



DIRECTORATE GENERAL FOR INTERNAL POLICIES
POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICIES

ECONOMIC AND MONETARY AFFAIRS

**Global Imbalances and the Financial
Crisis**

NOTE

Abstract

In this paper, I consider the relationship between factors that caused the global imbalances of 1997 – 2006 and the current financial crisis. I ask what should and can be done to dampen global imbalances in the future. I consider the importance of the G-20 Pittsburgh summit in addressing the issue of global imbalances.

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EXECUTIVE SUMMARY

- Between 1997 and 2007 advanced economies ran large and growing current account deficits while developing economies ran large and growing current account surpluses. These imbalances were primarily due to low and falling saving-to-GDP ratios in the United States and large and rising saving-to-GDP ratios in China and the Middle East.
- Low and falling saving-to-GDP ratios in the United States were primarily, but not entirely, due to the distortions that caused high saving-to-GDP ratios in the developing world. Increased savings in the developing world led to higher equity prices in the United States until 2000 and lower real interest rates after that. Both higher equity prices and lower real interest rates lowered saving and helped fuel a housing boom in the United States.
- Monetary policy can lower the real interest rate in the short run, but cannot systematically affect real interest rates in the long run. Thus, monetary policy cannot be blamed for the rise in house prices in the United States. If there was a bubble component in the price rise, monetary policy was not the appropriate tool to deal with the problem.
- Capital flowed into the United States because the United States was a relatively attractive place to invest and because of the dollar's status as the world's premier reserve currency.
- The rise in US house prices helped cause the financial crisis by leading to financial firms' securitisation of mortgages. Securitisation removed financial firms' incentives to screen and monitor their borrowers. US households became more leveraged and began to default when the housing boom finally ended. High degrees of leverage in the financial sector magnified the effect of changes in the prices of asset-backed securities on the balance sheets of financial firms.
- Factors leading to global imbalances were not the sole cause of the financial crisis. In the United States, regulators were lax in permitting unbridled securitisation. Especially in Europe, regulators were irresponsible to allow financial firms to become so leveraged. In the United States, lawmakers were culpable for permitting a patchwork institution-based regulatory system. Successive US presidents and the US Congress were to blame for misguided policies aimed at increasing home ownership.
- Global imbalances are only bad if they are caused by distortions. In this case, fiscal and institutional changes should be used to correct them. In the United States, it would be desirable to phase out tax breaks to home owners in the form of mortgage interest deductions.
- The G-20 summit in Pittsburgh was of symbolic importance in that representatives from the developing world were included. The meeting was too large to be efficient, however.

1. INTRODUCTION

The timing of the large current account imbalances – beginning on the heels of the Asian crisis of 1997 and peaking just before the emergence of the current financial crisis in August 2007 – raises a question. Are global imbalances related to financial crises? That is, does the same set of underlying fundamentals cause both phenomenon, or are they the product of unrelated causes? In this note, I consider the role of the factors that led to global imbalances in causing the present crisis.

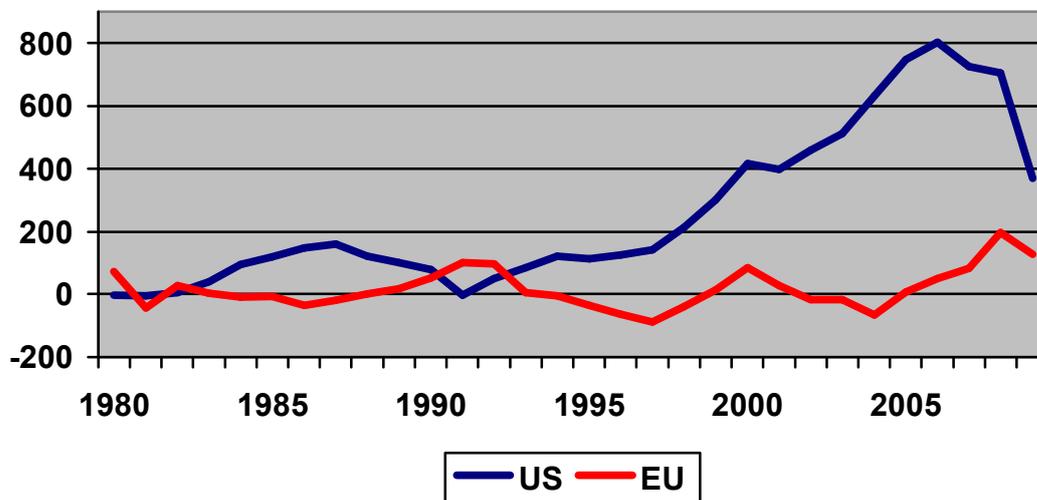
2. THE NATURE OF IMBALANCES PRIOR TO THE FINANCIAL CRISIS

In this section I discuss how the current account imbalances that arose after the Asian crisis and persisted until the outbreak of the current financial crisis were primarily due to saving imbalances. High and growing saving-to-GDP ratios in developing countries, particularly China and the Middle East were the counterpart of a low and declining saving-to-GDP ratio in the United States.

2.1. Current Accounts Prior to the Crisis

After a period of relative stability, the US current account deficit, shown in Figure 1 below, rose fairly steadily after 1997, reaching a peak in 2005 and 2006 at

**Figure 1 US and EU Current Account Deficits
(\$US billions)**



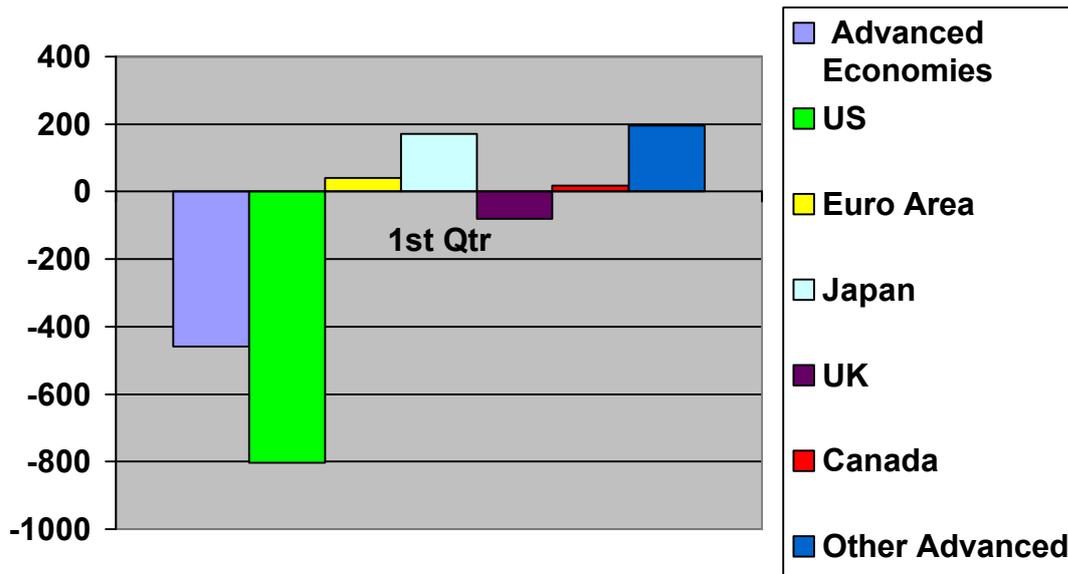
Source: IMF, World Economic Outlook Database, 2009.

an amount that was equal to about six percent of US GDP – probably the highest current-account-deficit-to-GDP ratios in US history. In contrast, the path of the EU area-wide current account deficit, also show in Figure 1, has been relatively stable over the past quarter century.¹

¹ Individual countries, however, have run surpluses or deficits that are large relative to their GDP.

Because of the size of the US deficits, the path of the aggregate current account balance for the advanced economies as a whole followed a pattern that was similar to that of the United States. Figure 2, below, depicts the contribution of the component areas to the advanced countries' current account deficit in 2006. The huge US deficit and the smaller UK deficit more than offset the sizable surpluses of Japan and the other advanced economies (that is, those not in the G7 or euro area) and the relatively small surpluses of the euro area and Canada. The main contributors to the surpluses of the other advanced economies were those of the newly industrialised Asian economies.

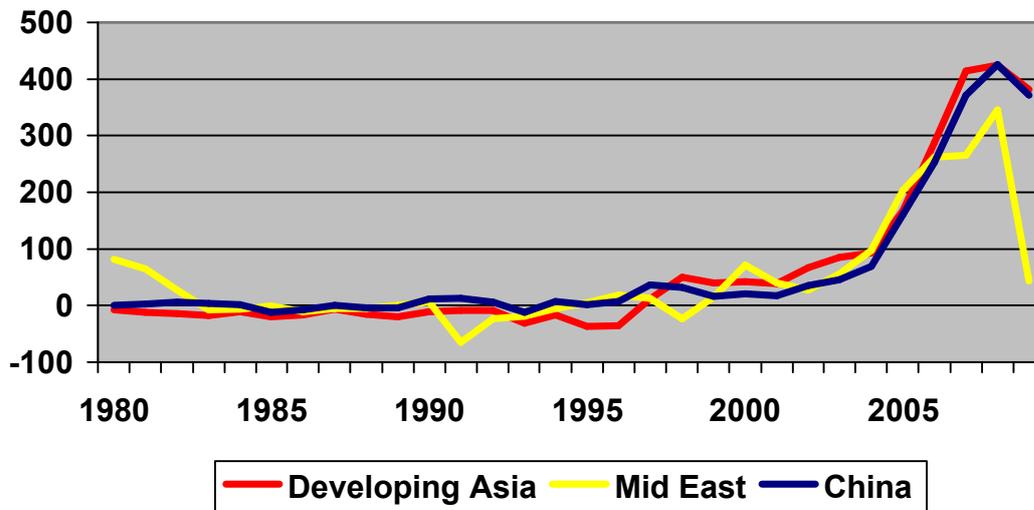
Figure 2 2006 Advanced Country Current Account Balances (\$US billions)



Source: IMF, World Economic Outlook Database, 2009.

While the advanced economies were, as a whole, running current account deficits, the developing world ran current surpluses. As seen in Figure 3, below, the main counterparts of the US current account deficits were current account surpluses in developing Asian countries and the Middle East. In developing Asian countries, the aggregate current account became positive in 1997 and rose rapidly until 2007. Most of the large surpluses were due to China, with small contributions from Indonesia, Malaysia and Thailand. In the Middle East, the aggregate current account surplus began rising rapidly in 2003 and remained high until 2009.

**Figure 3 Developing Country Current Account Surpluses
(US \$ billions)**



Source: IMF, World Economic Outlook Database, 2009.

2.2. Current account imbalances were saving imbalances

Before proceeding with a discussion of the origins of the imbalances, it is useful to consider exactly what the current account measures. The current account is defined as the sum of net sales by home residents of goods and services to the rest of the world; net investment and wage income received by home residents from the rest of the world; net current transfers from the rest of the world to home residents. More usefully, however, it is related to the national income accounts by the national accounting identity:

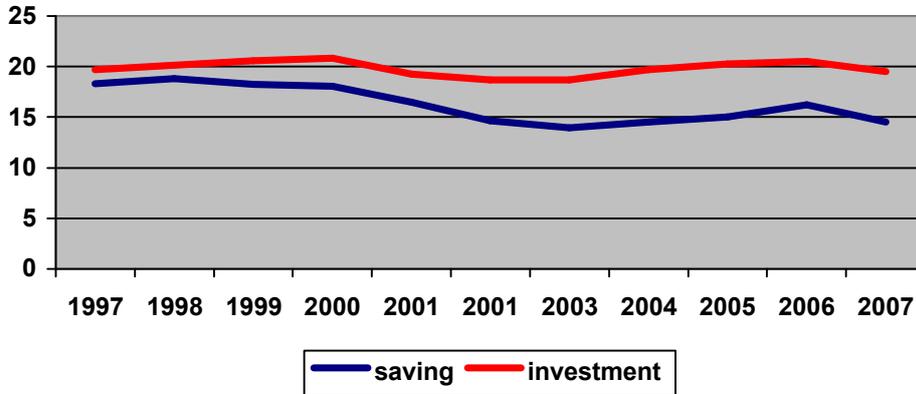
$$\text{Income} = \text{Private and public consumption} + \text{Private and public investment} \\ + \text{The current account.}$$

Subtracting consumption from both sides, substituting in that saving equals income minus consumption and rearranging terms yields:

$$\text{The current account} = \text{Public and private saving} - \text{Investment.}$$

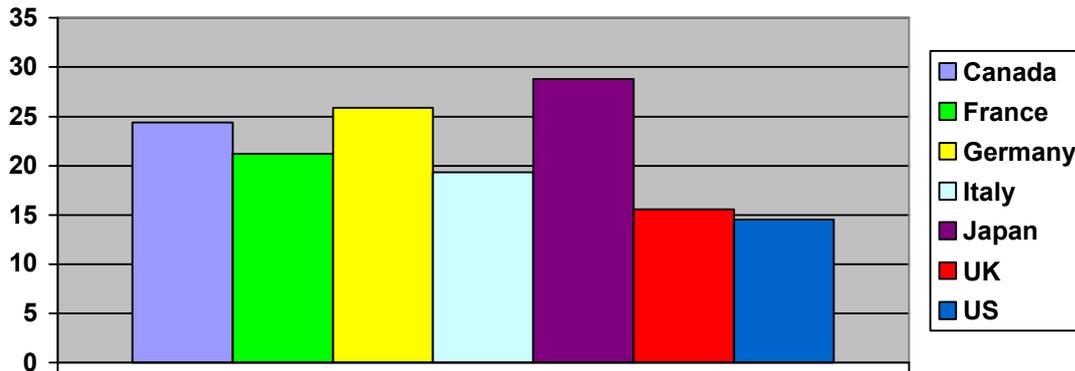
Figure 4, below, shows US saving and investment between 1997 and 2007. As seen, investment was fairly stable over the period, hovering at about 20 percent of US GDP. Saving, however, declined markedly, falling from about 19 percent of GDP in 1998 to about 14-1/2 percent in 2007. As seen in Figure 5, below, by 2007 saving in the United States, as a share of GDP, was the lowest of the G7 countries.

Figure 4 US Saving and Investment (percentage of GDP)



Source: IMF, World Economic Outlook Database, 2009.

Figure 5 Saving in G7 Countries in 2007 (percentage of GDP)

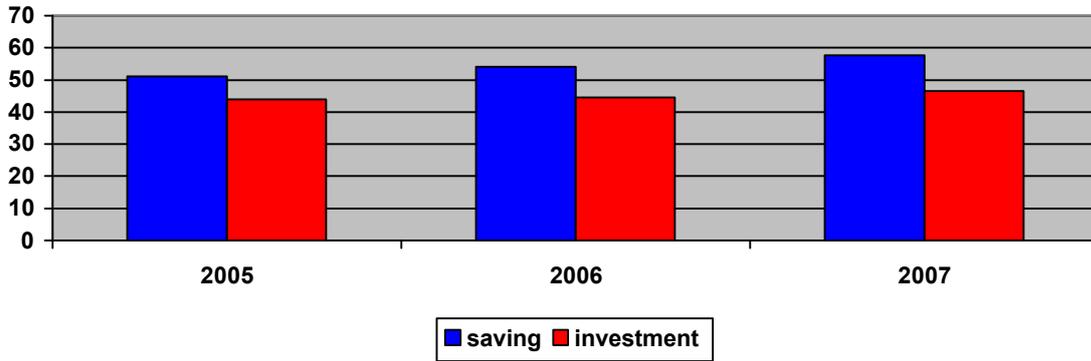


Source: IMF, World Economic Outlook Database, 2009.

Figure 6, below, shows saving and investment in China; Figure 7 depicts savings and investment in the Middle East. Compared with the data in Figure 5, it is seen that saving in China, as a share of GDP has been extraordinarily high. In the Middle Eastern countries saving has been high and rising, while investment has remained relatively stable.

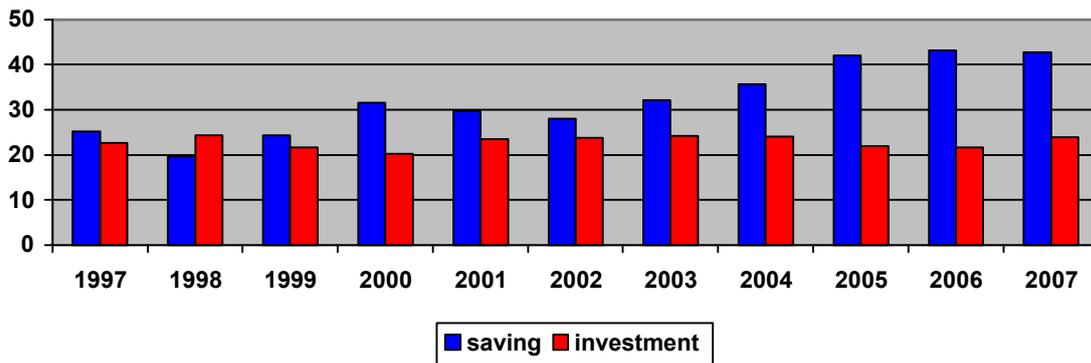
Figures 1 - 7 suggest that the global imbalances prior to the current crisis were primarily due to saving imbalances. In particular, they were mainly due to a US saving-to-GDP ratio that was low, both historically and relative to that in other G7 countries, and high saving-to-GDP ratios in China and the Middle Eastern countries.

**Figure 6 Saving and Investment in China
(Percentage of GDP)**



Source: IMF, Public Information Notice (PIN) No. 09/87, July 22, 2009

**Figure 7 Saving and Investment in the Middle East
(Percentage of GDP)**



Source: IMF, World Economic Outlook Database, 2009.

3. WHY DID THE SAVING IMBALANCES OCCUR AND HOW ARE THEY RELATED TO THE CRISIS?

A number of theories have been advanced to explain the size of the imbalances and their relationship to the financial crisis. A particularly appealing one is the saving glut hypothesis, primarily associated with Bernanke (2005).

3.1. The saving glut hypothesis

According to the saving glut hypothesis, global saving imbalances are largely – although not entirely – due to factors outside of the United States. Two such factors are the following. First, distortions in the Chinese economy kept saving artificially high in China. Second, there was a sharp rise in oil prices between the end of 1998 and August 2007: the price of the benchmark West Texas Intermediate crude oil rose from under \$11 per barrel in December 1998 to over \$70 per barrel in August 2007.² This price rise increased the revenues of Middle Eastern countries. They saved a large fraction of this windfall gain as they had a limited absorptive capacity which prevented a sizable boost in their domestic investment.

3.2. How factors that caused the saving glut lowered saving in the US?

How did policies and other fundamental factors that led to burgeoning saving rates in China, the Middle East and elsewhere result in *decreased* saving in the United States and a fall in the US current account? Bernanke (2005) offers a theory.

3.2.1. The Saving Glut was Associated with a Rise in US House Prices

Up until 2000, increased foreign saving increased the demand for US financial assets and US equity prices rose and the dollar appreciated. The rise in equity prices increased perceived wealth in the United States and saving declined. Viewing the current account as saving less investment, this explains the fall in the US current account. Thinking of the current account as net exports of goods and services, the rise in the value of the dollar made US goods more expensive relative to foreign goods and net exports declined, decreasing the current account.

After the demise of the dot com boom in March 2000, the world demand for investment declined and equating world saving to world investment required a drop in the world real interest rate.³ The decline in the real interest rate had two effects on US households. First, saving became less attractive to consumption, tending to cause saving to drop. Second, to the extent that the United States is a net debtor country, lower real interest rates increased wealth. This also tended to cause consumption to rise and saving to fall. As real interest rates fell, US house prices rose.⁴ House prices grew by seven to eight percent per year in

² At Cushing, Oklahoma. Data from US Energy Administration Information.

³ Obstfeld and Rogoff (2009) dispute the theory that an increase in global saving alone led to a lower real interest rate, noting that, according to the IMF, global saving fell between 2000 and 2002. However, an outward shift of the saving demand schedule and an inward shift of the investment demand schedule will lower the real interest rate and can cause a fall in *equilibrium* saving.

⁴ Suppose that there is no uncertainty and ignore transactions costs, taxes and depreciation. Then the price of a house is the value of the discounted stream of future rental payments that it could generate. As the interest rate falls, this value rises.

1998 to 1999, by nine to 11 percent per year in 2000 to 2003 and by 15 – 17 percent in 2004 and 2005.⁵ Housing wealth is collateralisable and with readily available cash-out refinancing and home equity lines of credit in the United States, liquidity constrained households were able to further increase their consumption and saving was further dampened.

Different levels of indebtedness caused the fall in interest rates to have varying effects on consumption and saving in different countries. Structural differences such as the development of financial markets and constraints on borrowing caused the relationship between the real interest rate and house prices to also vary across countries. It is interesting to note that the United Kingdom, Ireland and Spain, all of which experienced housing booms, also ran current account deficits.

3.2.2. Monetary Policy in the United States

Obstfeld and Rogoff (2009) and others have argued that the reason for the rise in US house prices was not solely or primarily a saving glut in developing countries, but excessively lax monetary policy after 2001. In a discussion of recent research, Bernanke (2010) concludes that there is little empirical support for this proposition. This is not surprising. In the short run, nominal rigidities imply that monetary policy can affect the price of houses relative to other prices. This is because, due to nominal rigidities, the central bank's choice of a short-term nominal interest rate affects the real interest rate in the short run. Such an effect is temporary, however. In the long run the central bank cannot systematically affect real variables, including the real interest rate.

Another view is that the rise in US house prices was not a result of fundamentals, but was a bubble based on self-fulfilling expectations. Some have argued that, if this was the case, monetary policy should have been used to pop the bubble. As a theoretical proposition, bubbles seem unappealing: why would all market participants coordinate their expectations on one particular path of rising prices? For advocates of this view, empirical evidence would be inherently hard to come by. If the researcher cannot justify the path of prices on the basis of the fundamentals it might just be that the researcher's proposed model is incorrect. Were monetary policy makers to somehow be able to confirm that some price path is a bubble, monetary policy does not appear to be the appropriate tool to deal with the problem. If a bubble is a deviation from the price path implied by the fundamentals, why would a small change in the fundamentals eradicate the bubble? Appropriate supervision and regulation is a more effective approach.

⁵ Bernanke (2010)

3.3. Why did capital flow into the US and not into Europe?

If the saving glut hypothesis is correct, it is interesting to ask why capital flowed into the United States and not into the EU. A prominent reason may have been the relative attractiveness of investment in the two areas.

3.3.1. The United States was a More Attractive Place to Invest

During the period 1997 – 2006, relatively rigid labour and product markets, more poorly functioning credit markets, higher costs of starting and closing businesses and more restrictions on land use and business hours may have made the EU a less attractive place to invest than the United States. According to the World Bank's Ease of Doing Business Index, the United States ranked third in the world, while Germany was 35th and Spain was 39th. Italy was in 82nd position, far behind Kazakhstan (63rd), and Greece ranked an astonishing 109th.⁶ This is seen in Table 1, below.

Table 1. Ease of Doing Business Index, 2007

United States	3
United Kingdom	6
Ireland	10
Finland	14
Belgium	20
Germany	21
Netherlands	22
Austria	30
France	35
Spain	39
Portugal	40
Italy	82
Greece	109

Source: World Bank, *Doing Business 2007: How to Reform*, Report Overview, 2006.

The relatively business-friendly environment of the United States has been especially important over the last two decades. When technological innovations in semiconductor manufacturing led to the information and communications technology (ICT) revolution, the relatively unregulated product markets and flexible labour markets in the United States enabled a rapid restructuring of the economy to make the best use of ICT in other industries.⁷

3.3.2. The US Dollar is the World's Premier Reserve Currency

A significant fraction of capital inflows in the United States are believed to be official holdings. Between 1999 and Aug 2007, Chinese foreign exchange reserves increased from about \$160 hundred million to \$1.4 trillion.⁸ Other Asian countries also increased their reserve holdings following the Asian crisis. Most of these increases were probably in dollars: the dollar is the world's premier reserve currency; it is estimated that about two-thirds of

⁶ The United Kingdom, ranked 6th, was also the recipient of significant capital inflows.

⁷ See, for example, van Ark (2006).

⁸ The People's Bank of China.

the world's reserves are in dollars.⁹ Along with high productivity in the United States, relative to the rest of the world, the dollar is a convenient currency for central banks to hold. One reason is the size of US financial markets. At the end of 2005, the outstanding stock of US government securities was \$4.2 trillion, compared with \$4.7 trillion for the euro area. But, unlike the euro area, US government securities are all of high quality (rated AAA by Fitch). Moreover, the markets for US government securities are more liquid and have greater depth than those in the euro area.¹⁰

3.3.3. The Twin Deficits Hypothesis

Another suggested reason for the US current account deficit is that it is caused by the US government budget deficit. By subtracting taxes from both sides of the national accounting identity we have that

$$\begin{aligned} \text{Disposable income} &= \text{Private consumption} + \text{Private investment} + \\ &\quad \text{The government budget deficit} + \text{The current account} \end{aligned}$$

This implies that

$$\begin{aligned} \text{The current account} &= \text{The government budget deficit} + \text{The} \\ &\quad \text{private financial deficit.} \end{aligned}$$

Adherents of this twin deficits hypothesis note that if the government budget deficit were to go up, and the private financial deficit were to remain unchanged, a fall in the current account would maintain equilibrium. This theory seems particularly ill-suited to the period under discussion as the US government budget was in surplus between 1996 and 2000 and Germany and Japan have run government budget deficits and their current accounts have been in surplus.

3.4. How was the crisis related to the fall in the real interest rate?

Lower real interest rates helped fuel a housing boom in the United States and this, along with regulatory failures and poor economic policies, led to the current financial crisis.

3.4.1. Securitisation

Once upon a time, bankers (and other lenders) who made loans to a house purchaser, or other borrower, retained the default risk. Hence, they had an incentive to collect information on the borrowers and to monitor their subsequent behaviour. Banks did not like holding illiquid assets, however. The innovation of securitisation gave bankers the opportunity to sell their mortgages, passing off the risk and obtaining new liquidity with which to make additional loans. Banks no longer had much of an incentive to screen or oversee their borrowers; they made riskier types of loans to less credit-worthy borrowers.

When the banks sold their mortgages, it was to off-balance-sheet special-purpose vehicles (SPVs). These SPVs combined the mortgages with other assets and issued tranching securities backed by the entire pool. These securities were then purchased by other SPVs that combined them with various assets in the next level of securitisation. By the time a conduit of a German Landesbank sold some tranche of a security backed by mortgages,

⁹ See BIS (2007). China does not divulge the currency composition of its reserves.

¹⁰ See Galati and Wooldridge (2006).

sliced and diced and bundled and rebundled with credit card receivables, automobile loans and other assets, to a London hedge fund, neither borrower nor seller had much of a clue about the nature of the underlying assets. Nor did they appear to be overly concerned. As long as US house prices would continue to rise, all would be well.

Innovations in mortgage financing and falling lending standards that accompanied and helped promote the rise in US house prices allowed US households to become increasingly leveraged. When the housing boom finally ended in mid 2006, home owners began to default on their mortgages, eroding the value of mortgage-backed securities. High degrees of leverage in the financial sector magnified the effect of changes in asset prices on the balance sheets of financial institutions and the financial crisis began.

3.4.2. The Search for Yield

Paulson (2008) has advanced a complimentary reason why the fall in real interest rates helped fuel the crisis: low interest rates led to excessive risk taking and a global search for return. Presumably, this is because bankers and employees of other financial firms have an asymmetric loss function which causes them to search for investments that have the possibility of high upside returns.¹¹

3.5. Factors causing the global saving glut are not the only causes of the crisis

The fundamental factors that led to the global saving glut played a role in causing the current financial crisis. However, regulatory failures and poor economic policies played a role as well.

In the United States, regulators were lax in permitting unbridled securitisation.¹² Originally seen as a way of pooling risk, it caused financial institutions to make riskier loans. Around the world, but especially in Europe, regulators were to blame for allowing financial institutions to become as leveraged as they were. Lawmakers in the United States were culpable for allowing a patchwork institution-based regulatory system to prevail.

Successive US presidents, in partnership with the US congress, played a key role in the crisis through their misguided policies aimed at increasing home ownership. The federal government-sponsored enterprises Freddie Mac and Fannie Mae pioneered the practice of securitising mortgages. Banks and other lenders were permitted, and sometimes even actively encouraged, to make increasingly exotic and risky types of loans to increasingly risky borrowers.

¹¹ A related reason for greater risk taking is that a long period of good monetary policy lowered volatility in financial markets, triggering a search for investments with risky returns.

¹² They should have forced the originators of loans to keep some part of the equity tranche of a security backed by those loans.

4. WHAT CAN BE DONE TO MITIGATE GLOBAL IMBALANCES IN THE FUTURE?

4.1. What is the role of monetary And fiscal policy in the propagation of global imbalances?

How did monetary and fiscal policy contribute to the emergence of the global imbalances and how might they be better used in the future? Two points are important. First, current account imbalances are not necessarily bad: this will be discussed further in the next subsection. Second, current account imbalances are a real phenomenon and monetary policy cannot systematically affect real variables. This suggests that before trying to dampen global imbalances, policy makers ought to identify distortions that might be responsible for them. If distortions are found, fiscal measures or institutional changes should be used to correct or offset them.

As discussed, in the years prior to the current financial crisis, distortions led to saving in China being too high and demand for investment in Europe being too low. They also contributed to saving in the United States being too low. The United States has long promoted home ownership and this has led to residential investment in the United States being too high and saving too low. It has also reduced labour mobility, intensifying the effect of regional downturns. An obvious fiscal policy that the United States might take is to eliminate incentives for home ownership. In particular, the United States ought to phase out its reverse Robin Hood policy of offering tax breaks to home owners in the form of mortgage interest deductions.¹³

4.2. Can surveillance of large imbalances be improved? Should it be?

4.2.1. The Contraction of Global Imbalances is Temporary

Global imbalances have shrunk dramatically as global trade collapsed after the financial crisis. However, Baldwin and Taglioni (2009) argue that they are likely to return when global demand picks up. As mentioned, global imbalances are not necessarily undesirable. Households want to smooth their consumption across states of nature and over time and current and financial account imbalances are ways to accomplish this. Countries experiencing temporary bad shocks should run deficits; countries experiencing temporary good shocks should run surpluses. Countries in an early stage of development should borrow from countries in a later stage of development. The past imbalances, however, were caused by distortions and were clearly undesirable; the developing world should not be, year after year, lending to advanced economies. While factors that resulted in global imbalances did not, on their own, cause the global financial crisis, a re-emergence of the previous imbalances would be disturbing. Any solution must involve advanced economies cooperating with developing countries, especially China and those in the Middle East.

¹³ See Buiter (2010).

4.2.2. The G-20 Summit in Pittsburgh

The G-20 was formally established at the G7 Finance Ministers' meeting on 26 September 1999 and includes Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom, the United States and the European Union. The G-20 Summit was created as a response to the financial crisis and has met at the head of government level three times: the first time at the initiative of President Bush in Washington in November 2008, the second under the chairmanship of Prime Minister Brown in London in April 2009 and the third time in Pittsburgh in September 2009. The Pittsburgh meeting was attended by representatives from the G-20 countries, as well as the Netherlands and Spain and officials from the New Partnership for Africa's Development, the Association of Southeast Asian Nations, the European Commission, the European Council, the United Nations, the World Bank, the International Monetary Fund, the World Trade Organisation and the Financial Stability Forum.

The summit in Pittsburgh produced a pledge to expand developing countries' influence in the IMF and the usual hand wringing over bankers' compensation. While short on concrete proposals for addressing global imbalances, the G-20 summits are of symbolic importance in that they include members from developing countries as well as those from advanced nations. As a practical matter, however, it is hard to see how 31 people, stuffed into a room together, are going to have a serious discussion. Like many international meetings, the summits are just too big. The Dutch and Spanish gate crashers should have stayed home; of the international organizations, only the IMF should have had a representative; efficiency would have been improved if Argentina, Australia, Canada, Indonesia, South Africa and Turkey had been excluded and if Europe had been represented by the EU alone.

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