of Kuwait in August 1990. The second period is associated with the collapse of the Long-Term Capital Management (LTCM) following the debt moratorium of Russia in August 1998. The last period is associated with the recent global financial crisis. There is a particularly sharp increase in the KCFSI in October 2008, indicating that the magnitude of financial stress at that time was much more severe than that of previous events. It is likely that the US financial stress had strong spillover effects on the rest of the world.

In Sect. 11.3, we use the KCFSI to identify and measure a structural shock to US financial stress, which we interpret as a financial stress shock.

11.2.2 Cross-Border Spillovers of Financial Stress

The financial stress as described above can depress business and household spending through greater volatility in asset prices, higher funding costs, and the reduced availability of bank credit. Empirical evidence indicates that financial stress is

[3]The KCFSI can be downloaded at http://www.kc.frb.org/research/indicatorsdata/kcfsi/.

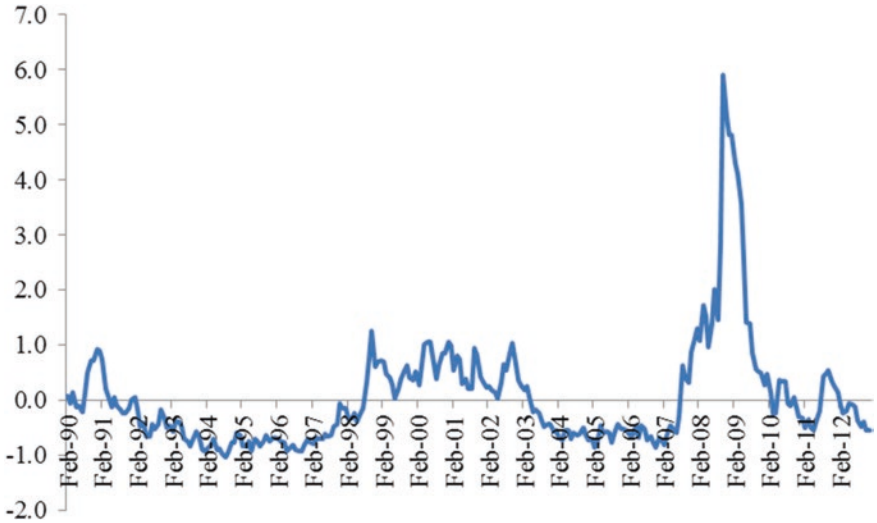

Fig. 11.1 The KCFSI (Feb. 1990–Dec. 2012). *Source* Federal Reserve Bank of Kansas City website (http://www.kc.frb.org/research/indicatorsdata/kcfsi/)

associated with significant and long-lasting negative effects on economic activity (Cerra and Saxena 2008; Reinhart and Rogoff 2009). In addition, financial stress in one country can be transmitted to other countries through a variety of channels.[4] One possible channel for the spillover of financial stress is trade linkages. Financial stress can depress domestic spending and thus the associated demand for imports, reducing exports from trading partners. Moreover, if the central bank responds to financial stress by easing monetary policy, the exchange rate will depreciate, exerting a beggar-thy-neighbour effect on export competitors. Eichengreen et al. (1996) find evidence for the spillover of shocks through trade linkages.

Another important channel for financial spillovers is financial linkages. Empirical evidence indicates that financial shocks spread mostly through financial linkages (IMF 2013). Financial stress can force banks to curtail lending not only within national borders but also across borders, reducing liquidity and raising the cost of credit in the affected foreign countries. Kaminsky and Reinhart (2000) show that the presence of common financial linkages through bank lending can better explain the pattern of financial spillovers across countries. Likewise, financial stress can force portfolio investors to sell assets in foreign countries to meet margin calls and rebalance portfolio according to time-varying risk profiles. Based on an extensive literature survey, Gelos (2011) concludes that the portfolio rebalancing mechanism is important in explaining financial spillover patterns across

[4]Forbes (2012) provides an excellent survey of literature on cross-border spillovers of economic shocks, which is often referred to as contagion.

countries. Raddatz and Schmukler (2012) use micro-level data on mutual funds and show that the procyclical nature of mutual fund investment tends to have destabilising spillover effects.

Finally, a variant of financial spillovers through financial linkages is a 'wake-up call' channel. Goldstein (1998) originally used this term to describe the sudden reappraisal of risks in the Asian financial systems, which induced capital flow reversals during the financial crisis of 1997–98. More broadly, a reappraisal of risks in one country can serve as a wake-up call to urge investors to reassess the risk in other countries that share the similar vulnerabilities. As a result of risk reassessment, investors will call in loans and sell assets across countries, thereby causing financial spillovers. Forbes (2012) measures the wake-up channel by using dummy variables for credit ratings and shows that the spillover effect through this channel is statistically significant.

To summarise, the existing literature indicates that financial stress in one country can be spread to another country through various channels depending on the strength of trade and financial linkages, as well as the shared vulnerabilities between the two countries.

11.3 Spillover Effects of US Financial Stress Shocks

11.3.1 Econometric Methodology

In this section, we examine the cross-border spillovers of the US financial stress shock. The focus of our analysis is on the macroeconomic impacts of the financial stress shock, rather than the transmission channel of the shock. Since the seminal work by Eichenbaum and Evans (1995), there has been a large accumulation of literature that identify monetary policy shocks and examines their cross-border spillover effects (Artis et al. 2007; Canova 2005; Holman and Neumann 2002; Kim 2001; Mackowiak 2007; Neri and Nobili 2010). By comparison, much less analysis has been conducted to identify financial stress shocks and examine their cross-border spillover effects. However, the recent global financial crisis has stimulated empirical research focusing on financial stress shocks. A sample of important contributions includes Fornari and Stracca (2012), Galesi and Sgherri (2009), Helbing et al. (2011), and Eickmeier et al. (2011).

In this chapter, we follow the procedure proposed by Kilian (2009) and thus identify the financial stress shock and estimate their macroeconomic impacts in two separate steps. Kilian (2009) uses a two-step procedure to analyse the macroeconomic impacts of oil price shocks. In the first step, a vector autoregression (VAR) is estimated in order to identify three types of structural shocks: the oil supply shock, aggregate demand shock, and oil market-specific demand shock, which reflects an unexpected change in precautionary oil demand. In the second step, ordinary least squares (OLS) regressions are estimated to evaluate the impact of the identified structural shocks on macroeconomic variables. Kilian (2009) adopts

this framework to demonstrate that US macroeconomic variables respond differently to oil price shocks depending on the types of underlying shocks. Kilian's (2009) two-step procedure has been employed and extended by recent studies to examine how oil price shocks affect real economic activity and financial markets in the US and other countries (see, among others, Kilian and Park 2009; Apergis and Miller 2009; Yoshizaki and Hamori 2013; Chen et al. 2014).

11.3.2 Identifying Structural Shocks

We first identify the structural shocks originating from the US by estimating a VAR model. The structural shocks to be identified include the real activity shock, financial stress shock, and monetary policy shock. The structural representation of the VAR model is as follows:

$$A_0 y_t = \alpha + \sum_{i=1}^{p} A_i y_{t-i} + \varepsilon_t \tag{11.1}$$

where y_t is a (3×1) vector that contains the variables for US real economic activity, US financial market conditions, and US monetary policy stance, A_0 denotes a contemporaneous coefficient matrix, α denotes a vector of constant terms, and ε_t denotes a vector of serially and mutually uncorrelated structural shocks. Under the appropriate identifying restrictions, structural shocks can be recovered from the estimated reduced-form errors by using the following relationship:

$$e_t = A_0^{-1} \varepsilon_t \tag{11.2}$$

where e_t denotes the reduced-form errors.

US real economic activity is measured by the Chicago Fed's National Activity Index (CFNAI). This index is a weighted average of the 85 economic indicators of US national economic activity.[5] A positive value indicates that the US economic growth is above the trend, whereas a negative value indicates the opposite. US financial market conditions and monetary policy stance are measured by the aforementioned KCFSI and the Federal fund (FF) rate, respectively. A VAR is estimated by using the level of CFNAI and KCFSI and the first difference of the FF rate.[6]

[5]The economic indicators are derived from four broad categories: (1) production and income; (2) employment, unemployment, and hours; (3) personal consumption and housing; (4) sales, orders, and inventories. Further details of the index and the data can be obtained at http://www.chicagofed.org/webpages/publications/cfnai/.

[6]The first difference of FF rate is used because the level of the variable is nonstationary according to the augmented Dickey-Fuller test. All of the transformed variables are stationary at the 5 % significance level.

The sample period runs from January 1990 to December 2012. The lag length is set to 9 months according to Akaike Information Criterion (AIC).

We then identify structural shocks by using the Choleski decomposition, with the order being the CFNAI, the KCFSI, and the FF rate. This order determines the exogeneity of the variables; a shock to a particular variable has a contemporaneous effect on the variables ordered after that particular variable but not before it. Following Bernanke et al. (2005), the FF rate is ordered last, implying that the Fed monitors a wide range of information and set a FF rate target in response to contemporaneous changes in real economic activity and financial market conditions. The CFNAI is placed before the KCFSI based on the assumption that the real activity shock has contemporaneous effects on financial markets but not vice versa. By adopting this ordering, we assume that the real activity shock, financial stress shock, and monetary policy shock can be captured by the structural shock to the CFNAI, the KCFSI, and the FF rate, respectively. Hence, the reduced-form VAR is obtained by multiplying both sides of Eq. (11.1) by A_0^{-1}, which has the following recursive structure:

$$\begin{pmatrix} u_{1t} \\ u_{2t} \\ u_{3t} \end{pmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ a_{21} & 1 & 0 \\ a_{31} & a_{32} & 1 \end{bmatrix} \times \begin{pmatrix} \varepsilon_{real\ activity\ shock} \\ \varepsilon_{financial\ stress\ shock} \\ \varepsilon_{monetary\ policy\ shock} \end{pmatrix} \tag{11.3}$$

11.3.3 Estimating Macroeconomic Impacts

In the next step, we examine the impact of the identified structural shocks on the macroeconomic variables by estimating OLS regressions. The explanatory variables are the three structural shocks identified above, which are standardised by subtracting the mean and dividing by the standard deviation. The dependent variables are the following three macroeconomic variables: the industrial production index (IIP), stock prices (STP), and real effective exchange rates (REER).[7] An OLS regression is estimated for each of these macroeconomic variables by using monthly data from 1991M1 to 2012M12.[8] The sample includes data for three European countries (France, Germany, and UK) and three Asian countries (Japan, Korea, and Malaysia). Apparently, these two regions are most severely affected by the US crisis due to their close economic linkages to the US. The selection of Asian countries is guided by the availability of data.

The effects of the estimated structural shocks on the macroeconomic variables are estimated by the following regressions:

[7]All of the data for IIP are seasonally adjusted. STP is converted to the real value by deflating using CPI. The data source is the IMF's International Financial Statistics.

[8]The start date of 1991 reflects the need to accommodate lags in the VAR.

$$\Delta IIP_t = \alpha_j + \sum_{i=0}^{12} \varphi_{ji} \hat{\varepsilon}_{jt-i} + r_{jt} \quad j = 1, 2, 3$$

$$\Delta STP_t = \beta_j + \sum_{i=0}^{12} \tau_{ji} \hat{\varepsilon}_{jt-i} + v_{jt} \quad j = 1, 2, 3$$

$$\Delta REER_t = \gamma_j + \sum_{i=0}^{12} \omega_{ji} \hat{\varepsilon}_{jt-i} + s_{jt} \quad j = 1, 2, 3 \tag{11.4}$$

where Δ denotes the percentage change in the relevant variables, α_j, β_j, and γ_j are constant terms, φ_{ji}, τ_{ji}, and ω_{jt} are the impulse response coefficients at forecast horizon i, $\hat{\varepsilon}_{j,t}$ denotes the estimated jth structural shock in the tth month, and r_{jt}, v_{jt}, and s_{jt} are error terms. The maximum lag is determined by the maximum horizon of the impulse function, which is set to 12 months. Because there is a potential problem of serial correlation in the error terms, the block bootstrap method is used to infer the estimated coefficients. Specifically, we use an overlapping moving block bootstrap method with block size 4 and 20,000 bootstrap replications.[9]

The cumulative impulse responses of the macroeconomic variables to the structural shocks are shown in Fig. 11.2. The dotted and dashed lines represent one-standard error and two-standard error bands, respectively. In the following discussion, the statistical significance is determined based on one-standard error bands.

A positive real activity shock (an unexpected increase in US real economic activity) causes a sustained increase in IIP in all countries. The positive response of IIP is statistically significant for some horizons in all countries except Malaysia. Likewise, a positive real activity shock causes a positive and statistically significant increase in STP in all countries. However, apart from France, these cumulative responses of STP peak out after 1 year or two, followed by a statistically insignificant decline that partly or fully offsets the initial increase. The result indicates that the impact of the real activity shock on stock prices is not persistent. The corresponding responses in REER are statistically significant for some horizons in the UK, Japan, Korea, and Malaysia. However, a positive real activity shock causes statistically significant appreciation in the UK, Korea, and Malaysia, whereas it causes depreciation in Japan.

A positive financial stress shock (an unexpected increase in US financial stress) causes a sustained decline in IIP in all countries. The negative response of IIP is statistically significant for some horizons in all countries. Likewise, the corresponding responses in STP are negative and statistically significant for some horizons in all countries. Based on the two-standard error bands, these cumulative responses are statistically highly significant for the first 5 months in France, the UK, and Japan. Importantly, the initial impact of the financial stress shock

[9]See MacKinnon (2006) for a survey of bootstrapping methods.

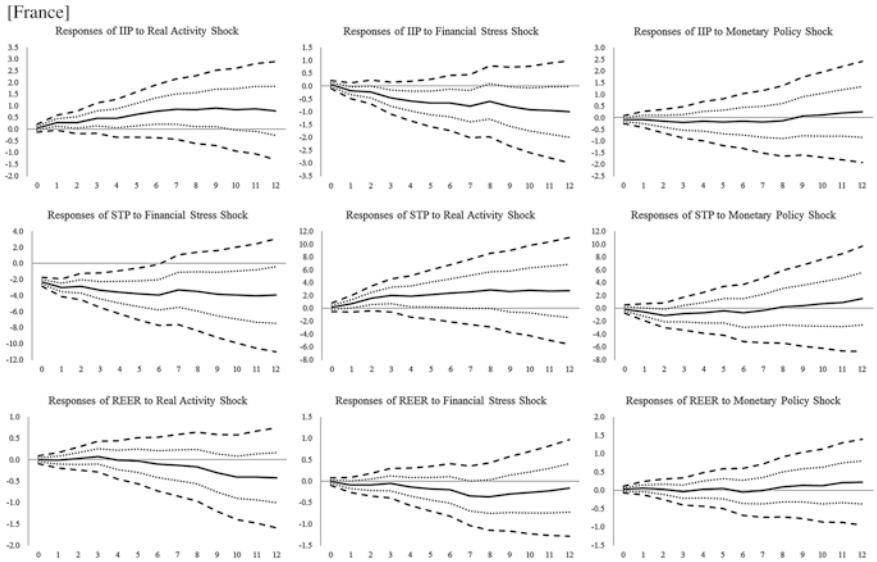

Fig. 11.2 Cumulative reposes of macroeconomic variables to the structural shocks

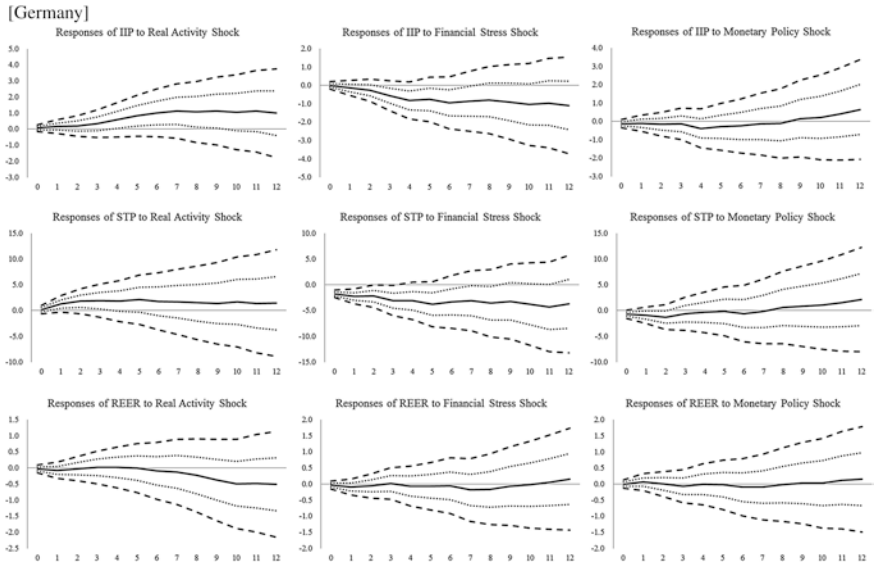

Fig. 11.2 (continued)

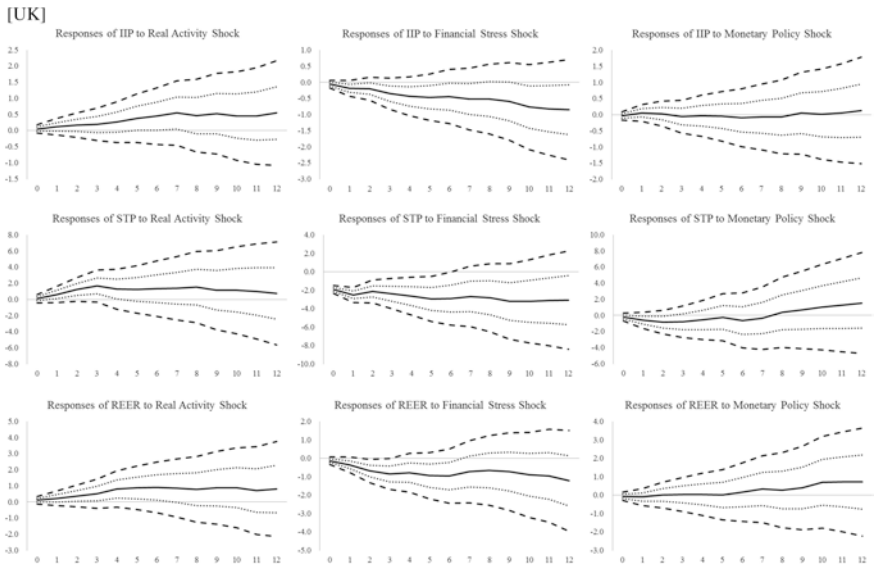

Fig. 11.2 (continued)

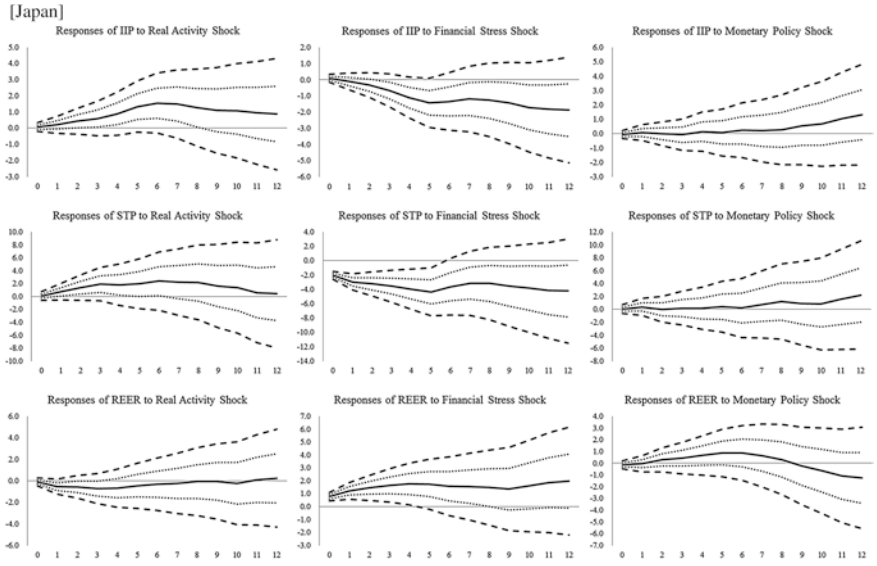

Fig. 11.2 (continued)

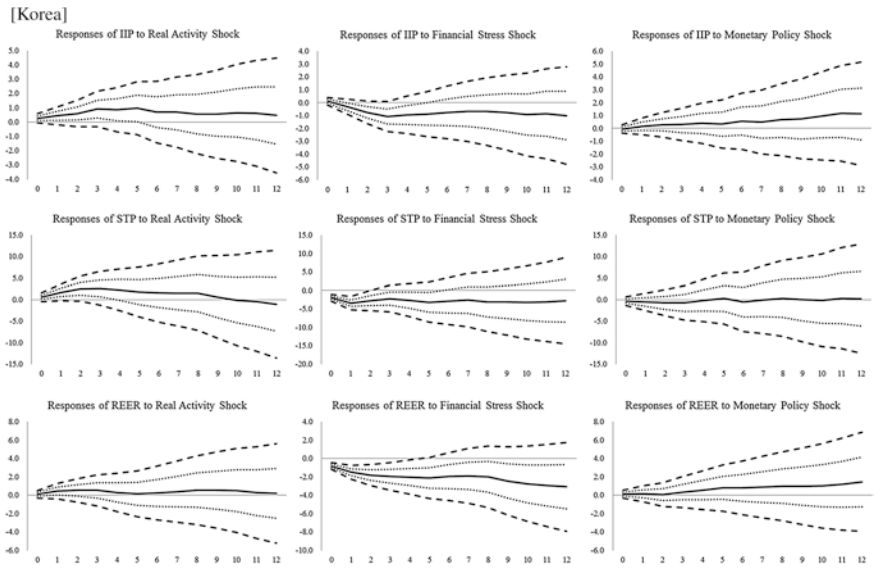

Fig. 11.2 (continued)

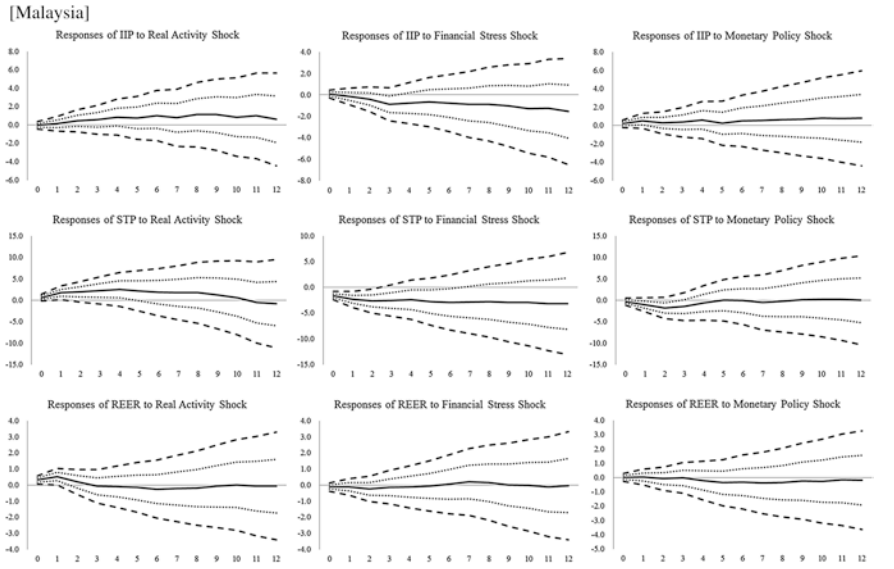

Fig. 11.2 (continued)

on STP is largely sustained, and the cumulative responses remain negative after 12 months. By comparison, the impact on STP of the financial stress shock is more persistent that that of the real activity shock. The impulse response of REER to the financial stress shock is statistically significant for some horizons in the UK, Japan, and Korea. However, a positive financial stress shock causes depreciation in the UK and Korea, whereas it causes appreciation in Japan. The result indicates that the financial stress shock could have different spillover effects on real exchange rates in different countries.

Interestingly, a positive monetary policy shock (an unexpected increase in the FF rate) has no statistically significant impact on macroeconomic variables for most of the horizons in all countries.[10] This result indicates that an unexpected change in the US monetary policy has little macroeconomic impacts on foreign countries. As all these countries adopt relatively flexible exchange rate regimes for the majority of the sample period, the result conforms to the finding of di Giovanni and Shambaugh (2008), which show that the spillover effect of monetary policy shocks tend to be grater in a country with a fixed exchange rate regime. However, it should be noted that the result does not necessary imply that the endogenous response of US monetary policy to domestic economic and financial conditions has no cross-border spillover effects.

The main findings presented above can be summarised as follows. First, the macroeconomic impacts of the US financial stress shock on six European and Asian countries are significant and thus comparable with those of the US real activity shock. Second, the cross-border spillover effects of the financial stress shock on these countries' stock prices are relatively persistent. Finally, the financial stress shock could have different impacts on real exchange rates in different countries.

The key policy implications derived from the above analysis can be summarised as follows. First, financial stress in major financial markets, such as those in the US could have significant spillover effects on foreign countries. Financial regulatory reforms in such major financial markets must address market failures arising from spillover effects and thus internalise such externalities. Second, the spillover effects of financial stress could have different macroeconomic impacts in different countries. Financial reforms aimed at mitigating the adverse impact of financial spillover needs to be tailored in accordance with the underlying economic and financial structures that could affect the pattern of spillovers.

11.4 The Role of G20

In this section, we briefly discuss the possible areas of G20 cooperation to enhance the effectiveness of the member countries' financial regulatory reforms. Although a one-size-fit-all approach to regulatory reforms is inadequate, global efforts

[10]An exception is Malaysia, where a positive monetary positive shock causes a statistically significant increase in IIP and a decline in STP after 2 months.

should be made to promote harmonisation in financial regulations across jurisdictions. The presence of substantial inconsistency among national regulations could create incentives for financial institutions to seek regulatory arbitrage, moving their operations from heavily regulated jurisdictions to lightly regulated ones. Regulatory arbitrage would undermine the effectiveness of regulatory reforms and expose all relevant jurisdictions to the danger of excessive risk taking by imprudent banks due to their interconnected nature of business (Acharya 2013).

In this context, G20 members should cooperate closely to ensure that the Basel III proposals by the Basel Committee on Banking Supervision are implemented in a timely and consistent manner across jurisdictions. The Basel III proposals that require banks to hold more and high-quality capital will enhance the loss-absorbing capacity of banking sectors and thus increase their resilience to adverse shocks. Moreover, the proposal to introduce countercyclical capital buffers and liquidity regulations will reduce the vulnerability of banking sectors to procyclical systemic risks arising from excessive credit expansions and leverage.

G20 can also cooperate to address a major loophole in financial regulations, namely, a lack of effective oversight and regulations of shadow banking systems. A narrow focus of financial reforms on banking sectors could create incentives for lending activities to migrate towards less regulated segments, notably shadow banking systems. A growth of shadow banking systems could jeopardise the stability of the entire financial system due to the interconnection between regulated and shadow banking systems. From a broader perspective of macro-financial stability, financial regulators should develop an effective framework for oversight and regulations of shadow banking systems. The starting point will be to follow the policy recommendation by Financial Stability Board (FSB 2013). G20 can cooperate to monitor the progress of the member countries' reforms on shadow banking regulations.

Finally, G20 can play a constructive role in addressing the problem of capacity constraints in less developed countries. A lack of sufficient capacity is a major constraint for effective financial regulation and supervision. It is essential for capacity-constraint countries to prioritise financial reforms and develop a long-term plan with an adequate sequencing of reforms. For example, in low-income countries with severe capacity constraints, the priority should be placed on financial stability. In these countries, financial liberalisation must proceed gradually in tandem with the pace of capacity building. In middle-income countries, efforts should be made to remove regulatory barriers that restrain competition in banking sectors and hinder the price-discovery function of asset markets. Capital controls can be justified on a temporary basis to handle adverse external shocks, notably financial spillovers. However, capital controls cannot be a substitute for policy adjustments necessary to rectify macroeconomic and financial imbalances. It should also be noted that capital controls could have a detrimental effect on the development of financial systems in the long run (Chin and Ito 2002). To support the member countries' efforts to formulate a roadmap for financial reforms, G20 members can share their experiences and develop a guideline for an adequate sequencing of reforms.

11.5 Conclusions

This chapter examined the cross-border spillovers of financial stress shocks and discussed their policy implications for financial reforms. Financial stress is a serious disruption to the normal functioning of financial markets, which is associated with greater volatility in asset prices, higher funding costs, and the reduced availability of bank credit. Financial stress can have significant adverse effects on real economic activity by depressing corporate and household spending. Moreover, financial stress in one country can be transmitted to another country through various channels depending on the strength of trade and financial linkages, as well as the shared vulnerabilities between the two countries.

To examine the cross-border spillovers of the US financial stress shock, we followed Kilian's (2009) two-step procedure. In the first step, a VAR is estimated to identify structural shocks, including the financial stress shock. In the second step, OLS regressions are estimated to evaluate the impact of identified structural shocks on macroeconomic variables in six European and Asian countries. The major findings of the analysis can be summarised as follows. First, the macroeconomic impacts of the US financial stress shock on six European and Asian countries are significant and thus comparable with those of the US real activity shock. Second, the cross-border spillover effects of the financial stress shock on these countries' stock prices are relatively persistent. Finally, the financial stress shock could have different impacts on real exchange rates in different countries. A key policy implication derived from the analysis is that financial regulatory reforms in major financial markets must address market failures arising from spillover effects and thus internalise such externalities. Another important implication is that financial reforms aimed at mitigating the impact of financial spillover need to be tailored in accordance with the underlying economic and financial structures that could affect the pattern of spillovers.

We also briefly discussed what role G20 can play to enhance the effectiveness of the member countries' financial regulatory reforms. Possible cooperative efforts include: ensuring timely and consistent implementation of Basel III proposals; monitoring the progress of the member countries' reform on shadow banking regulations; and developing a guideline for an adequate sequencing of financial reforms.

Acknowledgments We are very grateful to Pierre Jacquet and Kashyap Arora for their insightful and useful comments on the earlier version of the paper. We retain responsibility for any remaining errors.

References

Apergis N, Miller SM (2009) Do structural oil-market shocks affect stock prices? Energy Econ 31:569–575

Acharya VV (2013) The Dodd-Frank Act and Basel III: intentions, unintended consequences, and lessons for emerging markets. In: Kawai M, Prasad ES (eds) New paradigms for financial regulations: emerging market perspectives. ADB Institute, Tokyo and Brookings Institution Press, Washington DC, pp 13–44

Acharya VV, Philippon T, Richardson M, Roubini N (2009) The financial crisis of 2007–2009: causes and remedies. In: Acharya VV, Richardson M (eds) Restoring financial stability: how to repair a failed system. Wiley, Hoboken, pp 1–56

Artis MJ, Galvao AB, Marcellino M (2007) The transmission mechanism in a changing world. J Appl Econ 22:39–61

Banerjee A (1992) A simple model of herd behavior. Quart J Econ 107:797–817

Bernanke BS, Boivin J, Eliasz P (2005) Measuring the effects of monetary policy: a factor-augmented vector autoregressive (FVAR) approach. Q J Econ 387–422

Bikhchandani S, Hirshleifer D, Welch I (1992) A theory of fads, fashion, custom, and cultural change as information cascades. J Polit Econ 100:992–1026

Canova F (2005) The transmission of US shocks to Latin America. J Appl Econ 20:229–251

Cerra V, Saxena SC (2008) Growth dynamics: The myth of economic recovery. Am Econ Rev 98(1): 439–457

Chen W, Hamori S, Kinkyo T (2014) Macroeconomic impacts of oil prices and underlying financial shocks. J Int Fin Markets Institutions Money 29:1–12

Chinn M, Ito H (2002) Capital account liberalization, institutions and financial development: cross country evidence. NBER working papers 8967. National Bureau of Economic Research, Cambridge

di GiovanniJay J, Shambaugh C (2008) The impact of foreign interest rates on the economy: the role of the exchange rate regime. J Int Econ 74(2):341–361

Eichenbaum M, Evans CL (1995) Some empirical evidence on the effects of shocks to monetary policy on exchange rates. Q J Econ 110:975–1010

Eichengreen B, Rose A, Wyplosz C (1996) Contagious currency crises: first tests. Scand J Econ 98:463–484

Eickmeier S, Lemke W, Marcellino M (2011) The changing international transmission of financial shocks: evidence from a classical time-varying FVAR. Discussion paper No. 05/2011 (Series 1). Deutche Bundesbank, Frankfurt

FSB (2013) Strengthening oversight and regulation of shadow banking: policy framework for strengthening oversight and regulation of shadow banking entities. Financial Stability Board, Basel

Fornari F, Stracca L (2012) What does a financial shock do? First international evidence. Econ Policy 407–445

Forbes KJ (2012) The "Big C": identifying and mitigating contagion. Paper prepared for 2012 Jackson Hole symposium hosted by the Federal Reserve Bank of Kansas City

Galesi A, Sgherri S (2009) Regional financial spillovers across Europe: a global VAR analysis. IMF working paper. WP/09/23. International Monetary Fund, Washington DC

Gelos G (2011) International mutual funds, capital flow volatility, and contagion—a survey. IMF working paper WP/11/92. International Monetary Fund, Washington DC

Goldstein M (1998) The Asian financial crisis: causes, curses, and systematic implications. Institute for International Economics, Washington DC

Gorton G (2009) Slapped in the face by the invisible hand: banking and panic of 2007. Prepared for the Federal Reserve Bank of Atlanta's 2009 financial markets conference: financial innovation and Crisis

Hakkio CS, Keeton WR (2009) Financial stress: what is it, how can it be measured, and why does it matter? Federal Reserve Bank of Kansas City, Economic Review, Second Quarter

Hanosn SG, Kashyap AK, Stein JC (2011) A macroprudential approach to financial regulation. J Econ Perspect 25:3–28

Helbling T, Huidrom R, Kose MA, Otrok C (2011) Do credit shocks matter? A global perspective. Eur Econ Rev 55:340–353

Holman JA, Neumann RM (2002) Evidence on the cross-country transmission of monetary shocks. Appl Econ 34:1837–1857

IMF (2009) Regional economic outlook: Asia and Pacific. International Monetary Fund, Washington DC

IMF (2013) Dancing together? Spillovers, common shocks, and the role of financial and trade linkages. World economic outlook, Chap. 3. International Monetary Fund, Washington DC
Kaminsky G, Reinhart C (2000) On crises, contagion, and confusion. J Int Econ 51:145–168
Kilian L (2009) Not all oil price shocks are alike: disentangling demand and supply shocks in the crude oil market. Am Econ Rev 99:1053–1069
Kilian L, Park C (2009) The impact of oil price shocks on the U.S. stock market. Int Econ Rev 50:1267–1287
Kim S (2001) International Transmission of U.S. monetary policy shocks: evidence from VARs. J Monetary Econ 48:339–372
MacKinnon JG (2006) Bootstrap methods in econometrics. Econ Rec 82:2–18
Mackowiak B (2007) External shocks, U.S. monetary policy and macroeconomic fluctuations in emerging markets. J Monetary Econ 54:2512–2520
Mishkin FS (1991) Asymmetric information and financial crises: a historical perspective. In: Hubbard RG (ed) Financial markets and financial crises. University of Chicago Press, Chicago, pp 69–108
Mishkin FS (2010) Over the cliff: from the subprime to the global financial crisis. NBER Working paper 16609. National Bureau of Economic Research, Cambridge
Neri S, Nobili A (2010) The transmission of US monetary policy to the euro area. Int Finan 13:55–78
Raddatz C, Schmukler S (2012) On the international transmission of shocks: micro-evidence from mutual fund portfolios. J Int Econ 88:357–374
Reinhart CM, Rogoff KS (2009) The aftermath of financial crises. Am Econ Rev 99(2): 466–472
Yoshizaki Y, Hamori S (2013) On the influence of oil price shocks on economic activity, inflation, and exchange rates. Int J Finan Res 4:33–41

Part V
Trade and Protectionism: The Emerging Role for G20

Chapter 12
Trade and Protectionism—The Emerging Role for G20

Anwarul Hoda

In 2008, there was a real risk of an upsurge in trade and investment protectionist measures, as governments sought to protect their economies from being ravaged by the financial crisis. The G20 leaders therefore undertook a commitment to refrain from raising new barriers to investment or trade in goods and services or to impose any export restrictions or to implement any WTO inconsistent measures to stimulate exports. The language of the commitment was unique inasmuch as it covered both WTO consistent and inconsistent measures, although it emphasised only WTO inconsistent measures that stimulated exports (G20 2008). The WTO Agreement already provided a bulwark against protectionist measures that infringed its obligations, but the intention was to go further and discourage all trade distorting measures, whether or not they were consistent with its obligations. It was in the nature of a political, not a legal commitment. The WTO and other organisations were mandated to monitor the developments so as to help the process of diplomatic pressurisation, of naming and shaming.

Has the political level commitment worked? According to Simon Evenett in Global Trade Alert (Evenett 2013), it has not, at least in full measure. He points out that although at the successive summits there were repeated statements patting the leaders on the back for keeping the markets open, they also acknowledged that at time they had lapsed into protectionist measures.

A. Hoda (✉)
ICRIER's Trade Policy and WTO Research Programme, New Delhi, India
e-mail: anwarhoda@yahoo.com

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_12

12.1 What Is the Evidence from the Latest Documents That Have Come Out of the Institutions Charged with Monitoring?

The WTO reports that during the 7-month period of the latest report (WTO 2013), G20 countries implemented 100 trade restrictive measures, covering around 0.5 % of G20 merchandise imports. Although the number of trade facilitating measures implemented by them was fewer, their coverage was more, as they accounted for 0.7 % of G20 merchandise imports.

The measures restricting or trade distorting implemented by G20 economies since October 2008, excluding those measures reported as terminated account for around 3.6 % of world merchandise trade or 4.2 % of G20 imports.

The analysis of the impact is modest—USD 16 billion or 0.2 % of G20 trade.

There is always a risk in basing assessments on numbers as the qualitative aspects may be more important. But let me give my own number to assess the situation on protectionism. Usually, when countries impose restrictions inconsistent with the obligations of the WTO Agreement, disputes are raised against them. In other words, increase in protectionist measures leads to increased friction. What is the evidence in this regard? During the years 1995–2007, before the outbreak of the financial and economic crisis, 369 disputes were raised in the WTO, giving an average of 28 disputes per year. During the years 2008–2012, 84 disputes were raised, giving an average of 17 per year. If trade friction is to be treated as a barometer of protectionism, surely protectionism has not increased after the financial and economic crisis.

Moving on to investment measures, the OECD-UNCTAD report that 9 countries of G20 amended their investment specific policies during the period (WTO 2013). The vast majority of measures eliminate restrictions to international investment and improve clarity for investors, as in the past. The report reiterates that almost all new policy measures that G20 members adopted during the period under report 'tended to eliminate investment restrictions and to facilitate inward and outward investments.'

There is a great risk in expecting too much from the political commitment on protectionism even at the summit level. At G20 summits strong statements have been made on the multilateral trade talks as well. In the Seoul Action Plan (G20 2010) approved at the G20 Summit in November, 2010, the leaders had expressed a new resolve on concluding the trade talks successfully. Under the Plan, the G20 members stressed 'our strong commitment to direct our negotiators to engage in across-the-board negotiations to promptly bring the Doha Development Round and build on the progress already achieved.' They further stated: 'We recognize that 2011 is a critical window of opportunity, albeit narrow, and that engagement among our representatives must intensify and expand. We now need to complete the end game. Once such an outcome is reached, we commit to seek ratification, where necessary, in our respective systems. We are also committed to resisting all forms of protectionist measures.'

The fate of the Doha Round despite the repeated affirmation of resolve made at the Summit level shows the futility of relying too much on the lofty statements in the Summit declarations. At best the declarations on the issue of resisting protectionism seem to have been of the 'best endeavour' variety. In successive Summit Declarations the leaders have shown awareness of their weakness in adhering strictly to their commitments in this regard and repeatedly referred to the rising instances of protectionism around the world and make commitments to redress the situation as they arise.

The above having been said, it must be acknowledged that, the despite the protectionist pressures generated by the severe financial crisis, world trade has not been swallowed in a downward spiral of trade restricting measures. The protectionist measures have been modest when we take into consideration the difficult economic environment created by the sluggish growth in the Quad countries and slowing growth in emerging economies including the BRICs. But this has been helped by some underlying factors. First, we must give credit to the framework of rules of the WTO Agreement, duly supported by the effective dispute settlement machinery. Second, protectionist pressures in agriculture must have been certainly kept at bay, by the prevailing high prices of commodities. We have to remember that in the past agriculture has been at the forefront of trade distorting interventions because of the low prices. In manufacturing too, there are underlying factors that may have persuaded countries to keep their markets open and this brings me to the third important reason for the G20 countries keeping their markets open. Vertical integration or production sharing arrangements have made the countries more interdependent. Trade in intermediate goods or parts and components has been growing and finished goods have large import content, which may have come from the country importing the final goods. The prevalence of international production sharing arrangements creates an inherent safeguard against protectionist measures.

While protectionism has been held at bay by the G20 countries, there is no room for complacency on the issue. Summit Declarations on protectionism are not without value, as they generate political impulses for keeping the markets open and help to create a sentiment or environment against protection. It is bad enough that the disagreements have stymied efforts at further multilateral liberalisation during the last 12 years. It would be worse if there is a resurgence of restrictive actions, notwithstanding the underlying factors to which I have referred. G20 countries must also reaffirm their determination to withdraw or terminate actions that they have taken already since the outbreak of the financial and economic crisis.

There are other developments in the trading system that should cause us greater worries. We all know that regional trading arrangements have been proliferating particularly since the WTO was established. However, a more recent development has been initiatives for mega-RTAs. After the Trans-Pacific Partnership (TPP) we have had initiatives for the Transatlantic Trade and Investment Partnership (TTIP) and the Regional Comprehensive Economic Partnership (RCEP). Geo-political dynamics have provided the springboard for these initiatives and it is difficult to

stop them from rolling forward. We have to remember that RTAs may be good for the members but they affect adversely the interests of countries outside the RTAs. These adverse effects are not redressed by those countries forming their own RTAs. The only way that the countries left out of the mega RTAs can advance their interest is by pushing for strong multilateral trade and investment liberalisation. Therefore, it is even more important for the G20 to rekindle interest in multilateral negotiations. The emphasis should be on going forward and not merely on not going back.

References

Evenett SJ (2013) What restraint? Five years of G20 Pledges on Trade–The 14th GTA Report. http://www.globaltradealert.org/sites/default/files/GTA14_0.pdf

G20 (2008) Declaration summit in the financial market and the world economy, November 15, 2008. https://www.g20.org/sites/default/files/g20_resources/library/Washington_Declaraton_0.pdf

G20 (2010) The Seoul summit document-framework for strong, sustainable and balanced growth. https://www.g20.org/sites/default/files/g20_resources/library/Seoul_Summit_Document_0.pdf

WTO (2013) Dispute settlement: chronological list of disputes cases http://www.wto.org/english/tratop_e/dispu_e/dispu_status_e.htm. Accessed on 16 September 2013

WTO/OMS, OECD and UNCTAD (2013) Reports on G20 trade and investment measures (Mid-May 2013 to Mid-November 2013), Dec 18, 2013. http://www.oecd.org/investment/10thG20TradeInvestment.pdf

Chapter 13
G-20, Multilateralism and Emerging Mega-trade Blocs: Options for India and Asian Developing Countries

Nagesh Kumar

13.1 The Context: G20 and Trade

G-20 has consistently supported 'open, rules-based, transparent and non-discriminatory WTO-based trading system'. It also called for successful outcome of the 9th WTO Ministerial Conference in Bali in December 2013. Against that background, it is important to examine whether this commitment to open and rules based non-discriminatory WTO-based multilateral trading system is actually reflected in actual practice by leading member states of G20 or it is just a lip service. Actually some of the G-20 major members including the US and the EU countries have been involved in formation of mega inter-regional trade blocs that are likely to erode the multilateral trading system. The projections are that the bulk of trade of developed countries will be conducted on preferential basis rather than on MFN basis after the conclusion of these arrangements along with the existing one. There are serious implications of this trend for developing countries like India. Against that backdrop, this paper takes a stock of recent initiatives towards formation of mega-trade blocks and discusses their implications for Asian developing countries including India. It is concluded with some policy options for them.

N. Kumar (✉)
UNESCAP, Subregional Office for South and South-West Asia, New Delhi, India
e-mail: nkumar@un.org; nageshkum@gmail.com

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_13

13.2 1990s a Turning Point for Erosion of MFN

GATT rules provided an exception from MFN, which is a bedrock of multilateralism, for regional economic integration (REI) (Art. XXIV of GATT) to take care of the exceptional situation of critical interdependence between economies. However, in the 1990s the exception was exploited by developed economies to form a number of groupings, a trend led by the formation of a Single European Market and of the North American Free Trade Agreement (NAFTA), EFTA, and European Economic Space, APEC among others. Major implication of the formation of large trade blocs of 1990s was that a large proportion of world trade began to take place outside MFN, on a preferential basis. This was because of high share of advanced economies in world trade (73 % in 1990, 65 % in 2000 and 51 % in 2012) and a very large proportion of their trade taking place within the region (63 % of EU's $5.8 trillion trade was intra-regional; 49 % of NAFTA's $2.37 trillion trade was intra-regional). There was a domino reaction world-wide with MERCOSUR being formed in Southern America, SADC and SACU in Africa, among others. There have been new disciplines in non-trade areas resulting from the advanced country trade blocs. For instance, a number of investments disputes were brought against the NAFTA governments (mostly Canada and Mexico) by private corporations under Chap. 11 of NAFTA. There have also been heightened trade wars and trends of techno-protectionism between the two major trade blocs namely EU and NAFTA, for instance, Boeing/Airbus rivalry, SEMATECH Consortium among many others where the two regions tried to support their national champions to maintain their technological and market domination through a variety of means including subsidies.

13.3 New Wave of Interregional Blocs: TPP and TTIP

Recently there has been another fresh trend of formation of mega FTAs of transcontinental type led by advanced economies that will have major implications for the world trade further eroding the remit of MFN. This trend started with launch in 2011 of the Trans-Pacific Partnership (TPP) negotiations bringing together US and Japan, Australia and New Zealand, among other countries. It was followed up the launch in July 2013 of the EU-US Transatlantic Trade and Investment Partnership (TTIP) negotiations. The implications of TPP and TTIP are that virtually entire mutual trade of advanced economies—intraregional as well as interregional—would be conducted on preferential basis with existing regional blocs (EU and NAFTA) and their new emerging inter-regional trade blocs. Thus they will further erode MFN.

Another implication of TPP and TTIP is on the future trade negotiations. Both are seeking 'to set new standards for global trade and incorporating next-generation issues' that could provide templates for other forums including the WTO.

13.4 Implications for Asian Developing Countries

With the bulk of trade of their major trade partners going off the MFN, developing countries in Asia and the Pacific region need to look at the policy options. In any case the advanced economies have been facing an uncertain and subdued economic outlook in a post-global financial crisis phase and the growth rate of world trade has come down dramatically. The new mega FTA may lead to significant diversion of trade of advanced economies away from developing countries in favour of their FTA partners. Therefore, the developing countries in Asia and the Pacific have to take steps to exploit opportunities of expanding intra-regional trade through deepening regional economic integration. They can also exploit opportunities for enhancing inter-regional trade with developing and emerging countries in other regions.

13.5 Regional Economic Integration in Asia and the Pacific: Potential and Prospects

Intraregional trade in Asia and the Pacific has expanded rapidly over the past decade especially after the onset of the global financial crisis. But Fig. 13.1 shows, with some facilitation it can grow faster. Furthermore the potential of intraregional trade is there in the subregions of Asia like ASEAN, South Asia but it is often greater across the subregions because of complementary factor endowments as

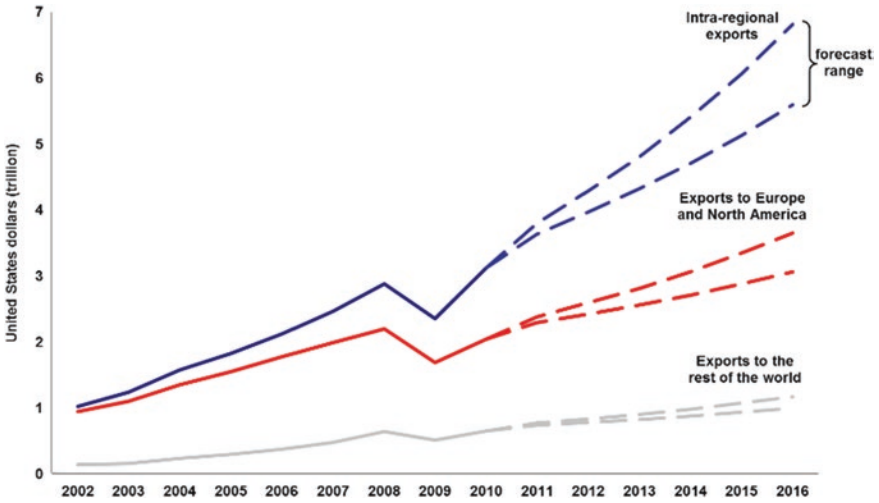

Fig. 13.1 Destination of Exports of Asia and the Pacific Countries, 2002–2016. *Source* UNESCAP (2012) *Growing Together: Economic Integration for an Inclusive and Sustainable Asia-Pacific Century,* Bangkok: United Nations, ST/ESCAP/2629

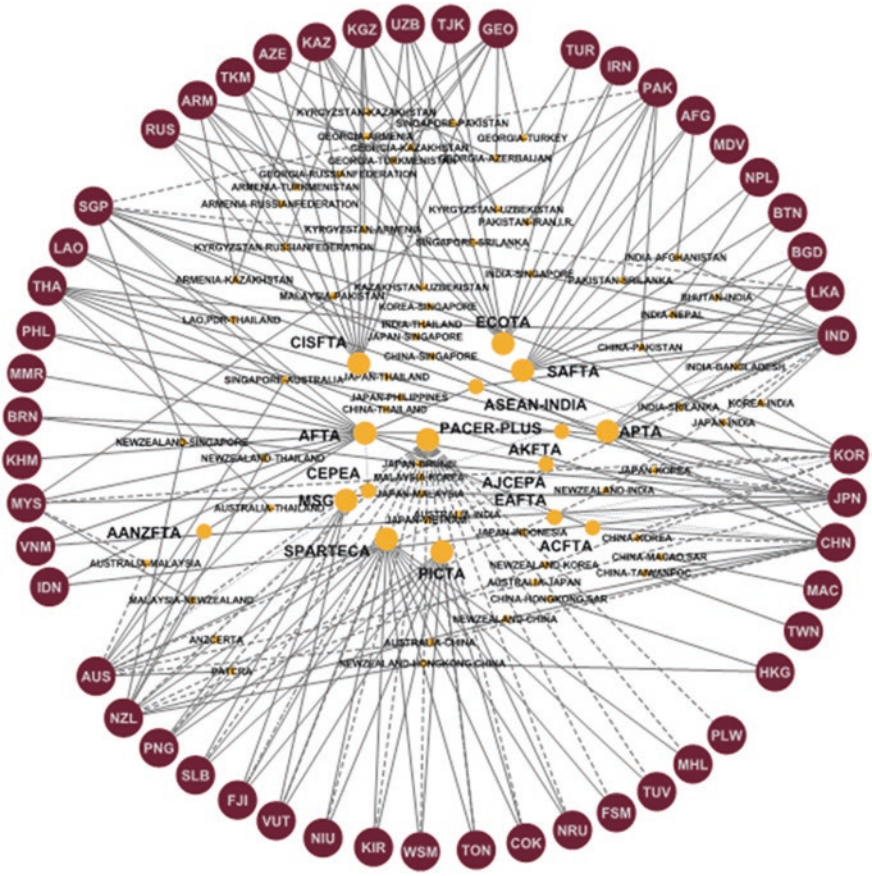

Fig. 13.2 Network of Trade Agreements between Asia and the Pacific Countries. *Source* UNESCAP (2012) *Growing Together: Economic Integration for an Inclusive and Sustainable Asia-Pacific Century,* Bangkok: United Nations, ST/ESCAP/2629

shown by UNESCAP 2012. However, the approach adopted by the governments of Asia and the Pacific for promoting intra-regional trade and economic integration is dominated by subregional and bilateral arrangements like ASEAN RTIA or SAFTA and virtually hundreds of bilateral FTAs creating an Asian noodle bowl syndrome (Fig. 13.2) with different rules, scopes and coverage. High trade costs in intraregional trade; Barriers to trade in services and investments also remain (Table 13.1).

Table 13.1 Export opportunities indicator, for an average country in Asia and Pacific sub-regions and selected regions of the world (billions of US dollars)

Indicator of opportunities to export from	To								
	East and North-East Asia	South-East Asia	South and South-West Asia	North and Central Asia	Pacific	Asia and the Pacific	Europe	North America	Rest of the World
East and North-East Asia	*23.3*	3.7	5.3	3.6	0.8	36.8	20.8	3.9	11.8
South-East Asia	19.4	*2.3*	4.1	1.7	0.6	28.1	16.2	5.4	6.9
South and South-West Asia	9.1	2.1	*2.8*	1.9	0.5	16.5	12.9	3.6	7.0
North and Central Asia	13.5	3.1	6.1	*1.0*	0.7	24.4	18.1	7.9	6.8
Pacific	5.2	1.4	2.5	0.7	*0.3*	10.1	7.3	1.8	3.5
Asia and the Pacific	13.0	2.4	3.9	1.6	0.6	*21.4*	14.1	4.3	6.7
Europe	13.8	3.8	5.6	4.5	1.0	28.6	*29.7*	6.1	13.7
North America	32.1	6.6	11.1	4.3	1.5	55.6	40.3	*10.9*	16.5
Rest of the World	9.5	2.2	3.9	1.3	0.6	17.5	12.1	4.9	*5.6*

Source UNESCAP (2012) *Growing Together: Economic Integration for an Inclusive and Sustainable Asia-Pacific Century,* Bangkok: United Nations, ST/ESCAP/2629

13.6 Approaches Towards Regional Trade Liberalization

Asia and the Pacific region needs an architecture to promote regional economic integration between the sub-regions besides consolidating the subregional cooperation. Exploitation of inter-subregional trade potential and economic integration would require creation of an extended regional market that will help in exploitation of not only potential of intraregional trade but also of trade in services and foreign direct investment and formation of regional value chains. Such an arrangement should lead to a pan-Asia-and the Pacific regional market through a broader coverage of countries, comprehensive sectoral scope (substantially all trade), and deeper liberalization, facilitation and cooperation. It could be evolved in a progressive manner and should be equitable with provisions for special and differential treatment (S&DT) for poorer countries and economic cooperation should cover assistance for lagging regions and vulnerable sections.

In a recent study *Growing Together: Economic Integration for an Inclusive and Sustainable Asia and the Pacific Century*, UNESCAP has proposed three options to achieve the objective of an integrated market of Asia and the Pacific as follows.

1. Creating an Asian Economic Area (AEA) to join the sub-regional groupings: One option could be to create an umbrella agreement AEA, negotiated under the auspices of UNESCAP to provide a framework for subregional groupings such as ASEAN, SAARC, ECO, PIF to exchange tariff preferences on a reciprocal basis and share experiences. However, it may be complicated by different stages of evolution of the subregional groupings especially towards their FTA. While it was found to have substantial welfare gains for all parties, it would leave out some major economies e.g. China, Japan, RoK that are not part of any grouping. Yet creation of a Consultative Group of the Subregional Groupings on Economic Cooperation would still be helpful to facilitate sharing of best practices between them.
2. Building on ASEAN+approach: Besides deepening its own integration right up to the goal of an economic community achieved by 2015, ASEAN has also contributed to broader regional integration of Asia and the Pacific through ASEAN+1 FTAs with its six dialogues partners, the ASEAN+3 and the East Asia Summit which brings together all its dialogue partners. In November 2012 at Phnom Penh, negotiations were launched on Regional Comprehensive Economic Partnership of East Asia (RCEP) covering ASEAN+6 countries including Japan, China, India, Republic of Korea, Australia and New Zealand. RCEP is already based on Liberalization, Facilitation and Economic Cooperation. As per the guiding principles for negotiations, it has included an open accession clause for other Asia and the Pacific countries to join the agreement through instrument of accession after conclusion of negotiations. RCEP has a critical mass with the largest and most dynamic economies of the region with a combined market of USD20 trillion, large capital and natural resource endowments and nearly half of the world's population. It has the potential to generate substantial welfare gains for all the member economies. RCEP could

be seen as a nucleus of an integrated market of Asia and the Pacific in view of the open accession clause included that will enable other economies to join.

3. A new Asia-Pacific Trade and Economic Cooperation Agreement: Another alternative would be to establish a new agreement under the auspices of UNESCAP building on its earlier Asia-Pacific Trade Agreement (formerly Bangkok Agreement) open to all member states based on substantially all trade (negative list basis) conforming to Article XXIV of GATT; comprehensive coverage: goods, services and investments, facilitation; and special and differential treatment for poor countries and economic cooperation covering support to lagging regions and vulnerable sections. It would have the potential to raise welfare by more than one percent of the whole region with poorer countries benefiting more.

Of the three options or possible routes to build a broader integrated market, the RCEP based approach is most pragmatic. It has the critical mass, presence of dynamic economies and it can build on the ground work already done in ASEAN+1 FTAs. RCEP could also be an important regional response by developing countries in Asia and the Pacific like India to the formation of major trade blocs by advanced economies.

For exploitation of full potential of regional economic integration, formation of an integrated market will need to be complemented by seamless connectivity and transport facilitation to bring down costs of intraregional trade, financial cooperation to mobilize Asian savings for closing infrastructure gaps, regional cooperation and creation of regional public goods to address shared vulnerabilities and risks including food and energy insecurities, natural disasters, climate change, among others.

At the 68th Session of the UNESCAP's Commission Session the Member States of the body resolved to move ahead with an agenda of deepening regional economic integration in Asia and the Pacific and requested ESCAP to convene a Ministerial Conference on Regional Economic Integration. The first Ministerial Conference on Regional Economic Integration was held in Bangkok in December 2013 and decided to move ahead with a four pillared approach covering market integration, seamless connectivity, financial cooperation and regional cooperation for addressing the shared vulnerabilities. They also institutionalized the process with a decision to meet every two years.

13.7 Concluding Remarks

The recent trend of formation of mega trade blocs by world's major advanced economies integrating with the bulk of trade conducted outside MFN has major implications for developing countries like India. There is a compelling case for deepening and broadening economic integration in Asia and the Pacific region and move towards formation of an economic community of Asia-Pacific as a long

term goal. There is a great potential of enhancing intraregional trade and investment by exploiting the synergies beyond those within the sub-regions through broader regionalism. In that context, RCEP appears to be an important starting point. Combining 16 of Asia's largest and most dynamic economies, RCEP has the critical mass to emerge as a major trade bloc and potential to enhance the welfare gains for its members.

Fruitful cooperation possibilities exist also in connectivity, finance, and in addressing the shared risks and vulnerabilities as in food and energy security, disaster risk reduction, and for enhancing environmental sustainability, among other areas. Deeper cooperation would also assist the region to play its due role in global economic governance and emerge as the centre of gravity of the world economy. Time has also come for exploiting the potential of inter-regional trade through deepening GSTP and strengthening South-South cooperation to exploit the synergies for mutual benefit.

Chapter 14
Global Production Sharing and Asian Trade Patterns: Implications for the Regional Comprehensive Economic Partnership (RCEP)

Prema-chandra Athukorala

14.1 Introduction

A distinguishing feature of the Asian approach to economic liberalization during the last three decades of the twentieth century was that it occurred predominantly on a unilateral and multilateral basis. In a significant departure from this non-discriminatory policy posture, in the first decade of the New Millennium, Asia joined the global rush to signing free trade agreements (FTAs) (Ravenhill 2014; Kawai and Wignaraja 2013). By 2013, Asian countries had concluded 126 bilateral and plurilateral FTAs and were negotiating a further 56 agreements. The proliferation of FTAs has, however, giving rise to concerns in recent years that the overlapping and complex web of FTAs, the so-called Asian 'FTA noodle bowl', may run counter to the original expectation of promoting trade and investment. There is evidence that actual rate of utilization of trade preferences offered by the FTAs are dismally low because of the stringent rules of origin[1] and complex tariff structures, which raise trade cost, and that the administrative discretion involved in granting concessions nurtured by these complexities is likely to distort trade patterns. Consequently, there has been a new emphasis in the trade policy debate in the region on the consolidation of multiple FTAs into a region-wide FTA. At its 2011 Annual Summit, the Association of Southeast Asian Nations (ASEAN) adopted

[1]The utilization rates of tariff concessions provided under the existing FTAs range from about 5 to 20 % across different product categories (Ravemhill 2014; Athukorala and Kohpaiboon 2011).

P. Athukorala (✉)
Arndt Corden Department of Economics, Crawford School of Public Policy, Australian National University, Canberra, Australia
e-mail: prema-chandra.athukorala@anu.edu.au

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_14

guiding principles and a negotiation time table for amalgamating the six 'ASEAN+1 FTAs' (that is, the free trade agreements ASEAN has signed with China, Japan, Korea, India, Australia and New Zealand), and other bilateral FTAs involving individual ASEAN member countries, to form a consolidated trading bloc called the Regional Comprehensive Economic Partnership (RCEP). The stated aim is to form this mega trading agreement involving the 16 member countries by 2015.

The purpose of this paper is to analyze the emerging patterns of international trade in Asia, with a view to informing the debate on the formation of RCEP. The paper aims to add new insight into the debate by examining the implications of the process of global production sharing-the breakup of the production processes into geographically separated stages[2]—for understanding the on-going process of economic integration in the region. While trade in parts and components and final assembly taking place within production networks ("network trade") has generally grown faster than total world trade, the degree of dependence of the countries in the Asia-Pacific region on this new form of international specialization is proportionately even larger than elsewhere in the world. Network trade has certainly strengthened economic interdependence among countries in the region, with the People's Republic of China (PRC) playing a pivotal role as the premier centre of final assembly.

It is widely held in the debate on the formation of RCEP that Asia, in particular East Asia, has become increasingly economically integrated over the years through the rapid expansion of manufacturing trade. This view is rooted in the 'standard' trade data analysis, which is based on the conventional notion of horizontal specialization—that trade takes place in goods that are produced from start to finish in a given country. It has largely ignored the on-going process of global production sharing and the resulting trade complementarities among countries at the global level. Global production sharing opens up opportunities for countries to specialize in different slices (different tasks) of the production process depending on their relative cost advantage and other relevant economic fundamentals. Consequently, parts and components are now exchanged across borders of the countries in the region at a faster rate than final goods. Conventional trade flow analysis can yield an unbiased picture of regional economic integration only if component trade and final trade follow the same geographic patterns. If component trade has a distinct intra-regional bias, as one would reasonably anticipate in the context of growing network trade in the region, then the conventional trade flow analysis is bound to yield a misleading picture in regards to the relative importance of intra-regional trade versus global trade for growth dynamism in the region. This is because growth based on assembly activities depends on the demand for final goods, which in turn depends largely on extra-regional demand. The degree of understatement

[2]An array of alternative terms have been used to describe this phenomenon, including 'international production fragmentation', 'vertical specialization', 'slicing the value chain' and 'outsourcing'.

of the importance of extra-regional demand is likely to increase over time as more complex production networks are created with an ever increasing number of interacting countries.

A meaningful analysis of trade patterns, therefore, requires systematic separation of parts and components (henceforth 'components') from final (assembled) products in reported trade data. This is done in this paper through a careful disaggregation of trade data based on Revision 3 of the Standard International Trade Classification (SITC., Rev 3) extracted from the United Nations trade data reporting system (US Comtrade database).[3] For the purpose of the study, Asia is defined to encompass the economies of South and East Asia. East Asia includes Japan, and developing East Asia (DEA), which covers the newly industrialized economies (NIEs) in North Asia (South Korea, Taiwan and Hong Kong), China and members of the Association of Southeast Asian Nations (ASEAN). Developing Asia (DA) refers to South and East Asia except Japan.

The next section examines trends and patterns of trade over time in aggregate and by major commodity groups, paying particular attention to the phenomenon of 'network trade' based on global production sharing. Central to the discussion in this section is the implications of network trade for the relative importance of intra-regional versus global economic integration. The following section probes the implications of Asia's engagement in global production sharing for the potential trade gains from the formation of RCEP. The final section summarizes the key findings and draws out some general inferences.

14.2 Trade Patterns

Over the past half a century, Asia has emerged as the third hub of world trade next to Europe and North America. The combined share of Asian countries in world non-oil exports recorded a three-fold increase over the past three decades, from 11.1 to 38.1 %, between 1979–80 and 2011–12.[4] By 2011–12, Asia's share in world trade was nearly three times of that of the North America Free Trade Area (NAFTA) (12.8 %) and higher than that of the 15 Western European member countries of the European Union (EU-15) (34.2 %). East Asia dominated this impressive export growth story, accounting for over 95 % of the total regional trade. In the 1960s and 1970s, Japan dominated the region's trade, accounting for over half of total exports and imports. Next came the four 'Tigers': Korea, Taiwan,

[3]For details on the decomposition procedure, see Athukorala (2011).

[4]Throughout the paper trade magnitudes are measured in current US dollars. Inter-temporal comparison is done using 2-year averages relating to the end points of the period under study so as to reduce the impact of year-to-year fluctuations of trade flows. Data on oil and gas (SITC 3) trade is excluded from the commodity coverage to avoid distortions in trade patterns resulting from sharp periodic changes in prices of these products.

Hong Kong and Singapore. Over the past two decades, the rise of China has been the dominant factor behind this structural shift in world trade in favour of Asia.

Within East Asia, the combined world export share of ASEAN countries increased from 2.0 % in 1979–80 to 7.4 % in 2011–12, but these countries still account for less than a fifth of total Asian trade. Notwithstanding some export expansion in recent years, South Asia still accounts for a mere 2.1 % of total world trade, equivalent to less than 5 % of Asia's total trade. Among the nine largest DEA economies only Hong Kong, Indonesia and the Philippines have smaller world trade shares than India, which is by far the dominant South Asian economy. China's world export share in 2011–12 (13.5 %) was almost 7 times larger than that of India.

Rapid export growth in Asia, mainly driven by the DEA group, has been underpinned by a pronounced shift in export structure away from primary commodities and toward manufactures. By 2011/12 manufactures accounted for nearly 90 % of total non-oil exports from Asia, up from 54.4 % three decades ago.

Within manufacturing, machinery and transport equipment (SITC 7) (henceforth referred to as 'machinery'), in particular the sub-category of information and communication technology (ICT) products (broadly SITC 75, 76 and 77), have played a pivotal role in this structural shift. The rapid growth of manufacturing trade in these products has been driven by the deep integration of East Asian countries into the global production networks. The share of developing countries in total network exports increased from 22.0 % in 1992–93 to 46.5 % in 2011–2012, driven primarily by the growing importance of East Asian countries in global production sharing. The share of East Asia increased from 32.2 % in 1992–1993 to 42.2 % in 2011–2012.

At the early phase of joining global production networks (in the 1960s and 1970s), Asian countries' engagement in network trade was predominantly a two-way exchange with the home countries of the multinational enterprises (MNE) engaged in production sharing. Parts and components were brought to these countries for assembly, and the assembled parts and components were then re-exported to the home country to be incorporated in final products. From about the mid-1980s MNEs began to disperse different segments of component assembly among countries in the regions to reap gains from inter-country differences in wages and rental costs. As the regional supply networks of components became firmly established, final assembly of an increasingly broad range of electronics and electrical goods (such as computers, cameras, TV sets and motor cars) was moved to East Asian locations. Thus by the late 1980s, this process had created a new regional division of labour based on differences in relative wage and skill requirements in different stages of the production process.

When China began to emerge as a major trading nation in late 1980s, there was a growing concern in policy circles in Southeast Asia, and in other Asian countries, that competition from China could crowd out their export opportunities. Initially, the 'China fear' in the region was mainly related to export competition in standard light manufactures (clothing, footwear, sporting goods, etc.), but soon this pessimistic view became pervasive as China began to rapidly integrate into global production networks in electrical and electronics products through an unprecedented increase in foreign direct investment in these industries. The rapid

increase in China's world market share in these product lines, coupled with some anecdotal evidence of MNEs operating in Southeast Asian countries relocating to China, led to a serious concern about possible erosion of the role of Southeast Asian countries in global production networks.

This fear of 'China crowding out the rest' has not materialized, however. On the contrary, China's rise as a final assembler of electrical and electronics goods has enhanced its trade complementarity with the other countries in East Asia that are involved in component production/assembly in the global value chain. While there has been a significant contraction in final assembly of consumer electronics and electrical goods in these countries as an outcome of competitive pressures from China, their exports of parts and components to China have increased at a much faster rate (Athukorala 2009; Athukorala and Archanun 2011).

Table 14.1 presents comparative statistics on the share of network trade in total manufacturing exports and imports at the country and country group levels. It is evident that the share of network trade is much higher in East Asia than in all other regions of the world. In 2011–2012, exports within production networks accounted for 61.7 % of total manufacturing exports in East Asia, compared to the world average of 51.2 %. The patterns observed on the export and import sides of the ASEAN are strikingly similar, reflecting growing cross-border trade within production networks. Within East Asia, ASEAN countries stand out for their heavy

Table 14.1 Share of network products in manufacturing trade, 1992–93 and 2011–12 (percent)

	Parts and components		Final assembly		Total network products	
	1992–93	2011–12	1992–93	2011–12	1992–93	2011–12
(a) Exports						
East Asia	20.2	36.4	31.6	25.3	51.8	61.7
Japan	23.9	36.2	44.5	29.1	68.4	65.3
Developing East Asia (DEA)	17.3	38.5	21.8	24.7	39.1	63.2
China	7.4	20.5	13.7	36.8	21.1	57.3
Taiwan	24.7	44.7	17.6	20.9	42.3	65.6
Republic of Korea	18.1	43.2	22.2	25.5	40.3	68.7
ASEAN	22.7	59.2	34.1	10.1	56.8	69.2
Indonesia	3.8	19.5	5.6	18.0	9.3	37.5
Malaysia	27.7	65.5	40.7	13.2	68.4	78.7
The Philippines	32.9	71.2	20.5	16.3	53.4	87.5
Singapore	29.0	49.5	45.9	18.0	74.9	67.5
Thailand	14.1	44.5	29.0	21.4	43.1	65.9
Viet Nam	–	12.03	–	7.5	–	19.5
South Asia	2.3	8.1	2.9	4.2	5.1	12.3
India	3.0	10.4	3.4	3.7	6.4	14.1
Australia and New Zealand	32.6	26.4	34.5	25.8	33.6	26.14
RCEP countries	20.1	35.8	31.3	25.1	51.4	60.9

(continued)

Table 14.1 (continued)

	Parts and components		Final assembly		Total network products	
	1992–93	2011–12	1992–93	2011–12	1992–93	2011–12
Developed countries	20.4	25.2	28.5	23.6	48.9	48.8
Developing countries	14.6	35.2	21.8	18.4	36.4	53.6
World	19.3	28.2	26.3	23.0	45.5	51.2
(b) Imports						
East Asia	27.2	42.0	17.2	19.8	44.4	61.8
Japan	19.3	22.2	19.3	39.9	38.6	62.1
Developing East Asia	29.0	44.4	16.7	17.3	45.8	61.7
China	20.4	42.0	14.0	21.7	34.4	63.7
Taiwan	29.5	36.7	18.0	19.0	47.5	55.7
Republic of Korea	30.1	35.3	14.6	14.0	44.7	49.3
ASEAN	36.0	47.8	18.4	16.2	54.4	64.0
Indonesia	27.0	22.8	9.2	34.8	36.1	57.6
Malaysia	40.5	55.0	20.2	17.0	60.7	72.0
The Philippines	32.6	62.3	15.0	16.3	47.6	78.6
Singapore	39.9	51.0	21.9	26.7	61.8	77.7
Thailand	30.6	41.0	15.6	7.2	46.2	48.2
Viet Nam	–	19.1	–	9.6	–	28.7
South Asia	16.6	23.8	12.9	16.5	29.5	40.3
India	17.5	22.9	10.6	17.0	28.1	39.9
Australia and New Zealand	24.2	24.5	34.5	35.3	58.7	59.8
RCEP countries	26.9	41.3	17.1	19.1	44.0	60.4
Developed countries	22.6	23.4	25.2	27.8	47.8	51.2
Developing countries	11.9	33.6	28.6	19.8	40.4	53.4
World	19.6	27.3	26.2	24.4	45.7	51.7

Note Data not available
Source Compiled from UN Comtrade database, and Trade Data CD-ROM, Council for Economic Planning and Development, Taipei (for data on Taiwan)

dependence on network trade. These products accounted for over two-thirds of total manufacturing exports of these countries, up from 57 % in the early 1990s. The share of network products in total manufacturing exports from all RCEP countries increased from 51.4 to 60.9 between 1992–93 and 2011–12.

14.3 Implications for RCEP

An important structural change in Asian trade patterns resulting from the growing importance of network trade is that parts and components account for a much larger share in intra-regional trade of these countries compared to their shares in

world trade and trade with EU and NAFTA (Table 14.2). In 2011–12, parts and components accounted for nearly 60 % of intra-regional exports in RCEP compared 23.4 % in total world exports of these countries. The pattern of component intensity of intra-regional trade is strikingly similar in exports and imports, reflecting the growing importance of cross-border trade in parts and components among countries within regional production networks and the region's reliance on the rest of the world as a market for final goods. The conventional trade-flow analysis which does not distinguish between components and final goods is, therefore, bound to yield a misleading picture regarding the relative importance of intra-regional trade, as compared to global trade, for growth dynamism in East Asia.

To illustrate this point, intra-regional trade shares estimated using 'reported' (standard) trade data, as well as these data after netting out parts and components, are reported in Table 14.3. The table covers trade in Asia, RCEP and two

Table 14.2 Share of parts and components in bilateral trade flows, 2011–12 (%)

Reporting country	Destination					
	Developing East Asia	ASEAN	RECP	NAFTA	EU15	World
(a) Exports[a]						
East Asia (EA)	61.2	55.5	58.6	25.1	24.2	35.1
Japan	52.0	47.9	41.5	31.5	31.0	35.1
Developing East Asia (DEA)	57.9	65.2	52.1	22.7	21.5	34.0
China (PRC)	42.6	48.7	45.2	17.1	16.2	25.5
Korea	63.5	63.7	67.8	36.6	25.7	43.8
Taiwan	50.5	61.2	62.3	35.0	38.2	44.2
ASEAN10	61.4	56.0	68.2	32.1	33.8	44.3
NAFTA	49.8	67.9	46.5	28.8	30.5	32.3
EU15	34.8	46.5	31.5	22.1	22.5	23.4
(b) Imports[a]						
East Asia (EA)	52.7	68.3	61.7	54.7	33.4	42.3
Japan	34.2	44.9	34.2	41.0	19.2	20.1
Developing East Asia (DEA)	59.5	74.3	63.5	40.3	32.6	44.3
China (PRC)	59.2	74.0	58.2	40.1	31.5	44.2
Korea	38.1	55.7	34.0	38.9	22.9	31.9
Taiwan	58.3	68.8	46.7	40.2	28.2	38.6
ASEAN10	56.4	66.8	63.3	67.5	41.5	48.8
NAFTA	26.0	40.5	28.4	36.3	26.1	29.2
EU15	22.8	37.9	26.0	34.1	22.2	23.5

Note [a]*EA* East Asia, *DEA* Developing East Asia; *ASEAN6* the six main ASEAN countries; *EU15* 15 member countries of the European Union; *NAFTA* countries in the North American Free Trade Agreement (USA, Canada and Mexico); *RCEP* countries in the Regional Comprehensive Economic Partnership initiated by ASEAN

Source Compiled from UN Comtrade database, and Trade Data CD-ROM, Council for Economic Planning and Development, Taipei (for data on Taiwan)

Table 14.3 Intra-regional shares of manufacturing trade: total, parts and components, and final trade, 1992–93 and 2011–12[a] (%)

	Developing East Asia	ASEAN	RCEP	NAFTA	EU15
(a) Total trade					
Exports					
1992–93	38.2	20.7	47.2	44.4	61.2
2011–12	34.5	18.2	48.2	48.1	56.8
Imports					
1992–93	34.9	15.5	58.2	36.3	64.1
2011–12	46.2	20.8	66.5	32.o	57.8
Trade (*exports+imports*)					
1992–93	36.5	17.8	53.2	39.9	62.6
2011–12	40.3	20.3	56.8	38.4	57.5
(b) Parts and components					
Exports					
1992–93	42.6	30.3	50.2	43.5	62.3
2011–12	53.8	25.2	62.2	46.9	55.9
Imports					
1992–93	35.3	20.2	65.9	39.5	58.0
2011–12	50.9	23.1	67.8	39.9	55.2
Trade					
1992–93	38.7	24.1	57.0	41.4	60.1
2011–12	52.2	23.4	64.0	43.2	55.5
(c) Final goods[b]					
Exports					
1992–93	36.8	16.1	36.2	44.7	60.9
2011–12	28.3	15.9	37.4	48.7	57.0
Imports					
1992–93	34.7	12.9	33.2	35.3	65.6
2011–12	38.2	21.2	39.2	40.3	58.5
Trade					
1992–93	35.6	14.3	35.3	39.4	63.3
2011–12	34.3	18.3	38.4	42.1	57.3

Note [a]Intra-regional trade shares have been calculated excluding bilateral flows between China and Hong Kong. *DEA* Developing East Asia; *ASEAN6* the six main ASEAN countries; *EU15* 15 member countries of the European Union; *NAFTA* countries in the North American Free Trade Agreement (USA, Canada and Mexico); *RCEP* countries in the Regional Comprehensive Economic Partnership initiated by ASEAN

[b]Total (reported) trade (a) net of parts and components (b)

Source Compiled from UN Comtrade database, and Trade Data CD-ROM, Council for Economic Planning and Development, Taipei (for data on Taiwan)

sub-regions therein which relate to contemporary Asian policy debates on regional economic integration. Data for NAFTA and EU-15 are reported for comparative purposes. Estimates are given for total trade (imports+exports) as well as for

exports and imports separately in order to illustrate possible asymmetries in trade patterns resulting from Asia's increased engagement in fragmentation-based international exchange.

Trade patterns depicted by the 'reported' trade data affirm the prevailing perception that RCEP countries, in particular East Asian countries, have become increasingly integrated through merchandise trade. In 2011–12, intra-regional trade accounted for 58.2 % of total manufacturing trade of RCEP countries, up from 53.2 % in 1992–93. The level of intra-regional trade in RCEP in 2011–2012 was much higher than that of NAFTA (38.4 %) and comparable to that of EU-15 (57.5 %). For developing East Asia (Asia excluding Japan) and ASEAN the ratios are lower than the aggregate regional figure, but they have increased at a much faster rate. The intra-regional trade share of ASEAN has been much lower compared to the other two sub-regions.

However the picture changes significantly when components are netted out: the intra RCEP share in final trade in 2011–12 was 38.4 %, which was only marginally higher compared to 1992–93 (35.3 %). The estimates based on unadjusted data and data on final trade are also vastly different for Developing East Asia and ASEAN. Both the level of trade in the two given years and the change over time in intra-regional trade shares are significantly lower for estimates based on final trade. Interestingly, we do not observe such a difference in estimates for NAFTA and EU.

The intra-regional shares calculated separately for imports and exports clearly show a notable asymmetry in the degree of regional trade integration in East Asia. Unlike in the EU and NAFTA, in Asia and RCEP the increase over time in the intraregional trade ratio (both measured using unadjusted data and data for final trade) has emanated largely from the rapid increase in intra-regional imports; the expansion in intra-regional exports has been consistently slower. The dependence of RCEP countries (and the country sub-groups therein) on extra-regional markets (in particular those in NAFTA and EU) for export-led growth is far greater than is revealed by the standard intra-regional trade ratios commonly used in the debate on regional economic integration. For instance, in 2011–12 only 48.2 % of total RCEP manufacturing exports was absorbed within the region, compared to an intra-regional share of 66.5 % in total manufacturing imports. This asymmetry is also clearly seen for the developing East Asian countries and ASEAN.

This asymmetry in intra-regional trade in RCEP reflects the unique nature of the involvement of Japan and the PRC in regional production networks. From about the late 1980s, Japan's manufacturing trade relations with the rest of East Asia have been predominantly in the form of using the region as an assembly base for meeting demand in the region and, more importantly, for exporting to the rest of the world. The emergence of the PRC as a leading assembly centre within regional production networks since the early 1990s further amplified this trade asymmetry. That is, the PRC is importing parts and components from the other East Asia countries to assemble final products, which are predominantly destined for markets in the rest of the world (Athukorala 2009).

Interestingly, the degree of the asymmetry between intra-regional shares of import and exports is much smaller when parts and components are netted out. This is understandable given the multiple border-crossing of parts and components within regional production networks. Both the level of trade in the given years and the change over time in intra-regional trade shares are significantly lower for estimates based on final trade. Interestingly, we do not observe such a difference in estimates for NAFTA and the EU.

What are the implications of these findings for the contemporary policy debate on the formation of RCEP? In particular, is the newfound fondness of countries in the region for RCEP consistent with the objective of maximizing gains from the ongoing process of international product fragmentation? Our analysis vividly demonstrates that even though the intra-regional trade in expanding extra-regional trade is much more important for continued growth dynamism in Asia global trade also remains important for growth dynamism. In particular, growth based on assembly activities in the region depends on the demand for final goods, which is largely contingent on the extra-regional growth. This dependence has in fact increased over the years. Thus the rising importance of global production sharing seems to have strengthened, rather than weakened, East Asia's link with the wider global economy.

The proponents of RCEP argue that reduction/removal of tariff under the RCEP has the potential to improve the competitiveness of the countries in the region, within global production networks, in their trade with the countries in the rest of the world. In theory, this is especially true for network trade that is postulated to be relatively more sensitive to tariff changes compared to the conventional 'horizontal' trade (that is trade in goods produced entirely within a given country) (Yi 2003). In network trade normally a tariff is incurred each time a good-in-process crosses a border. Consequently, a one percentage point reduction in tariff leads to a decline in the cost of production of a vertically integrated good by a multiple of this initial reduction, in contrast to the cost of a normal (horizontal) traded good. Tariff reduction may also make it more profitable for goods that were previously produced entirely in one country to become vertically specialised.

This argument, however, has to be taken with two important caveats. First, all of the key players in production networks in Asia (PRC; Japan; the Republic of Korea; the five original ASEAN member countries, Hong Kong; and Taiwan, Australia) are signatories of the Information Technology Agreement (ITA), a multilateral agreement of the WTO, which came into effect in 2006. The ITA participants are committed to eliminating tariffs on a most-favoured nation (MFN) basis, so even non-ITA signatories that are members of WTO will enjoy duty free access to these products (Menon 2013). This mean that products covered under this agreement (broadly the products belonging to the SITC chapters 75, 76 and 77), accounting for over 45 % of total intra-regional trade of RCEP, are already free of duty. This is the single most important product group in the intra-regional trade of this group of countries.

Second, there is the complex issue of the role of rules of origin (RoOs) in determining the actual trade liberalisation outcome of RCEP (or any other FTA, for that

matter). It is true that there are still significantly high tariffs (by the average developed-country standards) in RCEP countries on a number of non-ICT products, in particular automobiles, consumer electronics and non-electrical machinery.[5] However, in reality, the effectiveness of RCEP (or any other preferential trading agreement) in reducing/eliminating these tariffs would depend crucially on the nature of rules of origin built into it (Krishna 2006; Athukorala and Archanun 2011). Trade-distorting effects of rules of origin are presumably more detrimental to fragmentation-based trade than to conventional final-goods trade, because of the inherent difficulties in defining the 'product' for duty exemption, and because of the transaction costs associated with the quantification of the amount of value added in production coming from various sources. As already noted the actual rate of unification of the tariff concessions under the existing FTAs is very low because of rules of origin complications. As Urata (2013) has convincingly argued in an assessment of the commitments of trade liberalisation in ongoing RCEP negotiations, there is little room for optimism regarding the final outcome of reconciliation and simplifications of RoOs of the existing FTAs.

Recently, seven RCEP member countries (Singapore, Brunei, New Zealand, Australia, Vietnam, Malaysia and Japan) have entered the negotiation process for joining the US-led Trans-Pacific Partnership (TPP) (Ravenhill 2014; Dupont 2013). Even though the US is by far the single largest destination of exports from these countries, joining TPP is unlikely to bring in significant trade gains for these countries, in particular for Singapore, Vietnam and Malaysia. The trade-stimulating effect of TPP could be even smaller compared to RCEP mainly because the country coverage of TPP does not include China, the premier assembly centre within the regional production networks in Asia. As we have already discussed, the dynamism of parts and component trade in Asia depends significantly on exports of final goods from China to the US and other global markets.

14.4 Concluding Remarks

Global production sharing has become an integral part of the economic landscape of East Asia. Trade in parts and components, and final assembly, within production networks have been expanding more rapidly than conventional final-goods trade. The degree of dependence on this new form of international specialization is proportionately larger in Asia, particularly in East Asia, compared to North America and

[5]Most of the firms involved in export-oriented production in these industries in all these countries are located in export processing zones (EPZs), and non-EPZ firms enjoy import duty exemptions under duty-drawback and bonded warehouse schemes (Menon 2013). But, on economic efficiency grounds, tariff reduction/removal, which is uniformly and automatically applicable to both import-competing and export-oriented firms, is unambiguously superior to these 'administered' selective measures of trade opening.

Europe. A highly important recent development in the international fragmentation of production has been the rapid integration of China into the regional production networks. China's imports of components from the other developing East Asia countries and Japan have grown rapidly, in line with the rapid expansion of manufacturing exports from China to extra-regional markets, mostly to North America and the European Union.

The evidence harnessed in this paper supports the view that, in a context where global production sharing is becoming the symbol of economic globalization, the standard trade flow analysis leads to misleading inferences about the patterns and degree of trade integration among nations. Booming networks have resulted in a rapid increase in intra-regional trade in Asia. This does not, however, mean that the process has contributed to lessening the region's dependence on the global economy. On the contrary, the region's growth dynamism based on vertical specialisation is deeply dependent on its extra-regional trade in final goods, and this dependence has in fact *increased* over the years. Put simply, increased participation in global production sharing has made Asia increasingly dependent on extra-regional trade for its growth dynamism. Policy initiatives in the domain of intra-regional trade integration run the risk of hindering the growth dynamism of these countries, unless this new dimension of global integration is not specifically taken into account.

To benefit from the new opportunities for trade expansion through the fragmentation-based division of labour, the best policy choice appears to be non-discriminatory multilateral and unilateral liberalization; the ongoing process of product fragmentation seems to have strengthened the case for a global, rather than a regional, approach to trade and investment policymaking. An effective approach to redressing the complexity that the 'spaghetti bowl' of FTAs creates for international trade would involve a two-pronged strategy of systematically fitting the FTAs into the WTO system, and reducing the distortionary preference margins created by the web of FTAs through multilateral tariff reductions. The indications are that the proposed REPC is bound to fall well short of achieving this objective.

References

Athukorala P-C (2009) The rise of China and East Asian export performance: is the crowding-out fear warranted? World Economy 32(2):234–266

Athukorala P-C, Archanun K (2011) Australia-Thai trade: has the free trade agreement made a difference? Australian Econ Rev 44(4):1–11

Athukorala, P-C, Archanun K (2012) Intra-regional trade in Asia: the decoupling fallacy, crisis, and policy challenge. In: Kawai M, Lamberte MB, Park YC (eds) The regional financial crisis and Asia: implications and challenges. Oxford University Press, New York, pp 95–106

Dupont C (2013) ASEAN+, RCEP and TPP: a clash of integration concepts. In: Baldwin RE, Masahiro K, Ganeshan W (eds) The future of the world trading system: An Asian: Asian perspectives. Asian Development Bank Institute, Tokyo, and Centre for Economic Policy Research, London, pp 107–119

Jones RW, Henryk K (2001) Globalization and the consequences of international fragmentation. In: Dornbusch R, Calvo G, Obstfeld M (eds) Money, factor mobility and trade: the festschrift in honor of Robert A. Mundell. MIT Press, Cambridge, Mass, pp 365–381

Kawai M, Wignaraja G (2013) Patterns of free trade agreements in Asia. Policy Studies No 65. East West Centre, Honolulu

Krishna K (2006) Understanding rules origin. In: Cadot O, Estevadeordal A, Suwa-Eisenmann A, Verdier T (eds) The origin of goods: rules of origin in regional trading agreements. Oxford University Press, Oxford, pp 19–34

Menon J (2013) Can FTAs support the growth or spread of international production networks in Asia? Trade and Development Working paper No. 2013/06, Arndt-Corden Department of Economics, Australian National University, Canberra

Ravenhill J (2014) The political economy of Asia-Pacific trade agreements. In: Kaur I, Singh N (eds) The handbook of The economics of the Pacific Rim. Oxford University Press, New York, pp 314–332

Urata S (2013) Construction of RCEP by consolidating ASEAN+1 FTAs. In: Baldwin RE, Masahiro K, Ganeshan W (eds) The future of the world trading system: an Asian: Asian perspectives, Asian development Bank Institute, Tokyo, and Centre for Economic Policy Research, London, pp 99–107

Yi K-M (2003) Can vertical specialization explain the growth of world trade? J Polit Econ 111(1):52–102

Part VI
Growth and Employment

Chapter 15
The Growth Experience in India: Is There a Hidden Model?

Pronab Sen

15.1 Introduction

The growth performance of the Indian economy since the economic reforms of 1991 has been widely acclaimed as a validation of the benefits of shifting from a controlled economy to a market-driven one. While this may indeed be true, the growth experience also suggests that there may be other lessons to be learned, which may have implications not just for Indian development policies but for other developing countries as well.

The post-1991 reforms had four basic components:

(a) steady and calibrated reduction in trade, especially import, barriers involving both removal of quantitative restrictions and tariff reductions;
(b) removal of restraints on corporate investment and production, such as industrial licensing and small-scale reservations;
(c) relaxation of controls on the capital account, for both foreign direct investment and portfolio investment; and
(d) reforms in the financial sector, especially with regard to banking rules and capital market institutions.

The effects were dramatic, with the growth rate of the economy accelerating to above 7 % per annum from 1993 onwards.

However, two characteristics of relatively open market economies that India had never experienced before became swiftly evident. The first was the emergence of a proper endogenous business cycle. By 1997, it was evident that the

P. Sen (✉)
International Growth Centre, India-Central Programme, New Delhi, India
e-mail: pronab.sen@gmail.com; pronabsen@yahoo.com

R. Kathuria and N.K. Nagpal (eds.), *Global Economic Cooperation*,
DOI 10.1007/978-81-322-2698-7_15

exuberance unleashed by the reforms had led to an overheating of the Indian economy and corrective monetary contraction had to be applied to rein in the inflationary pressures. The growth rate plummeted and stayed low for a 5 year period up to 2003. The subsequent recovery was strong and peaked in 2008–09. Thus, India experienced its first business cycle with a peak-to-peak duration of about 10 years.

The second was the increased sensitivity of the Indian economy to global economic developments.[1] On the positive side, the Indian economy rode the global boom in both 1993–97 as well as 2004–08. On the negative side, it was impacted by the Asian financial crisis in 1997 and the global financial crisis in 2008. It is probably entirely coincidental that both the external financial crises coincided with the peaks of the Indian business cycle, but this coincidence serves to uncover a feature of the Indian economy which may be of interest to development economics. In elucidating this feature, we focus on the behaviour of the Indian economy during the 2000s.

The high growth recorded during the period 2003–09 was based mainly on a sharp increase in the investment rate. At its peak, the gross fixed capital formation to GDP ratio stood at over 38 %, which would yield a 9 % plus growth rate without any increase in efficiency.[2] This sharp increase in the investment rate was permitted by significant improvements in the savings of the public sector, particularly government, and by the private corporate sector. The recovery of the economy from the industrial slow down which stretched from 1997–2002 was led by large improvements in the efficiency of the Indian corporate sector. The virtuous cycle unleashed by this increase in efficiency led to increased saving and investments by the corporates, which amounted to nearly 8 % points of GDP.

At about the same time, the Government sector, prompted by the enactment of the Fiscal Responsibility and Budget Management Act (FRBM) and supported by rising revenues from increased corporate profits, reduced the dis-savings of the Government very sharply and turned it into a small surplus during the latter part of the period. The improvement in Government savings allowed public investments, particularly in infrastructure, to be scaled up substantially, which gave further impetus to the positive growth dynamics. It also enabled the Government to reduce its draft on the savings of the households and thereby released investible resources for investment by the private sector.[3]

Thus, the economic reforms of the 1990s, which were geared mainly towards unleashing the private corporate sector in India,[4] paid rich dividends at the times

[1]Prior to this time, the only real vulnerability was from oil related shocks (1974, 1979 and 1991), which were driven mainly by political factors, and from monsoon failures.

[2]Rough estimates of total factor productivity suggest that TFP growth slowed from above 2.5 % in the beginning of the period to around 1 % later.

[3]The combined fiscal deficit of the Centre and States, including below the line items, dropped from a high of nearly 12 % of GDP to about 6.5 %.

[4]Other than trade liberalisation, the other three pillars of the reform process were of little relevance to the SME sector, except perhaps in a very indirect sense. For instance, it could be argued that opening up of the capital account and the domestic capital market could have released bank resources for the SMEs.

when the global economy was supportive. The situation at present is very different. As things stand, India cannot hope to achieve even 8 % growth relying entirely, or even largely, on increase in investment. The global crisis of 2008 led to a situation where the government had to prop up the economy through fiscal expansion, which led to a sharp reduction in public savings.[5] Despite the recovery of growth, neither the revenues of government nor the savings of the corporate sector managed to recover from the shock. Since 2012, the sharp deceleration of the economy has made matters considerably worse.

During the corporate led growth process of 2003–09, the increased revenues of the government permitted expansion of both public infrastructure investments as well as SME investments. However, when the global crisis occurred, the corporate sector in India cut back sharply on its investment activities. Conversely, however, the small and medium scale enterprise (SME) sector actually expanded its investments as a share of GDP quite significantly.[6] Thus the resilience of the Indian economy in the first 2 years after the crisis owed almost as much to the small and medium entrepreneurs in the country as it did to the Government's fiscal expansion.

Indeed, during the 4 years that have elapsed since the crisis broke, growth in India has been largely SME driven, with corporate investment remaining extremely subdued. Interestingly, something very similar had occurred during the cyclical slowdown in India during 1997–2002. In that period as well, corporate investment fell sharply and the economy continued to register reasonable growth on the strength of an increase in SME investment. Thus the counter-cyclical behavior of SMEs, at least in India, seems to be worthy of inclusion among the "stylized facts" of the economy. The reasons for this behavior need to be explored further, but a priori it appears that it could be due to two factors: (a) the formal financial sector increasing SME lending when corporate investment demand goes down; and (b) the nature of the markets primarily addressed by the SMEs are less cyclically sensitive. It appears that the corporate sector is much more sensitive to global developments than the SME sector which seems to be more attuned to the dynamics of the domestic economy.

In the immediate future there are two possible scenarios which could play out. The first is a steady recovery of the global economy and the return of confidence in the international financial markets. In such a scenario, there is a strong likelihood of return of the growth dynamics of the 2003–09 period, with a sustained recovery of corporate investments leading to a high growth trajectory. However, there are some important problems which could compromise this possibility.

[5]Strictly speaking, the main expansion in government expenditure occurred in the Budget of 2008–09, which preceded the "Lehmann moment" of October 2008. The 2009–10 Budget continued the expenditure boost and added a significant revenue component through cuts in excise duties and service taxes.

[6]In 2009–10, corporate investments fell by nearly 6.5 % points of GDP as compared to 2008–09. The non-corporate investment rate, on the other hand, rose by 3 % points.

The first and the foremost is that not only are the Indian corporates suffering from a loss of confidence, a number of them are seriously over-leveraged and have liquidity issues.[7] This is particularly true in the infrastructure space, where neither demand nor technical capacity are constraints, but financial access is. In such a situation, the public-private partnership (PPP) model for infrastructure development that had been followed with some success in recent years may be adversely affected. In which case, the pattern of infrastructural investment may have to be reconsidered since a significant part of the 12th Plan target for infrastructure investment of US$ 1 trillion was to be met by the private sector. Even with very optimistic assumptions, this figure will have to be scaled down to around US$ 800 billion. While this is not an issue in itself,[8] it does require a complete reworking of the priorities for infrastructure development since the limited public resources will have to be redeployed to meet the core requirements in areas originally planned for private investment.

Second, the uncertainties created by policy, particularly with regard to retrospective taxes, land acquisition, environmental clearances and fuel linkages, are not going to be resolved soon. The prevailing mood is that most of these changes will have to await the forthcoming general elections and assumption of charge by a new government.[9] Even so, the fear psychosis among the bureaucracy engendered by a spate of "corruption" and vigilance cases in recent years is unlikely to abate simply by a change of government. Consequently, most corporates have put all major greenfield projects on hold. Revival of such projects can take at least 2–3 years.[10]

The alternative, and the more likely, scenario is that the recovery process of the developed world will be at best slow and weak. The financial markets too will be jittery and display significant volatility in behaviour.[11] In such a situation corporate sentiments in India may not be positive enough to be able to lead the growth process.

---

[7]During the boom period of 2003–08, Indian corporates borrowed heavily from global financial markets for investment in both productive and speculative assets. Post-crisis, many of them are facing illiquidity of their assets, mainly real estate, and are perceived to be over-leveraged by both the global and Indian financial sectors. The sharp depreciation of the rupee in May–June 2013 has made matters even worse by increasing the rupee value of external debt by nearly 12 %.

[8]Calculations suggest that even an 8 % growth target would not support infrastructure investment of very much more than US$ 900 billion, and the basic infrastructure required to sustain a 7 % growth target is around US$ 650 billion.

[9]This mood has not changed significantly despite considerable progress made in recent months by the Cabinet Committee on Investment on land acquisition, fuel and clearance issues.

[10]There are some projects which are at different stages of implementation, and which may be revived sooner with a revival in corporate confidence.

[11]The recent episode where a mere mention that Ben Bernanke was "thinking" about a "tapering" of the quantitative easing (QE) triggered off a crash in both the Indian stock market as well as the rupee exchange rate is a precursor to what can be expected once the actual tapering, and eventually the reversal, of QE happens, not just in the USA, but sooner or later in Europe as well.

However, an alternative process which can raise the growth rate significantly and hopefully trigger a revival in corporate confidence exists based on the dynamism of the SME sector. The role of the SME sector has been grossly underappreciated in India. It first needs to be noted that there was little in the economic reforms that were aimed towards improving the business climate for SMEs. Nevertheless, in two instances when the Indian economy was buffeted by external crises at the peak of its business cycle, the growth rate never dropped below 4.5 % per annum mainly due to the SME sector picking up a fair amount of the slack that the corporate sector had created.[12] The issue to consider then is how can this dynamism be tapped into and indeed promoted so that the core of the Indian growth story would be the SMEs with the corporate sector playing a supportive, albeit extremely important, role.

There is of course need to start the process by increasing the over-all savings in the economy as rapidly as possible since the SMEs usually have relatively low savings potential. The increase in savings initially can only come from the government through steady correction of its fiscal balances. If the past is any indication, a reduction in the fiscal deficit, which is a measure of the public draft on household savings, appears to lead to an immediate increase in the investments of the SME sector. Although the SME sector tends to have lower marginal savings rates than the corporate, nevertheless a positive cycle can be generated. If the Government were also able to lower its revenue deficit, the pace of infrastructure development, which has lately slowed down, can be revived without crowding out the private sector. This would contribute to increasing the overall efficiency of the economy, and therefore support the growth process.

India is fortunate that it is richly endowed in entrepreneurial talent. The Economic Censuses demonstrate the huge size and growth of entrepreneurial activity in India.[13] At a rough estimate, the net increase in the number of non-agricultural establishments in the country has been about 1 million every year, with the rate accelerating to 2 million in the last 8 years. While admittedly many of these enterprises reflect basic survival strategies, many do not.[14] The past decade has shown the dynamism that is possible in this sector under the right circumstances and with the proper policies. Many of the leading corporate houses existing today belonged to the SME category at the turn of the century.

---

[12]Unfortunately, it is difficult to establish this empirically since the output data, unlike the investment data, is not broken up between corporate and the household (read SME) sectors. However, this appears to be a reasonable conjecture.

[13]The 2005 Economic Census revealed that there were 42 million non-agricultural enterprises; while the latest (2013) Census counts over 58 million now.

[14]There is a view that India actually has fewer entrepreneurs than it should for its level of development. See: Ghani, E., W.R. Kerr, and S.D. O'Connell, "Promoting Entrepreneurship, Growth and Job Creation", in E. Ghani (ed), **Reshaping Tomorrow**, Oxford University Press, 2011. The difference between the two views arises from the Ghani, et al. definition that functional entrepreneurship is revealed only when it is formalized. We disagree.

It may therefore be possible to achieve and maintain growth rates of above 7 % per annum without any significant improvement in the global economy, relying mostly on the dynamism of the Indian entrepreneur and the creation of financial space through government fiscal correction. Taking this up to the 8 % plus level, however, would require either favourable developments in the global economy or additional policy action to improve both the efficiency as well as the sentiments within the domestic economy.

In so far as efficiency of capital use is concerned, there is mixed evidence on whether the SME sector is inherently more efficient than the corporate. Although it is certainly true that the SMEs tend to have lower capital to labour ratios, it is also true that the value added per unit of capital may actually be lower. In the aggregate, the probability is that an SME-led growth process would require a higher investment rate to achieve a particular growth rate than a corporate-led strategy. This, taken with the lower marginal savings rate of the SMEs, implies that the burden for generating the requisite savings would fall more heavily on the government. On the other hand, there is no doubt at all that SME-led growth would generate far higher employment growth than the corporate-led. This would in itself reduce the need to support aggregate demand through fiscal action since the private consumption arising from such incomes will be higher.[15]

There is, however, cause to believe that the capital efficiency of the SME sector can be increased significantly with proper policy since much of the measured inefficiency arises from a variety of constraints within which the SME sector has to operate. The most important of these are; (a) the quality of labour that is available to the SME sector; (b) the lack of support to entrepreneurship in general, and to innovation and risk-taking in particular; and (c) the operation of the financial sector.[16]

In the absence of an adequate skill development system in the country, the SME sector invariably recruits untrained workers who are then trained on the job. Quite often once the workers have reached a certain level of skill they are absorbed by the corporate sector. As a consequence, the SME sector is in a constant process of training raw hands and being unable to retain skilled workers. The efforts that are being made at present to improve the skill development infrastructure in the country need to focus on the skills which are needed by the SME sector. If this can be carried out effectively, we should expect to see a significant improvement in the efficiency of SME production and thereby an increase in their value added per unit of capital.

There is, however, a more fundamental point that needs to be noted. The SMEs are the primary source of employment opportunities for new entrants to the labour

[15]In a weak global economy, it is almost certain that the government will have to provide fiscal support for any reasonable growth target. The main issue is whether this should be through consumption support or investment. An SME-led strategy allows for a more investment-based fiscal support.

[16]Technology is deliberately not mentioned since technology access has improved in recent years, and the issue is partly covered by innovation.

force.[17] This is certainly true of India, but is probably true in most countries of the world, including the developed countries. One of the reasons possibly why India has one of the lowest incidences of youth unemployment is because of the fact that it has one of the highest shares of SMEs in its GDP.[18] Thus, if youth unemployment is a concern for policy, focussing on entrepreneurship is a better strategy than supporting existing corporate enterprises.

Another source of possible efficiency increases comes from the higher levels of innovation, both product and organisational, that is possible in the SME sector. We do not as yet have systems which encourage and nurture such innovations. There are some efforts that are being made through incubation centres and early venture capital activities. These have however yet to reach scales where their impact is economy wide. Encouraging such activities should become a core activity in the coming years. This is not merely for attaining the desired growth rate over this plan period, but as an important component of the inclusive growth strategy for the longer term as well.

Indeed, the Twelfth Five Year Plan makes a strong distinction between supporting entrepreneurship and supporting enterprises: a common confusion in policy-making. Clearly there are commonalities: ease of doing business, improving infrastructure, better governance, and so on.[19] However, there are differences which arise from the size and age of the two categories. For instance, in cases of public procurement or public-private partnership (PPP) projects, the conditions almost always work against new companies.[20] How this bias can be corrected without compromising on quality and time depends upon circumstances. Two successful cases in India have been the rural roads programme and the early years of the National Highway Development Programme.[21]

The other major constraint is finance. The formal financial sector in India, comprising primarily of banking and insurance, has been growing fairly rapidly in recent years, like most other components of the services sector. In the recent past, this sector has shown an elasticity of 1.22 against GDP growth. At first glance, this may appear to be a more than adequate performance, but the size of the financial sector in India, at 6.8 % of GDP, is small compared to that of most other countries. It is of course entirely possible that there is a serious underestimation of the

[17]Campus recruitment by corporates receives a lot of publicity and occupies considerable mind space, but this is probably far smaller than the lower end jobs which absorb most young people.

[18]The quality of jobs created and of the working environment is a different matter altogether. Also, unemployment among educated youth is far higher than over-all youth unemployment in India mainly because of these and aspirational factors.

[19]SMEs are much less able to cope with the costs associated with infrastructure deficiencies or rent-seeking behavior.

[20]In India, government procurement has reservations for small scale units, but the conditions imposed always tend to favour established enterprises, which are quite often fronts for corporates.

[21]In the rural roads case, high technical standards were laid down for low cost projects which allowed small companies to build up their capabilities. In the NHDP, initial contracts were for only 50 km, which enabled technically proficient but financially weak firms to compete.

financial sector in the country, since the National Accounts capture primarily the organized segments of the financial sector and virtually not at all the unorganized. Since anecdotal evidence suggests that informal credit arrangements play a significant, if not dominant, role in a wide range of informal sectors, especially agriculture, SMEs, trade, transport and real estate, it is very likely that actual financial transactions are significantly larger than captured in the official statistics.[22] Although there is no rigorous measure of this, an indication can be obtained from the national accounts data which suggests that "financial intermediation services indirectly measured" (FISIM), which is a euphemism for such transactions, could be larger than 40 % of formal financial intermediation services.

Although India has implemented a number of measures to improve the flow of formal finance to the SME sector, especially through directed bank lending to small enterprises though 'priority sector' lending targets, the experience is not entirely positive.[23] It is felt that entrepreneurship support cannot be achieved by such policies when banks (and other formal financial sector entities) continue to follow traditional methods of lending. A possible solution would be to change banking rules in a manner that for certain categories of lending, banks shift from a "project appraisal" approach to an "actuarial" approach.[24] This is not a new idea at all, but banks simply do not have the capacity to adopt this model in most cases.[25] In the period while banks develop the technical capacity to adopt this approach for building their loan portfolios, two methods can be adopted. The first is to permit insurance companies to issue credit default swaps (CDS) against bank loans to SMEs, and the other is for banks to partner insurance companies in determining joint customers.[26] The important point, however, is that innovations in finance are essential, and should not be eschewed simply because of the recent global experience.

It is equally important that the role of informal credit providers be recognised, and not merely denigrated, since they perform useful functions which cannot necessarily be taken over by the formal institutions.[27] Contrary to popular opinion,

[22]The micro-finance sector has made significant strides in India and competes actively with informal credit providers. However, microfinance is relevant mainly, if not only, to the self-employed (own-account enterprises), and does not meet the needs of other small enterprises, who are forced to fall back on money-lenders and other informal credit sources.

[23]For a brief but comprehensive overview of the measures taken by the Government of India and the Reserve Bank of India see: Chakrabarty, K.C., "Strengthening SMEs Capacities for Global Competitiveness", RBI.

[24]An actuarial approach is based on assessing the default probability of a class of potential borrowers rather than the individual risk assessment which is done in project appraisal. It is thus more suitable for application in cases where there are a large number of small borrowers.

[25]A well-known "actuarial" product in banking is the Collateralised Loan Obligations (CLOs), which has been in vogue in the USA since the 1980s. However, this is an *ex-post* instrument, and what is required is an *ex-ante* procedure.

[26]Unfortunately, the global crisis has brought into disrepute some of these financial innovations such as the CLO (too often confused with CDOs) and CDS.

[27]India has a wide variety of informal (read traditional) financial intermediaries other than the basic moneylender, such as chit funds, nidhis, hundis, etc.:

these informal institutions are not just credit providers, but also mobilise savings in a manner which is more suited to the needs of the poorer segments of the population.[28] Moreover, the interest rates charged by many of the institutions do not compare unfavourably with those charged by microfinance agencies.[29] If a SME-led growth process is to be considered seriously, then ways will have to be found to integrate them into the larger policy framework.[30]

[28]In the past couple of years, when the real interest rate on bank deposits have been negative, 'deposits' with these informal institutions have provided a buffer, along with gold.

[29]Casual empirics suggest that the lending rate of these credit providers is in the range of 23–24 % as compared to the 26–30 % that was being charged by microfinance institutions.

[30]An important step forward has been taken with the Nachiket Mor Committee set up by the RBI. Its recommendations are, however, yet to be processed for implementation. Moreover, even in this Committee's report, the role of the informal financial sector is missing.