Atl Econ J (2023) 51:27–37
https://doi.org/10.1007/s11293-023-09760-1

Current Account Imbalances after Bretton Woods

Gylfi Zoega[1,2]

Accepted: 11 January 2023 / Published online: 17 April 2023

Abstract This paper uses principal components analysis to describe the evolution of current account imbalances in a sample of 18 Organization for Economic Cooperation and Development countries from 1950 to 2020. The analysis shows, using only statistical methods, how two groups of countries formed in the 1980s. There is the current account surplus group including countries in Northern Europe, Japan and Switzerland and then the deficit group including the United States, the United Kingdom, Australia and several countries in Southern Europe. The divergence cannot be attributed to divergence in fiscal and monetary policy. Instead, there is some support for the thesis of Robert Aliber set out in another paper in this issue that capital flows between countries affect exchange rates, asset prices and the current account. The paper builds on two earlier papers in this journal by the same author, one showing how countries that have experienced a financial crisis tend to subsequently develop current account surpluses and the other showing how surpluses and deficits caused by capital flows affect the domestic real economy.

Keywords Flexible exchange rates · Current account imbalances · Bretton Woods

JEL F32 · F33

The beginning of the 1970s marked a turning point in economic history. First, the European Golden Age of high growth, low unemployment and rapidly rising standards of living came to an end. The growth of total factor productivity in the United States (U.S.) also slowed at the beginning of the 1970s and in the 1980s in Japan.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s11293-023-09760-1.

✉ Gylfi Zoega
gz@hi.is

[1] Department of Economics, University of Iceland, 102 Reykjavik, Iceland

[2] Birkbeck College, University of London, Malet Street, London WC1E 7HX, UK

Second, there was the decision by U.S. President Nixon to suspend the dollar's convertibility into gold with the effect that, by March 1973, the major currencies began to float against each other. The world moved from a system of fixed or quasi-fixed exchange rates and limited capital mobility to one of floating exchange rates and freely floating capital. Thirdly, the period of floating exchange rates and capital mobility since the early 1970s has been plagued by numerous financial crises.[1]

These three developments may be interlinked. Eichengreen (1996) argued that the collapse of Bretton Woods was detrimental to the post-war corporatist arrangement in Germany, which had helped generate the post-war *Wirtschaftswunder*. The arrangement, a part of what is sometimes called the social market economy, consisted of an implicit agreement that workers show wage moderation while firms promise to channel profits into investment. With the nominal anchor of fixed exchange rates gone and capital more mobile, the implicit agreement could no longer hold. Increased capital mobility had the same effect. Profits could now be invested in other countries and, as a result, workers became more concerned about maintaining real wages than about ensuring the profitability of firms. Capital mobility and flexible exchange rates also contributed to the numerous financial crises that occurred in the post-Bretton Woods period (Aliber, 2019; Calvo, 1996). Capital inflows make exchange rates appreciate and domestic asset prices increase, which generates increased consumption and current account deficits. It is the capital account that moves the current account and not the other way around. A sudden stop of capital inflows then made the exchange rate tank and house prices and stock prices fall, often with a devastating effect for the balance sheet of households, firms, banks and even the government.

This paper describes changes in current account imbalances in the post Bretton Woods period using principal components analysis. The idea is to use a purely statistical method to describe the data without imposing any theory on the statistical testing as in regression models. The objective is to explore the extent to which rising current account imbalances were caused by the floating of exchange rates and increased capital mobility after the collapse of the Bretton Woods agreement. Rising current account imbalances might reflect greater policy autonomy and divergence under floating rates as well as the effect of capital mobility on exchange rates and trade imbalances. The next section describes the evolution of current account surpluses using principal components analysis.

Capital Flows and Exchange Rate Regimes

According to the national income account identity, a balance on the current account implies that domestic absorption equals gross domestic product (GDP), i.e., domestic investment is financed by the sum of private and public saving. A balance on the

[1] According to the OECD (Caldera-Sánchez et al., 2017) there were 120 episodes of banking, currency or sovereign debt crises recorded in a sample of advanced and major emerging market economies over the period 1970–2010.

current account then implies a correlation between investment and saving across countries. High-saving countries are also high-investment countries. According to Frankel (1992), the absence of a correlation between investment and saving, implying greater capital mobility, requires that real interest rates be equalized across countries, which requires a zero country and currency premium on domestic interest rates. The former compensates investors for taking on the risk of default; the latter, the risk of a depreciation of the currency. In contrast, with a large country and currency premium, interest rates are not equalized across countries so that higher saving in one country brings down interest rates and increases investment in that country. When the two premia are small, interest rates are equalized and higher saving increases capital outflow and foreign investment, instead of domestic investment, which will generate capital-account surpluses and current-account deficits in other countries. The Bretton-Woods system deprived countries of the ability to conduct independent monetary policies so that interest rates were closely aligned. It had the implicit objective of limiting both premia, but constrained capital mobility. The collapse of the fixed exchange rate system and the liberalization of capital flows then constituted a regime change with consequences for the pattern of current account imbalances.

The period that followed the Bretton-Woods system collapse had the major currencies floating. Capital became mobile and individual countries were free to decide their own interest rates. As discussed by Aliber (2016) and his paper in this issue (Aliber, 2023), the case for flexible exchange rates was built on the argument that exchange rate movements would reflect differences in inflation rates across any two countries making relative prices across countries more stable. Flexible exchange rates would also enable countries to adjust to external price shocks that change the price of imports in foreign currencies. A depreciation following an import prices shock, such as the oil price hikes in the 1970s, could improve the current account without domestic demand compression. The depreciation would reduce other imports and increase export revenues to finance the higher costs of imported oil or other commodities. Here, the ensuing current account deficit would be smaller than it would be under fixed exchange rates. However, as described by Aliber (2016), the floating exchange system opened the door to destabilizing capital flows. Capital inflows made currencies appreciate generating current account deficits. The period of capital flows and flexible exchange ratees that followed the collapse of Bretton Woods became the age of turbulence, which was appropriately the title of Alan Greenspan's book on his tenure as head of the Federal Reserve (Greenspan, 2007).

There was one exception to the move to flexible exchange rates. The attempts by European countries to limit exchange rate fluctuations within Europe put a limit on the ability of individual countries to set interest rates. Two years after the publication of the Werner Report (Werner, 1970), which set out a plan for economic and monetary union in Europe, the governors of the European central banks concluded the Basel Agreement (BIS, 2022). This agreement created a system of fixed exchange rates in which the currencies of member states could fluctuate within narrow limits against the dollar. The attempt failed in the turbulence caused by the oil price crisis in the middle of the 1970s. In response, the European Monetary System (EMS) was created in 1979 with the participation of eight member countries. The system involved the setting of fixed exchange rates for each county with

a European Currency Unit (ECU). This provided a basis for bilateral rates between the member states. In the early 1980s, the French government then decided on a hard-currency policy which consisted of monetary policy in France following the Bundesbank. These events were followed by the Maastricht Treaty in 1992 and the introduction of the euro in 1999.

The creation of the European single market provides an interesting natural experiment in current account dynamics. The single market could be expected to reduce the country premium, the higher interest rates demanded by creditors to compensate for the risk of default, by making member countries commit to the free flow of capital. The creation of the single currency, the euro, would then by definition have abolished the currency premium as there was no risk of a deprecation within the union. Free capital mobility could then generate current account imbalances, the absence of a correlation between domestic saving and investment, within the currency zone. Another quasi-natural experiment is the financial crisis of 2008, which increased the country risk premium in periphery countries and even raised the currency premium through the threat of euro exit by Greece and even Spain and Portugal.

Katsimi and Zoega (2016) used the difference-in-differences method to study the effect of the European single market in 1993 and the euro in 1999 on the estimated coefficient of capital mobility in the Feldstein–Horioka (FH) framework, where countries outside the single market serve as a control group and those within (some having flexible exchange rates, others adopting the euro) serve as a treatment group. These results confirmed changes to the coefficient of savings in the FH equation that coincided with the single market, the introduction of the euro and the financial crisis. The increase in the FH measure of capital mobility coincided with the start of the European single market in 1993 and the introduction of the euro in 1999. The former effect occurred in single-market countries that remained outside the Eurozone (had flexible exchange rates) whereas the latter was greater in the Eurozone countries. Also, the financial crisis that started in 2008 led to a decrease in the FH measure of capital mobility in the single market, both in the member states of the single market that use the euro as well as in those countries that use their own currencies. The single capital market in Europe differs from the Bretton Woods system in allowing perfect capital mobility within one capital market instead of restraining capital flows and abolishing national currencies.

Historical Data

The Jorda-Schularick-Taylor macro-history database (Jorda et al., 2019a, b), which has historical macroeconomic data going back to 1870 for 18 developed countries, was the primary data source for the current paper.[2] Figure 1 shows the boxplots for the current account surpluses of the 18 countries for the first year in each of the past seven decades plus the year 2020. The plots show an increase in the dispersion of

[2] The countries are Australia, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the U.K. and the U.S.

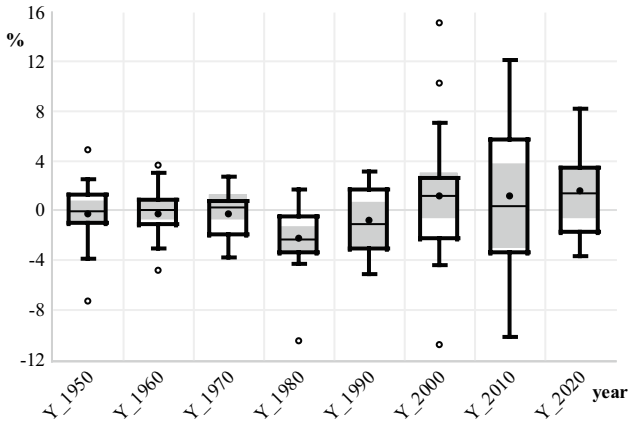

Fig. 1 Dispersion of current-account surpluses (1950–2020). Source: Jorda et al. (2019a, b), https://www.macrohistory.net/database/. The horizontal lines show the median value and the bold point shows the mean value. The box contains 50% of the range from first to the third quartiles. The bounds of the shaded area are defined by Median $\pm$ 1.57*IQR/$\sqrt{N}$, where IQR represents the interquartile range and N is the number of observations. The lines above and below the boxes show the size of outliers

surpluses in 1990, 2000 and for the last two observations compared to the first four observations. The increased dispersion in the 1990 measure occurred through the 1980s. There were rising deficits in the U.S., the UK and Australia. These deficits were matched by rising surpluses in Denmark, Germany, Japan, the Netherlands and Switzerland. The two large positive outliers in the year 2000 were Finland and Norway. The negative outlier was Portugal. Norway and Portugal continued to be the largest outliers in 2010 and also while Finland's surplus disappeared. A comparison of the mean and the median values does not indicate any skewness of the distribution for the eight observations.

Patterns in the Data

The dispersion of the current account surpluses and deficits increased after the collapse of the Bretton-Woods system. Moreover, the deficits increased in the English-speaking countries and the surpluses increased in Europe and Japan, but how important is this increased dispersion for the evolution of imbalances? To answer this question, the principal components of the 18*71 matrix (18 countries over 71 years) were calculated. The eigenvalues are shown in the first three columns of Table 1. The eigenvectors for the first two principal components by country are displayed in the first four columns of Table 2.

The first principal component (PC1) explains 36% of the variation in the matrix. The second (PC2) explains 17%. The former captures the divergence in the current account across the countries as shown in the first column of Table 2. The U.S., the UK and Australia have negative values in the eigenvector as well as do Italy, Portugal and Spain. The countries of Northern Europe (Belgium, Denmark, Finland, the

Table 1 Eigenvalues

Number	Current account surplus			Government budget surplus			Long-term interest rates		
	Value	Proportion	Cumulative proportion	Value	Proportion	Cumulative proportion	Value	Proportion	Cumulative proportion
PC1	6.48	0.36	0.36	5.78	0.34	0.34	13.96	13.96	0.78
PC2	3.06	0.17	0.53	3.71	0.22	0.56	1.83	15.79	0.88

Netherlands, Norway and Sweden), Germany, and Switzerland as well as Canada and Japan have positive values. The second principal component captures the rapid improvement in the current account post financial crisis after 2010. This occurred in the crisis countries of Italy, Portugal and Spain as well as in Australia and the surplus countries of Denmark, Germany and the Netherlands.

The analysis shows that 36% of the variation is due to the diverging fortunes of surplus and deficit countries as captured by the first principal component (Fig. 2). The figure displays the principal component, as well as the U.S. current account, as a share of GDP. The figure can be interpreted as showing the movement of the

Table 2 Eigenvectors

Variable	Current account surplus		Government budget surplus		Long-term interest rates	
	PC 1	PC 2	PC 1	PC 2	PC 1	PC 2
Australia	-0.17	0.20	0.08	0.25	0.25	-0.21
Belgium	0.14	-0.13	0.32	0.25	0.26	0.03
Canada	0.20	-0.32	0.35	0.12	0.26	-0.13
Denmark	0.28	0.31	0.13	0.24	0.26	0.03
Finland	0.21	-0.28	-0.08	0.18	0.12	0.43
France	0.02	-0.27	0.02	-0.24	0.25	0.09
Germany	0.22	0.39	0.25	-0.12	0.20	0.40
Ireland	0.07	0.04	0.34	0.13	0.25	-0.04
Italy	-0.07	0.18	—	—	—	—
Japan	0.26	0.03	0.20	-0.40	0.26	-0.08
Netherlands	0.27	0.29	0.30	-0.08	0.17	0.51
Norway	0.34	-0.04	0.13	0.45	0.26	0.06
Portugal	-0.17	0.34	0.35	-0.16	0.25	-0.14
Spain	-0.15	0.35	0.32	-0.13	0.22	-0.27
Sweden	0.33	0.06	0.31	0.20	0.23	-0.24
Switzerland	0.34	0.00	0.14	-0.07	0.26	-0.10
U.K.	-0.25	-0.28	0.06	-0.43	0.20	0.33
U.S.	-0.36	0.08	0.27	-0.20	0.24	0.01

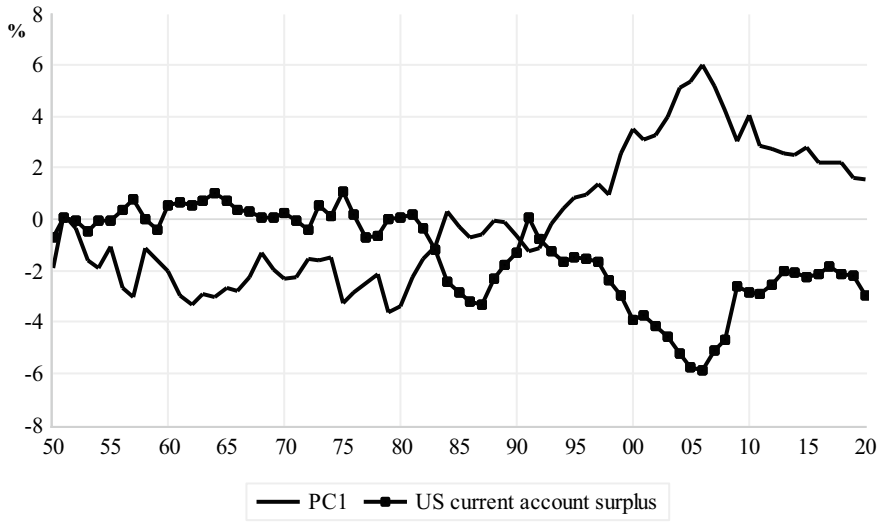

Fig. 2 First principal component of the current account and the U.S. current account (1950–2020). Source: Jorda et al. (2019a, b), https://www.macrohistory.net/database/

surplus countries starting in the mid-1990s plotted against the U.S. deficit. This leads us to the question of what causes this development.

Fiscal and Monetary Policy

The current account surpluses can reflect many underlying factors, such as the age structure of the population or the rate of economic growth. In the life-cycle theory of consumption, saving occurs in middle life and the larger the share of the young and the old, the smaller should be the current account surplus, other things equal.[3] Herein, the focus is instead on the effect of the change in the exchange rate regime.

The increased divergence could be caused by the divergence of fiscal or monetary policy. The same methodology can be used to measure divergences in policies across countries. Table 2 shows the eigenvalues and eigenvectors for a matrix of

[3] This is what Gudmundsson and Zoega (2014) found. They adjusted current account surpluses and deficits of 57 countries in the period 2005-2009 for the effect of differences in age structure and found that the adjustment increased the surpluses of Germany and Japan, while the surpluses of China and other Asian surplus countries were significantly diminished. Others have used the purported relationship to explain certain episodes in economic history. For example, Taylor and Williamson (1994) explained the capital flow from Britain to Australia, Canada, the U.S. and Argentina in the late nineteenth century and early twentieth century by high youth dependency ratios in these countries. The old age dependency ratio may matter less if the old continue to save (e.g., Jensen et al., 2022).

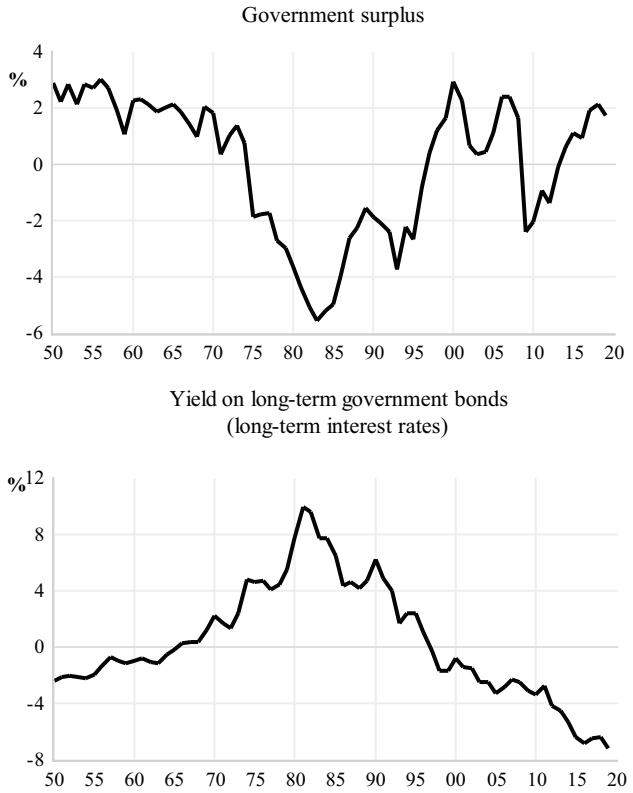

Fig. 3 First principal components of government surplus and long-term interest rates (1950–2020)

government surpluses as a share of GDP for the 18 countries as well as for the yield on long-term government bonds (10-year bonds). Starting with the latter, the first PC explains 78% of the variation in the matrix and every country has a positive value in the eigenvector. The second PC, which explains 11% of the variation in the matrix, does not help explain the pattern of current account surpluses and deficits. The first PC for government surpluses, which explains 34% of the variation in that matrix, does not explain the pattern either and neither does the second PC. Figure 3 shows the first PCs for government surpluses and the yield on government debt.

The PC for government surpluses shows the deficits after the oil shocks in the 1970s and early 1980s and after the financial crash of 2008. The PC for the yield on government debt explains almost all the variation in the interest rate matrix, which shows that the country interest rates move together. They peaked in 1981 at the height of the inflationary episode in the 1970s and early 1980s when real interest rates were also high. Then there was a decline in the yield until 2020. This decline is due to the decrease in inflation in the 1980s and also the gradual but continuous decrease in equilibrium real interest rates (Phelps et al., 2023).

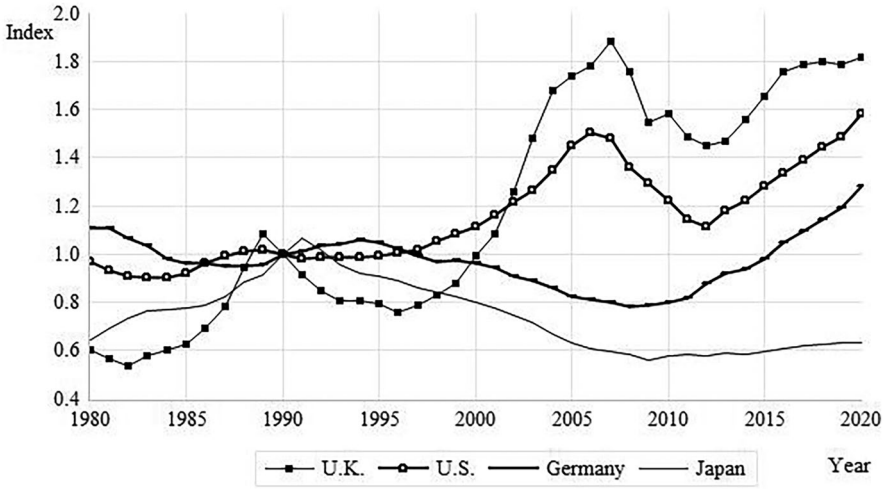

Fig. 4 Real house prices (1980–2020). Source: Jorda et al. (2019a, b), https://www.macrohistory.net/database/. The series are calculated as the ratio of an index of nominal house prices and the consumer price index

Capital Flows

Then, there is the explanation proposed by Robert Aliber (2023) in his paper in this issue. He argues that the system of flexible exchange rates can insulate an economy against goods market shocks, but that it amplifies capital market shocks. Flexible exchange rates helped economies adjust to the oil-price shocks but not to capital flows. He describes the impact of purchases of foreign securities (stocks and bonds) on the real exchange rate and the prices of these assets in other countries. A country that experiences foreign investors buying its securities has its exchange rate appreciating and asset prices rising. The first raises the real exchange rate, defined as the relative price of domestic output in terms of foreign output, and makes imports rise and the current account surplus fall. The increase in the price of housing and stocks has the same effect through a wealth effect on consumption. It follows that a capital inflow causes a consumption boom and an increase in the rate of economic growth as has happened in numerous countries in recent decades. The capital inflows into South American countries in the 1970s, the inflow into some Southeast Asian countries in the 1990s and into Iceland in the 2000s made these economies boom for a number of years, but in each case the end was swift when the capital flows stopped suddenly. Both during the boom and the bust years, it is capital account changes that affect the current account and not the other way around. The current account imbalances caused by the capital flows then create large trade imbalances. In Iceland, the current account deficit was close to 20% of GDP before the inflows turned into outflows and the country's financial system crashed in 2008 (Zoega, 2019).

Capital flows also create current account deficits in the Eurozone, in contrast to traditional fixed exchange rate systems. In a system with fixed exchange rates and national currencies, the capital flows have the effect of changing foreign reserves. Sudden outflows sometimes cause the collapse of the system. In contrast, a capital inflow into a country sharing a single currency has the effect of making the price level and, hence the real exchange rate, increase gradually and domestic asset prices increase.[4]

The effect of the capital inflow on the current account operates not only through the appreciation of the exchange rate, but also through a wealth effect from higher asset prices. Figure 4 shows an index of the real price of housing for two current-account surplus countries, Germany and Japan, and two current-account deficit countries, the UK and the U.S., from 1980 to 2020. As expected, real house prices increased by more in the two deficit countries than in these surplus countries, consistent with the explanation that capital inflows were at work.[5]

Conclusions

Principal components analysis was used to describe the pattern of current account surpluses in a sample of 18 countries from 1950 to 2020. One factor, explaining 78% of the variation in the matrix, shows how two groups of countries emerged after the fall of Bretton Woods in the 1970s. In one group, there are deficits; in the other, surpluses. The latter include Germany, Japan, the Netherlands, the Nordic countries and Switzerland while the former include the U.S., the U.K., Australia and countries in southern Europe. We then show changes in house prices in Germany and the U.S. and explain how these changes support the explanation that capital flows are the cause of the diverging current account imbalances. The capital outflow in Germany and the inflow in the U.S. caused house prices to increase in the latter relative to the former.

References

Aliber, R. Z. (2016). A lego approach to international monetary reform. *Atlantic Economic Journal, 44*(2), 139–157.
Aliber, R. Z. (2019). Financial crises and bank capital. *Atlantic Economic Journal, 47*(1), 1–11.
Aliber, R. Z. (2023). The management of the U.S. dollar 1971–2022. *Atlantic Economic Journal, 51*(1), xx–xx.
BIS. (2022). *History of the Basel Committee*. Retrieved from Bank of International Settlement: https://www.bis.org/bcbs/history.htm

[4] Online Supplemental Appendix Table 1 shows private saving, public saving, investment and the current account for Iceland and the European countries that suffered a crisis. These countries are Ireland, Portugal, Spain, Greece and the three Baltic countries of Estonia, Latvia and Lithuania. The pattern of saving and investment that developed after the turn of the century differed somewhat between these countries. In Iceland, there was an investment boom, but domestic saving remained more or less constant, masking falling private saving and increasing public saving. In the Baltics and in Ireland and Spain, it was investment that increased. In Greece and Portugal, it was government spending that was financed through borrowing (Zoega, 2019).

[5] McCauley (2018) attributes the capital flow from Europe to the U.S. as European banks expanding their balance sheets, instead of there being excess savings in Europe.

Caldera-Sánchez, A., De Serres, A., Gori, F., Hermansen, M., & Röhn, O. (2017), "Strengthening economic resilience: Insights from the post-1970 record of severe recessions and financial crises," *OECD Economic Policy Paper*, No. 20. Available at: https://www.oecd-ilibrary.org/economics/strengthening-economic-resilience_6b748a4b-en

Calvo, G. (1996). Capital flows to developing countries in the 1990s: Causes and effects. *Journal of Economic Perspectives, 10*, 123–139.

Eichengreen, B. (1996). Institutions and economic growth: Europe after World War II. In C. N., & G. Toniolo, *Economic Growth in Europe since 1945* (pp. 38–72). Cambridge, UK: Cambridge University Press.

Frankel, J. A. (1992). International capital mobility: A review. *The American Economic Review Papers and Proceedings, 82*(2), 197–202.

Greenspan, A. (2007). *The Age of Turbulence: Adventurs in a New World*. The Penguin Press.

Gudmundsson, G. S., & Zoega, G. (2014). Age structure and the current account. *Economics Letters, 123*(2), 183–186.

Jensen, S. E., Olafsson, S. P., Sveinsson, T. S., & Zoega, G. (2022). *Mapping educational disparities in lifecycle consumption.* Munich: CESifo Working Paper No. 9855. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4175812

Jorda, O., Knoll, K., Kuvshinov, D. S., & Taylor, A. M. (2019a). The rate of return to everything. *Quarterly Journal of Economics, 134*(3), 1225–1298.

Jorda, O., Knoll, K., Kuvshinov, D., Schularick, M., & Taylor A.M. (2019b). Macro-History Database. Available at: https://www.macrohistory.net/database/

Katsimi, M., & Zoega, G. (2016). European integration and the Feldstein-Horioka puzzle. *Oxford Bulletin of Economics and Statistics, 78*(6), 834–852.

McCauley, R. N. (2018). The 2008 crisis: Transpacific or transatlantic? *BIS Quarterly Review*, 39–58.

Phelps, E. S., Hoon, H. T., & Zoega, G. (2023). *The Great Slowdown*: How Narrowed Technical Progress Brought Static Wages, Sky-high Wealth, and Much Discontent, Palgrave Macmillan, forthcoming.

Taylor, A., & Williamson, J. (1994). Capital flows to the new world as an intergenerational transfer. *Journal of Political Economy, 102*, 348–369.

Werner, P. (1970). *Werner Report: Report to the Council and the Commission on the realisation by stages of ECONOMIC AND MONETARY UNION in the Community.* Luxemburg: Council - Commission of the European Communities. Retrieved from https://ec.europa.eu/economy_finance/publications/pages/publication6142_en.pdf

Zoega, G. (2019). Greece and the Western Financial Crisis. *Atlantic Economic Journal, 47*(2), 113–126.