Chapter 3
Global Financial Crisis: What Did We Know, What Have We Learnt?

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Introduction

Financial crises, in one form or the other, have been ravaging the world economy from time to time. The great depression of 1929 was perhaps the most significant financial crisis in the economic history of the world in terms of its geographical spread and deep impact. Commentators are unanimous at crediting the global financial crisis of 2008 as the second-most significant crisis (Hall 2010). In between several crises of smaller dimension-like Mexican crisis, Latin American debt crisis and Asian crisis have frequented us. All these crises had played havoc with the rhythm of economic lives of the people of the affected countries. But at the same time, they made the people understand the importance of exercising prudence and caution in economic policy-making.

Like meteorologists, economists do not enjoy the luxury of conducting controlled experiments with their study objects. A meteorologist is incapable of generating a *sunami*-like disaster in the controlled environment of his laboratory in order to collecting data on that natural phenomenon. Similarly, an economist would not be able to simulate a financial crisis like situation in any laboratory or in the reality. The only route before him for enriching his knowledge-base about the financial crises is to analyze and scrutinize the events surrounding the crises that already happened. The science of economics has been discreetly building up its reservoir of knowledge about financial crises through this method.

The great depression of 1929 made the economists and policy-makers wiser and the domain knowledge of economics much richer. That crisis was the cradle of great many new thinking and ideas that dominated the minds of the next few

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generations of economists. Similarly, the post-Global-Financial-Crisis 2008 period has been a witness to the germination of a lot of brainstorming debates and discussions about the causes and consequences of the crisis. Surely, some more time would elapse before new rays of light come out of the heat of those debates and discussions. However, the worth and appropriateness of an assessment of these discourses need not be overstated. An attempt has been made in the present survey to collate different streams of thinking around the global financial crisis of 2008.

Whenever the epicenter of the financial crisis has been a developed country its impact had been huge. The less developed countries could not escape the negative effects emanating from it. On the contrary, if the epicenter of the crisis happens to be a less developed country, its ripples does not reach the shores of those developed countries. Therefore, Mexican peso crisis or Asian crisis did not rock the world economy in the same way as the global financial crisis of 2008 did. Therefore, the emerging market economies like India need to study the financial crises with greater sincerity and adroitness. The fact that *thankfully* India has so far not been an epicenter of the financial crisis should not serve as an excuse for avoiding an analytical study of the same from Indian perspective.

The present survey starts by collating the different stances of the financial crises literature. It helps us understand the present state of knowledge about the financial crises. Then, it proceeds to examine the fundamental economic phenomena that have been sighted as the possible triggers for the crises. It also briefly assesses the policies undertaken by the different countries in combating the crisis of 2008 in a bid to understand the crisis better. This also provides an opportunity to present India's take from the crisis.

Keynesian Models After the Great Depression

As the students of economics are aware Keynes' (1933) famous treatise *General Theory* was set against the backdrop of the great depression. This contribution posited the unforgettable episode as the problem of effective demand management. Subsequently, a lot of formal theorizing took place which revolved around the challenge of specifying the appropriate *multiplier* that would boost up the sagging components of effective demand equation. Keynes visualized the effective demand equation[1] as the fundamental relationship amongst the macroeconomic variables in the form:

$$Y = C + I + G + X - M \tag{3.1}$$

[1] According to national income accounting, this is an identity reflecting a statistical relationship. Therefore, it always holds good *ex post*. However, Keynes treated it as an equation by making the variables function of *ex ante* (or planned) income (Y). Thus, relationship (3.1) is an equation *ex ante*, which becomes an identity *ex post* at the equilibrium value of Y.

That is, to say, that the domestic income (Y) consists of the consumption (C), investment (I), government expenditure (G), and exports (X) net of imports (M). Since the variables on the right-hand side of the Eq. (3.1) represent the components of effective demand any policy capable of pushing these components up would offset the cyclical downturn of the economy. Keynes proposed that the government expenditure—being somewhat independent to income—is the fittest candidate as the core component of any such policy. Hence, the dominance of fiscal policy in crisis management has been established.

Therefore, Keynes considered the economic crisis as fallout of effective demand mismanagement and the malady is curable through efficient policy maneuvering. This Keynesian position held its way for a long time. Even today, the St. Louis type models used by the central banks for regular forecasting purposes have drawn extensively from the Keynesian paradigm (Mankiw 2006).[2]

However, the dominance of the Keynesian 'effective demand' paradigm in the crisis management was first challenged by the Latin American currency crises of the 1970s. These crises convinced the policy-makers that the erstwhile practice of viewing macroeconomic crises as variant of the effective demand management problem would no longer be tenable. The foreign exchange markets were seen to be playing havoc in the economy, even though apparently there were no sign of effective demand failure. So the necessity was felt by the economic professionals of formulating analytical models focusing on the workings of the foreign exchange markets. That gave rise to a slew of crisis theories in the subsequent period.

The Bretton Woods System and Thereafter

The rising importance of foreign exchange markets in macroeconomic analysis is interwoven with the development of exchange rate regime since the World War II. The dispensation that followed the Word War II is known as the Bretton Woods[3] system. This was a kind of restricted gold standard. Under this system, each country was to peg its home currency in terms of gold and bilateral exchange rates would have been worked out on the basis of the concerned countries' pegs. Since the dollar occupied a dominant position in international payments and settlement, it was the only currency convertible into gold at the fixed price of $35 per ounce of gold.

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[2] Mankiw (2006) said that even if one's knowledge of economics dates back to the undergraduate textbooks of the 1960s one would be able to sit in the FOMC meetings comfortably. Since the macroeconomics textbooks of the 1960s were loaded with Keynsian flavor the above comment of Mankiw basically points to the relevance of Keynesianism at the parlance of policy-making even today.

[3] Bretton Woods is a quiet town in New Hampshire, USA. Here negotiations took place to find a suitable alternative to gold standard as modes of international payments and settlement. Keynes also participated in the deliberations and took an active role. The negotiations were finalized in 1944.

The other currencies were convertible easily into dollars. The countries under the system used to maintain the announced parity between their home currency vis-à-vis the dollar by buying and selling dollars in the international foreign exchange market. However, the countries had the liberty of adjusting the peg in case of difficulty after due negotiation with the International Monetary Fund.

The declaration of non-convertibility of dollar into gold on August 15, 1971 forced the system to collapse. However, the seeds of this eventuality were sown much earlier with the fact that the amount of dollars officially held by non-US central banks was much greater than the official US gold reserve and the non-US central banks were not interested in converting their dollar reserve into gold reserve. This kind of situation could be reckoned as a signifier of dollar reserve system replacing gold reserve altogether.

The collapse of Bretton Woods system witnessed the emergence of 'nonsystem'[4]—to use the terminology coined by Williamson (1976). Under this new dispensation, there was no coherent set of rules and precisely measured parity calculations between the currencies worthy to be called an exchange rate regime. Gandolfo (2002) describes the situation as:

> In fact, the situation at the moment of going to the press is that each country can choose the exchange-rate regime that it prefers and notify its choice to the IMF, so that various regimes coexist. Some countries peg their exchange rate to a reference currency (usually the dollar, but also the French franc and other currencies) with zero or very narrow margins; naturally, they will follow the reference currency's regime with respect to the other countries. Then there are other countries which peg their currency to a composite currency such as, for example, the IMF's Special Drawing Rights (SDR). Groups of countries enter into monetary agreements to form currency areas, by maintaining fixed exchange rates among themselves, or monetary unions with a common currency, such as European Monetary Union. Further, the situation is continually changing, hence the reader had better to consult the monthly International Financial Statistics published by the International Monetary Fund where a table is present showing the exchange rate arrangements existing at the moment (pp 37–38).

The advent of such an arrangement in the international currency system has gradually become a favorable breeding ground for speculation. Whether speculation is good or bad for the economy has tormented the minds of economists for a long time—but the answer still remains inconclusive. Traditional wisdom would argue that the speculators' strategy of buying when price is low and selling when price is high might smooth the price fluctuations around its *fundamental*[5] value. Hence speculation might be beneficial.[6] On the other hand, some economists have reasoned that the possibility of speculators buying when prices are high in order to

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[4] This denouement has been continuing since then.

[5] Strictly speaking, 'fundamental' refers to some equilibrium value. However, it sometimes refers to normal value in loose sense of the term.

[6] Friedman's (1953) remark in this context is worth mentioning: "People who argue that speculation is generally destabilizing seldom realize that this is largely equivalent to saying that speculators lose money, since speculation can be destabilizing in general only if speculators sell when the currency is low in price and buy it when it is high". McKinnon (1983) even showed that

pushing up the prices further and making profit out of such trading would render the above presumption untenable. For example, the noise traders are supposed to react to 'news' and uninformed demands in securities markets and their movement in the market are not rational. Many times their operations force the market prices away from their fundamental (Shleifer and Summers 1990). The destabilizing forces unfolded by these kinds of operations would make speculation harmful for the economy.[7] Therefore, the role of speculation remains an unsettled proposition in international finance, particularly so under flexible exchange rate arrangement.

The State of Crisis Theories

However, whenever the currency crises happened the speculation has been the usual suspect. The economists have formalized the role of speculation in those crises. This branch of the literature has been categorized as *first-generation*, *second-generation* and *third-generation* models.[8]

The motivation for the first-generation models came from Mexican crisis of 1973–1982 and Argentinean crisis of 1978–1981. Under this modeling strategy, the country is engaged in a domestic credit-financed fiscal profligacy under a fixed exchange rate. Given a fixed money stock, such a policy would deplete the foreign exchange reserve of the country. This process would push the foreign exchange reserve of the country to the unsustainable minimum waiting only to be vanished by the final speculative attack. This would prompt the country to abandon fixed exchange rate regime. Krugman (1979) and Flood and Garber (1984) presented their models in this line.

The European crisis in the early 1990s and the Mexican peso crisis of 1994 begot the second-generation models of economic crises. Under this modeling scheme, speculative attacks occur not in response of any maladjustment in economic fundamentals of the economy, rather to self-fulfilling panics. These models introduce non-linearities and endogenous response of government policies to changes in private behavior. The government faces a trade-off between various targets like exchange rates, employment, etc. Now, since the commitment to fixed exchange rate is state-dependent rather than state invariant as in the first-generation models 'the government can always exercise an escape clause, that is, devalue, revalue or float'. The presence of non-linearities results in multiple

(Footnote 6 continued)
in some cases speculation is capable of turning an otherwise unstable flexible exchange rate regime into a stable one.

[7] The cases of profitable and destabilizing speculation were cited by Kemp (1963), Ljungqvist (1992) and others.

[8] An excellent textbook exposition of these models would be found in Gandolfo (2002) and Agenor and Montiel (1999). This section is based on these two sources.

equilibria in these models, some of which are stable and some of which are unstable. Sachs et al. (1996) presented the pioneering work in this field.

The Asian crisis in the late 1990s laid bare the inadequacy of the first- and second-generation models. The first-generation models would fail to explain the Asian crisis because all the troubled Asian economies were enjoying comfortable budget surpluses prior to the crisis. The relatively strong position of these economies in terms of macroeconomic indicators like income growth, employment, and inflation bears evidence against the relevancy of second-generation models. Hence, a new breed of models have started coming up (Krugman 1999; Chang and Velasco 1998; Corsetti et al. 1999). As a common thread among these models, the link between banking crisis and currency crisis has been stressed; however, the chain of causation is not clear. These models attempt to highlight the interplay of a host of factors (both financial and real) that might lead to sudden conversion of foreign capital inflows into outflows, thus precipitating the banking and the currency collapse. Anzuini and Gandolfo (2000) traced the following three main causes from the literature of third-generation models setting forth the crisis:

(i) *Moral Hazard*[9]: The crisis is initiated, in general, by the sudden fall in the value of external investment by the corporate sector due to some external or internal shock. This begs the question why the corporate sector takes the risk of over exposure in its investment portfolio. The plausible answer lies in the intrinsic belief by the domestic firms that the government would bail them out in case they are threatened with bankruptcy. The announcement of any non-interventionist policy by the government is 'never fully credible ex-ante because the agents know that policy intervention will be decided ex-post via a cost-benefit analysis'.

(ii) *Financial Fragility*: The liquidity squeeze played a significant role in the crisis. The loss of confidence by domestic and foreign investors leads to premature liquidation of assets with banks and financial intermediaries. This has the real effect as the premature liquidation entails some loss in value of those assets. Moreover, the investors hold back those liquid funds in their portfolios while dryness prevails in the market.

(iii) *Balance Sheet*: The devaluation by the country in trouble might blow up the foreign debt of the corporate sector. This would jeopardize the balance of payment position of the country further.

Apart from the generations models, the other theory that attempts to provide an explanation to the financial crises is known as contagion. According to this literature, the financial crises are like infectious diseases tend to spread contagiously affecting both the weak (crisis-prone) and the economically sound countries. Eichengreen et al. (1996) found evidence of contagion in a panel data from 20 industrialized countries over a period of 30 years. They also found that contagion spreads more easily to countries that are tied by close international trade linkages than to countries in similar macroeconomic circumstances. The analytical model

[9] The use of moral hazard in modeling finance has become very popular. Interested readers may see Tirole (2005).

of Gerlach and Smets (1995) also lends support to the empirical findings of Eichengreen et al. (1996). The contagion effect is relevant in explaining the European Monetary System turmoil in 1992–1993. The contagion theory has very powerful policy implications. It means that if any country is in financial trouble that country should be bailed out lest it affects other countries.

The above survey of theories of the financial crises points to the fact that each major crisis has contributed a new modeling strategy. The global crisis of 2008 is yet to throw up a structure of analytical modeling. Though we are not sure about the kind of modeling the global financial crisis of 2008 would bring forth, perhaps it would be a mixture of third-generation models with contagion. Like the Asian crisis of late 1990s, this crisis also witnessed the merging of banking crisis and currency crisis threatening the financial stability and along with that the most dreaded element of it was the rapid spread of the crisis in global economy like a wild forest fire.[10] Therefore, the economists in the coming years would face the challenge of encapsulating these elements in a unified analytical structure.

Problems in Global Economy Prior to Global Crisis 2008

The global crisis of 2008 was the end result of interplay amongst a host of factors. Different commentators would pick up difference factors and would be inclined to ascribe different ordering to them in terms of importance. But perhaps the common toppers in those lists are two problems, viz., global saving-investment imbalance and the US financial friction.

Global Saving-Investment Imbalance

The persistence of global saving-investment imbalance since the early 1990s has been cited as a proximate cause for the global crisis of 2008 by some international financial institutions (BIS 2009). The imbalance is primarily attributed to the fact that the saving-investment gap (or, excess of saving over investment) is positive in the emerging market economies like China, while it is negative for the developed countries like USA and the Western Europe. The negative saving-investment gap is reflected as current account deficit and the positive saving investment gap is reflected as current account surplus. The equivalence is apparent from the following accounting relationship, which is based on Eq. (3.1):

[10] So much, so that International Monetary Fund was more focused this time with the task of containing the bandwagon effects of the financial crisis within a limited geographical spread rather than relieving the particular countries out of the balance of payments problems.

$$M - X = C + I + G - Y = I - (Y - T - C) - (T - G) \qquad (3.2)$$

where T represents tax, $(Y - T - C)$ represents disposable income $(Y - T)$ minus consumption or private saving and $(T - G)$ represents public saving.[11] Thus, the current account deficit[12] $(M - X)$ measures the excess of aggregate expenditure[13] over income, or investment over saving. A country having a current account deficit signifies the fact that the country concerned has been attracting net foreign investment, while a current account surplus country would be investing abroad in net terms. The accumulation of current account surplus and/or deficits over the years by a country gives its net international investment position.[14]

The continuing current account deficit by USA and other developed countries would mean that the emerging market economies have been investing or exporting their excess saving to capital-rich USA and other developed countries (Bernanke 2005).[15] This is in contrast to the neo-classical position. The neo-classical position would be consistent with a contrary picture where capital-rich countries would have been sending their excess saving to the capital-poor emerging market economies.[16] This prolonged reverse flow of saving from the capital-poor countries to capital-rich countries has been bothering the economists and policy-makers (Cooper 2008; Feldstein 2008). To cite a simple quantitative measurement of the problem, it might be noted that if one sums up the current account deficits of all countries that are running deficits in the world economy, the US deficit accounts for about 70 % of the total.

Current account surpluses, as can be seen from Eq. (3.2), basically mean an excess of national saving (domestic plus foreign saving) over domestic capital investment. A host of factors, *namely*, imperfect arrangements for consumer credit for large purchases, corporate management incentives for retaining rather than distributing earnings, the prospect of lower earnings after retirement, memories of past periods adversity—all contributed toward high levels of saving in current account surplus economies. However, Cooper (2008) added a new dimension to this discourse—dramatic demographic transformation in many countries—marked by increasing longevity and declining natality. The increasing average life

[11] Aggregate saving of the economy is split between private saving and public saving. Thus, the right hand side of Eq. (3.2) represents excess of aggregate investment over aggregate saving, in short, investment over saving.

[12] For $(M - X)$ to qualify as current account deficit both M and X need to be much more loaded variables like M standing for the excess of payments to the rest of the world for goods, services, investment income, and X for unilateral transfers over receipts from the rest of the world for similar items.

[13] Aggregate expenditure is measured by the sum $C + I + G$ in the middle equivalence relation of Eq. (3.2).

[14] Of course, the accumulated current account position needs to be adjusted for valuation changes for this purpose.

[15] Bernanke has coined the phrase 'saving glut' hypothesis to describe the situation.

[16] This might remind one of convergence hypothesis of Baaro and Sala-i-Matin (2003) in growth literature.

expectancy without a corresponding increase in working years has been forcing the household to save more for retirement.[17] Declining natality, on the other hand, tends to reduce investment as less new capital is required to equip the new addition in labor force[18], and relatively scarce labor at home would induce capital-labor substitution in the production process in such a way that domestic returns to capital would fall thus enhancing the attractiveness of investment abroad. Therefore, it is observed that the countries that have the largest trade surpluses like China, Japan, Germany, and the newly rich Asian countries[19] are also countries that are quite far advanced in the demographic transition.

Now, there remains the crucial question: why these savings from the rest of the world flow to the US financial markets. According to Cooper (2008), the answer must lie in the enormous size of the US financial markets as the latter is even larger relative to the rest of the world, accounting for half of the world's marketable securities in 2006. Apart from this, other contributing factors might be—the liquid nature of marketable securities in US markets, secure property rights and speedy and impartial dispute settlement system in US and highly innovative and flexible nature of US economy. Caballero et al. (2006) stressed the fact that shortage of adequate financial assets outside US, especially in emerging market economies, has been pushing the high foreign demand for US securities.[20] However, by heavily staying put in US markets foreign investors have been incurring a risk that a weaker economy would hurt their return measured in home currency, but these investors must be hedged against this exchange rate risk by lucrative returns on their portfolios in US markets (Cooper 2008).

However, the economists are far from unanimous on the question of sustainability of US trade deficit and saving-investment imbalance. Cooper (2008) believes that the high US trade deficit would continue for many more years to come. He reasoned that contrary to the calculations of pessimists, the foreign investments in US markets till now are well below the mark of "no home bias" level of investment.[21] The US economy has been characterized by the unique feature that the total value of its financial assets has risen at a much faster rate than its underlying economy, reflecting massive innovations by its financial sector. This

[17] Precautionary savings should be on the rise as well. Not only the lives of the people are longer, uncertainty prevails over how much longer, given the continuous medical advancement. Moreover, many countries, including India, are facing the uncertainty over future financial viability of their public pension scheme. This is expected to drive people toward more precautionary saving (Cooper 2008).

[18] This will ultimately reduce the demand for schools and housing.

[19] This category includes Hong Kong, Korea, Singapore, Taiwan, etc.

[20] This shortage of market securities outside US was a major factor behind emergence of 'shadow banking' in US (Gorton and Metrick 2012). It will be pointed out later at the appropriate place.

[21] "No home bias" is synonym for perfect financial globalization. "No home bias" level would accommodate foreigners holding 30 % of their financial assets in US, whereas the actual figure, at the end of 2006, is to the tune of 12 % (McKinsey Global Institute 2008).

phenomenon has been whetting the appetite of the investors from around the world for investment in US securities. There is no sign of this appetite to diminish in the near future. Therefore, the vulnerability of the rest of the world to the turmoil in US market would continue.

Feldstein (2008), on the other hand, believes that the current account deficit of US and the global imbalance is not sustainable. A large part of the foreign investment in US markets is by foreign governments, rather than by private individuals. So in a sense, the foreign governments have been financing the trade deficit of US economy. The foreign governments have been doing that because that might help them to *artificially* maintain current account surplus. But the expected future decline in dollar relative to foreign currencies would unleash forces of competition that would turn current account deficits of US into a surplus through a rise in US exports and a decline in its imports. Feldstein (2008) has further argued that the Chinese have been able to mobilize an enormous and growing trade surplus, largely by keeping their currency, the yuan, *artificially* undervalued. So this kind of artificial maneuvering cannot be sustainable. People notice the strain of mercantilism in such a stance by the Chinese (Chinn et al. 2011). However, this viewpoint holds financial factors, rather than real factors like demographic profile as pointed by Cooper (2008), responsible for the global imbalance.

US Financial Friction

In the financial market, the friction arises when there is a cost to one side of a transaction that is not a benefit to the other side (Hall 2010). The difference between an equity market and a debt market from the friction point of view is that an equity investor has to monitor an investment in all states of the world, while a debt lender only has to monitor if the borrower fails to repay in full—this proposition is known as "costly state verification" model of Townsend (1979). Thus, the pricing of a loan includes the charge for the likelihood of a default—the expected verification cost—constituting the financial friction. Now, the borrower's own wealth and the random distribution of events like low profit rendering the repayment of loan in full impossible determine the likelihood of borrower default. So the events leading to borrower default and low profit result in widening of financial friction. In the financial crisis of 2008 all institutions and businesses that held real estate and real-estate-linked financial assets experienced severe loss in wealth when real-estate prices declined. This resulted in a large decrease in the values of the asset holdings of financial institutions and aggravated the financial friction in the economy, particularly in the real estate-based financial companies relative to non-financial companies. Consequently, the credit spreads[22] widened and credit rationing became norm of the day. The rising credit spreads in the crisis

[22] Credit spreads refer to the difference between private borrowing rates and the rates the federal government paid.

involves a "flight to quality"—investors suddenly prefer high-quality debt, notably that of the US Government. This resulted in the diminished ability of the business firms to finance all types of investment. This resulted in the drastic reduction in the investment component (I) in Eq. (3.1), while the other components of GDP remained roughly constant (Hall 2010).

Now, a question might be asked why the fall in the real estate values in 2001 in US economy did not trigger the credit spreads of this proportion. The possible answer might be that the assets that decline in value during that episode were chiefly business assets, concentrated mainly in high tech that uses little debt finance and thus has little leverage. The financial friction did not bite much as those assets were held mostly in equity, not in debt. Business equities generally stay put in large portfolios of rich families, in mutual funds, in endowments and these entities rarely borrow against their holdings. As against this, the real estate has high leverage. Most homeowners borrow almost up to the entire price of the house when buying a house and they become unlevered only when they live in the house and pay down the mortgage. Added to this, the phenomenon of the multiple added levels of leverage among financial institutions holding real estate assets made the economy many times more vulnerable to risk compared to 2001 episode (Hall 2010).

Though the declining housing prices have been blamed for generating financial friction, Buiter (2008) has pointed out that there is no aggregate wealth effect of a decline in housing prices. The household sector in aggregate is both the owner of the housing stock and the consumer of services rendered by it. A fall in the housing price reduces the value of house as an asset, but at the same time also reduces the cost of buying the flow of housing services by exactly the same amount—canceling the two opposite effects. Thus, this thesis asserts that the effect of declining housing prices on the aggregate demand of the economy should be very small, if at all.

However, larger effects are possible if it is reckoned that the losses resulting from the collapse of housing prices were disproportionately concentrated in certain financial institutions 'which play a role in the allocation of resources that cannot easily be replaced by those to whom wealth was redistributed' (Woodford 2010).

Run-Up to the Crisis

The financial crisis had been building up since the first half of 2007. It began with the popping of housing bubble in 2006—whereby the house prices flattened and then started declining. Refinancing a mortgage was becoming difficult and this was resulting in increasing mortgage delinquency in the subprime market (Lo 2012). The problems in the subprime market became increasingly visible and included the failure of several subprime originators. The financial crisis was a bank run, but in sectors of the money markets where financial institutions provided bank-like debt products to institutional investors. These financial institutions were mostly shadow banks[23] (Gorton and Metrick 2012). Bernanke (2010) said:

> Before the crisis, the shadow banking system had come to play a major role in global finance; with hindsight, we can see that shadow banking was also the source of key vulnerabilities.

The main vulnerability was short-term debt, mostly repurchase agreements or repo[24] and commercial papers. The markets for these instruments were largely unregulated (Bernanke 2010).

In the run-up to the crisis the US economy witnessed the credit boom, fueled by the increase in the issuance of asset-backed securities, particularly mortgage-backed securities.[25] This led to the mushrooming of the shadow banking system. The traditional banking became less profitable in the face of money market mutual funds and junk bonds. Securitization[26] experienced tremendous growth during this phase as a response to this situation. Alongside this, institutional cash pools, who pool cash balances from all subsidiaries worldwide in case of global corporations or all funds in case of asset manager, stormed the markets. These institutional cash pools had an appetite for investing in safe assets. But there were not enough safe assets, *namely*, US treasuries, in the market because the foreign institutional investors held a large amount of US treasuries. This is the direct consequence of global imbalance on US financial markets.[27] The shadow banking system rose to fill this gap. They rampantly issued repo and commercial papers. This led to the widening of the credit spread. The subprime failure and declining housing price put housing under pressure on the asset back securities markets. When this pressure ultimately claimed Lehman Brothers as a victim, the overstressed interbank market and credit market collapsed, pushing the crisis to its peak level (Gorton and Metrick 2012).

From the above analysis, it is clear that anomalies in the US financial market alone would not suffice to trigger the crisis of 2008 dimension had it not been in collision with the global imbalance factor.

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[23] Subprime organizations also acted as shadow banks.

[24] A repo transaction is a collateralized deposit in a bank. The depositor or lender deposits money in the bank for short-term, usually overnight. The bank promises to pay the overnight repo rate on the deposited money. To ensure the safety of the deposit, the bank provides collateral that the depositor takes possession of. If the bank fails, then the depositor can sell the collateral to recover the value of the deposit (Gorton and Metrick 2012).

[25] The structured investment vehicles in US market were basically portfolios based on these kinds of mortgage-backed securities. But asymmetric information problem was lurking there in great measure. At each step in the chain of such structured investment vehicles one side knew significantly less than the other about the underlying structure of securities. At the top layer of the chain, an investor knows absolutely nothing about the hundreds of thousands of mortgages several layers below the derivative being traded (Lo 2012).

[26] Securitization means the sale of loan pools to special purpose vehicles that finance the purchase of loan pools via issuance of asset-backed securities in the capital market. Securitization is off-balance sheet financing for banks and other financial intermediaries. Securitization practice began in 1990s, but its growth just before the crisis was phenomenal.

[27] The nature and causes of global imbalance has already been discussed.

Sustainability in the Face of Crisis

Each crisis offers some valuable lessons to learn. Many economic arrangements and policy paradigms are topsy-turvied by the dramatic turn of the events. When Mexico announced its policy of debt moratorium in August, 1982, the obsession of development policy-makers with 'import substitution' began to be questioned. The craze about pegging the domestic currencies to US dollar met an untimely fatality in December, 2000 with the Argentinean peso crisis. Thus, one might be legitimately wondering about the lessons that could be learnt from the financial crisis of 2008—what ideas might be at stake, what ideas might be shinning tomorrow?

US Federal Reserve tried to battle out the crisis with a host of policy tools—both traditional and unconventional. They tried to increase the liquidity in the market by cutting the interest rates[28] on a massive scale.[29] But this traditional measure failed to generate the expected results. This forced the Federal Reserve to undertake a number of unconventional measures like lending to the 'weak' financial institutions directly in terms of cash and securities on the basis of even doubtful collateral. No doubt, this kind of measures was in utter desperation to bring some order in the chaotic financial markets. But the costs of these measures were enormous.[30] The size of the costs has been forcing the Federal Reserve to ponder what would happen if Federal Reserve runs out of capacity through its engagement in such short-term transactions. The question remains unanswered like many other questions so as to what would be the response of Federal Reserve when the prices of risky assets decline sharply and the associated risk premia increase (Cecchetti 2008). Even the conservative legislators in US have raised the issue of jeopardizing the inter-generational equity through the above measures. Surely, the massive costs of these rescue operations would spill over to the next few generations. So the question of sustainability still bothers US.

For the policy-makers in the European Union the task of fighting the financial crisis was relatively easier. They primarily depended on the traditional monetary policy instruments like controlling the growth of monetary aggregates. Prior to the onset of the crisis, the European Union was beset with the problem of rapid monetary expansion. So the financial crisis provided the policy-makers an opportunity to dampen the excess 'bubbles' in the economy through a rather natural means (Gali 2010). However, some countries in the European Union messed up on the fiscal front. These governments accumulated huge sovereign debts with low capital to debt ratios,[31] e.g., Greece (Kim 2012). This has raised serious question mark over the sustainability of such debts.

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[28] Both federal funds rate and prime lending rate were used.

[29] Federal Reserve cut interest rate by 325 basis points in a span of 8 months during the crisis (Cecchetti 2008).

[30] By one estimate, by the end of May, 2008 Federal Reserve had committed almost two-third of its $900 billion balance sheet (Cecchetti 2008).

The East Asian countries like South Korea suffered from the ripple-effects of the financial crisis. The negative effects originated mainly from the problem of loss of confidence of foreign investors. The high loan-to-deposit ratios of the Korean banks implied larger portion of those loans had to be financed by capital from abroad. But given the financial turmoil it would be difficult for the Korean banks to raise such huge funds. The deteriorating current account deficit of the Korean economy had been another source of concern for the investors. There was a sharp deceleration in the growth rate of the Korean economy during the period of crisis. However, the economy bounced back to normalcy from 2010 onwards (Kim 2012). Therefore, the issue of sustainability of growth was not that much striking for Korea.

India also came under the spell of global financial crisis like other emerging market economies. This proved the 'decoupling hypothesis'[32] wrong. However, it would be misleading to blame the global financial crisis entirely responsible for India's plight. The deceleration in India's growth rate was set in much before the onset of the global financial crisis as is evident in the macroeconomic data. The reasons for the slowdown were mainly (i) sharp reduction in the private capital formation, and (ii) drastic fall in exports (Rakshit 2009). Indian banks were relatively less affected by the crisis owing to their relatively smaller exposure to the US asset-backed securities and structured derivative products like collateralized debt obligations. However, India's capital inflows, particularly external commercial borrowings and foreign institutional investments, were severely impacted as fallout of the crisis. Many domestic producers use the external commercial borrowing channel to finance their purchase of machinery and equipments. The withdrawal of foreign institutional investments dampened the propensity to invest by the producers. Coupled with the above, the bearish trend among the Indian banks to extend credit to the domestic traders has contributed to the dryness on the investment front. The Reserve Bank of India has followed a 'dear' money policy to combat the spiraling domestic price level throughout the period of crisis. All these factors acting together have been prolonging the recovery of the Indian economy in the post-crisis period (Rakshit 2009). Therefore, the sustainability of growth process in India was not at stake due to the crisis.

It is apparent from the above discussion that policy responses to the crises varied between the developed western countries and the emerging market economies. The developed countries had been in a better situation than their

[31] However, the vulnerability of these economies has so far been contained within their national boundaries. If the sovereign debt crises of these economies explode to become a banking crisis, it might have the potential of triggering an even greater crisis than the global financial crisis of 2008. In the European debt crisis what is at stake is the confidence of the public in the sovereign debt of the governments (Kim 2012).

[32] 'Decoupling hypothesis' was put forward by the financial market experts to point out that the correlation between business cycles of the developed countries like USA and Western Europe and those of emerging market economies, especially the larger ones like China and India have become weaker over the years despite the increased globalization of the latter economies.

underdeveloped counterparts in terms of institutional set-up and the governance structure. The development economics prior to the crisis of 2008 were focusing on the 'institutions rule' as the predominant ethos (Acemoglu et. al. 2000), However, the crisis of 2008 has taught us that 'good institutions' are not enough. The syndrome of "elite capture of institutions" was prevalent in US economy prior to the crisis (Pritchett 2011). Therefore, there is a need for ensuring the robustness of the institutions under stress.

India is widely known to be enjoying the 'demographic dividends'[33] from its relatively young population. As has been mentioned earlier, the demographic profiles of these Asian economies have been behind the global saving-investment imbalance, which was a proximate cause behind the global financial crisis of 2008. But the demographic dividends are not amenable to policy maneuvering. The countries should try to adjust other macroeconomic variables to shield against the ill effects of such phenomenon. The institutions in India are well developed (Subramanium 2009). Though they have not yet been tested against the financial crisis, it might reasonably be expected that they would rise up to the mark in the hours of need. However, it should be kept in mind that financial crises have proved again and again that no amount of preparation is sufficient.

Conclusion

The impact of the financial crises has always pushed the economists to introspection and reckoning. It is no exception this time.[34] However, several narratives and perspectives are now available on the 2008 crisis. Lo (2012) has made an excellent survey of the different strains of thoughts on the crisis.[35] He has categorized the literature under academic accounts and journalistic accounts. The academic accounts of the crisis exhibit the most heterogeneous streams of thoughts by the authors, but at the same time they throw direction for future research. On the other hand, though journalistic accounts are complementary in many ways to their academic counterparts, they were more like the accounts by war correspondents as they stressed more on 'campaigns, battles, and exceptional acts of courage and cowardice'.

The present state of academic research is not adequate to explain the crisis of 2008. Only time may tell us whether the birth of a fourth generation (in sequel to

[33] There are more people in India in the age group of 15–60 than in the age groups like 0–14 and above 60 years. This has made the dependency ratio (number of people in the age groups 0–14 and above 60 years over the total population) relatively lower for India compared to many, particularly the western developed countries.

[34] The financial crisis of 2008 has left a deep imprint on the economics teaching also. It is pronounced in the inclusion of the separate chapters on crisis 2008 in the two popular graduate level macroeconomic textbooks (Romer 2011; Wickens 2012).

[35] Lo (2012) has surveyed 21 books on the crisis published in the recent years.

the third generation) crisis theories is in the offing. Macroeconomists are critical about the currently fashionable dynamic stochastic general equilibrium models and value at risks models. But alternative models are yet to come up. Woodford (2010) and Hall (2010) tried to provide the sketches of full-fledged macroeconomic models that would be robust in the face of crisis like that happened in 2008. Hall (2010) has tried to address the question why the real macroeconomic variables take so much time to recover in his model. Woodford (2010) modeled the financial friction aspect of the crisis. He stressed on the financial stability being the major plunk of the future monetary policy so as to control future financial crises.

The school of 'institutional rule' has been the dominant stance in the recent development thinking. It was presumed that good institutions were sufficient in themselves so much, so that "they would either muddle along even without particularly good policies or that these institutions themselves would eventually produce the equivalent of good policies in practice" (Pritchett 2011, 137). However, the global financial crises have taught us that it is dangerous to put the institutions under stress, particularly in the development context of premature load bearing (Pritchett 2011).

The financial crises generally end up in raising more questions than answers. More frustrating might be that the economists disagree not only on the causes and consequences of the crises; they are far from unanimity even on the facts surrounding the crises (Lo 2012). Many economists used to take pride in the fact that financial economics had been developing into a faultless scientific discipline, "but complex events like the financial crisis suggest that this conceit may be more wishful thinking than reality". It is as if we are in a world of Kurosawa's famous film *Rashomon*, where we never agree on a single narrative that explains all the facts. Probably, such a grand narrative is non-existent in the post-modern world where we learn to live with financial crises of global dimension.

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