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## Financialisation in currency, energy and residential property markets

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# Financialisation in Currency, Energy and Residential Property Markets

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Working Paper, No. 62/2016

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# Financialisation in Currency, Energy and Residential Property Markets\*

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## Abstract

The markets for foreign exchange, energy and residential housing have all been strongly affected by the deregulation and expansion of the financial sector. As a result, they have begun to follow the logic of asset markets. This was especially marked in the case of the foreign exchange market from the 1970s, but has also been the case to some extent for residential housing markets since the mid-1990s, and more strongly for energy markets since the early 2000s. Deregulation has led to far greater price volatility and the rise of unsustainable price and credit bubbles which, when they burst, can pose a significant threat to financial and economic stability. For this reason, these markets should be subjected to new and appropriate forms of regulation.

**Key words:** Asset bubbles, financial crises, foreign exchange rates, energy prices, house prices

**JEL Code:** E32, E44, E65, G18, G21, G28

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## 1. Introduction<sup>1</sup>

The period of prosperous development which began after World War II came to an end in the 1970s. This was followed by a wide ranging process of deregulation, first in the foreign exchange market, and then in other parts of the financial system and in labour markets. These developments gained force in the US and Britain from the early 1980s and spread to other countries, such as Germany, in the 1990s. This led to the emergence of a new phase of capitalism marked by a larger role for finance, weaker trade unions and a significant change in corporate governance. This new phase has been characterised as the financialisation of the economy and it has also had a major impact on society as a whole (Epstein, 2005). Financialisation implies an increasing role of financial motives, financial markets, financial actors and financial institutions. This process not only affected national markets but was also associated closely with the accelerated internationalisation of both financial and also product markets.

This paper examines the impact of financialisation in three areas: the foreign exchange markets, energy markets, and residential property markets. All three markets have a significant influence on shaping the pattern of economic development and have been strongly affected by financialisation.

In the foreign exchange market, under a regime of flexible exchange rates and unregulated international capital flows, the exchange rate is deeply influenced by expectations, which in a world of uncertainty have no anchor in fundamentals, and by speculation. Exchange rate movements influence the price competitiveness of countries and, via import prices, also have an impact on the price level. International capital flows result in a far greater degree of interconnectedness between different national financial markets and the increase the danger of international contagion in the event of crises. High net international capital flows allow large and unsustainable current account imbalances to develop. Through these channels financialisation can have a major impact on real economic development.

Energy markets also play an important role for economic development. Here, changes in energy prices are especially important. Higher energy prices, for example, have a major impact on the structure of relative prices, influence the price level, and change the level of real income in a country. Rapid changes in energy prices expose economies to potentially deep economic and social shocks. As a result of financialisation, the functioning of energy markets has been transformed and they have become subject to extensive speculation. This paper focuses on the case of the oil market which plays a key role in relation to developments other commodities.

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<sup>1</sup> Thanks to Nina Dodig and Eckhard Hein for productive debates.

Many of the conclusions which are drawn for the oil market are also relevant for other commodity markets.

Residential property markets are important as one of the key determinants for construction activities, GDP growth and employment. Residential property prices also have a significant influence on the level of real income for many people. Since the 1990s the process of financialisation has had a major impact on house prices in most developed countries, and led to the widespread emergence of house price bubbles. The bursting of the house prices bubble in the US in 2006 played a key role in detonating the major international financial crisis in 2007-2008, and this in turn led to the bursting of house-price bubbles across European housing markets.

Under a regime of financialisation, foreign exchange markets, energy markets and residential property markets have become heavily influenced or even dominated by the logic of asset markets. This has resulted in the emergence of boom-bust cycles which involve herding and speculation and have led to the growth of bubbles in prices. This has resulted in price shocks, which have had a significant effect on generating waves of high and low productive activity, and to the accumulation of non-performing loans in phases of asset price deflations. The analysis demonstrates that, as a result of financialisation, there has been a marked growth in financial instability in all three markets.

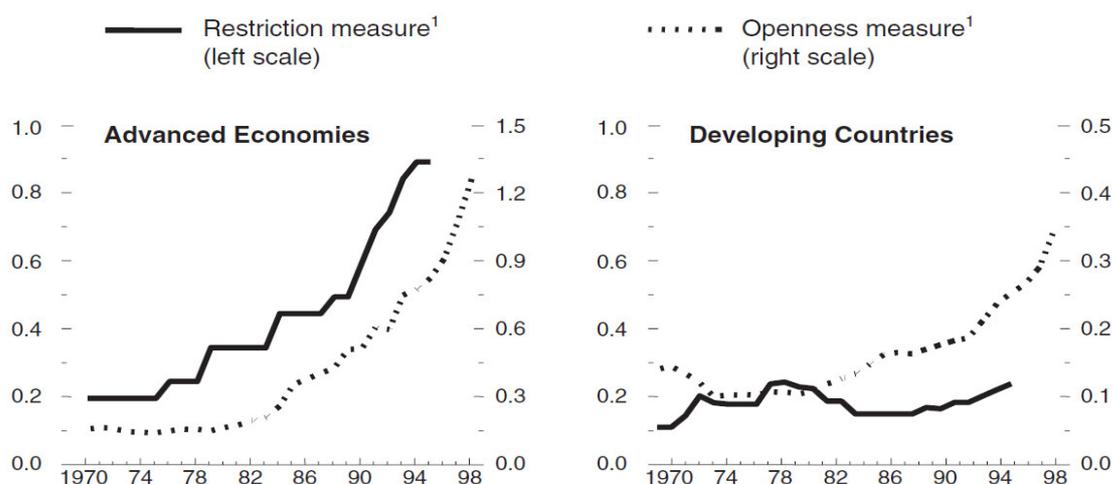
## **2. Foreign exchange markets<sup>2</sup>**

In the early 1970s capital accounts in the group of advanced countries were almost completely closed and international capital flows were highly regulated. Some regulation took place in the 1970s, but the main wave of deregulation followed in the 1980s and especially the early 1990s leaving the capital accounts in developed countries in the early 1990s almost completely open (see Figure 1). Capital account liberalisation in the group of developing countries was much less pronounced. Restrictions were reduced almost exclusively in the 1970s in Latin American countries but increased again slightly in the 1980s during the debt crisis and the lost decade in Latin America. A new wave of deregulation of international capital flows started in the 1990s which also included Asian countries (except China) and countries of the former Soviet bloc. As a result, capital flows in developing countries started to increase sharply in relation to GDP.

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<sup>2</sup> This section is partly based on Herr (2013).

**Figure 1. Capital account liberalisation in developed and developing countries**

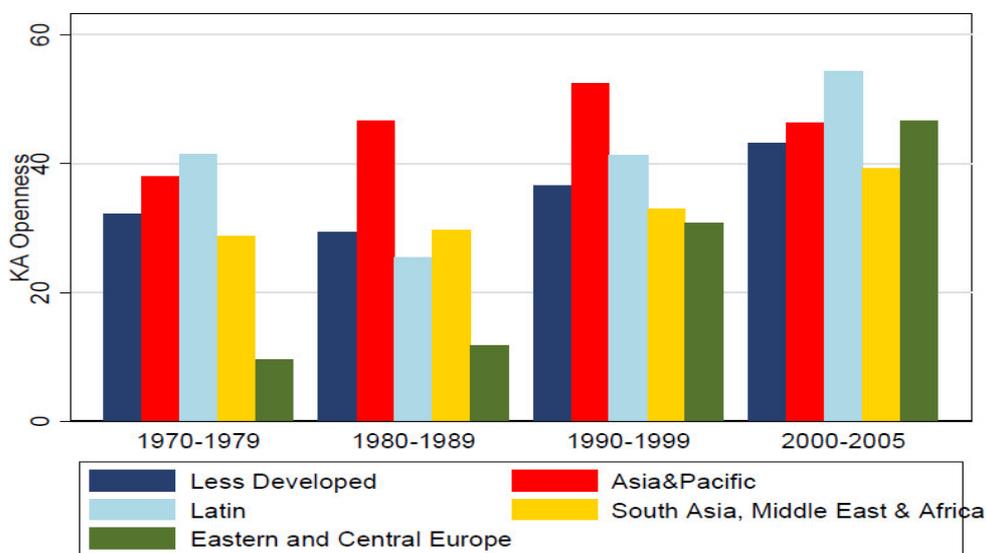


The restriction measure is calculated as the “average” value of the on/off measure of the group. The opening measure is calculated as the average stock of accumulated capital flows (in per cent of GDP) in a country group.

Source: Edison et al. (2004), p. 235, based on IMF sources.

Figure 2 shows the development of capital account openness for developing countries in more detail based on IMF surveys. The value of 100 indicates complete openness. With the exception of the Asian & Pacific region, capital accounts in developing countries became more open in recent decades. In the early 2000s the group of developed countries reached almost complete openness of the capital account with a value of above 95 (Chinn and Ito, 2008). The deregulation of international capital flows was embedded in a general deregulation of the financial system (see Figure 12 below).

**Figure 2. Development of capital account openness measured by the KAOPEN index for less developed countries**



Source: Chinn and Ito (2008). The index is normalised with the highest degree of financial openness captured by the value of 100 and the lowest by the value of zero.

A major change in developments after World War II was the final breakdown of the Bretton Woods system in 1973 and the switch to flexible exchange rates. A system developed with flexible exchange rates between the key currencies of the world whereas countries with weaker currencies pegged their currencies to one of the leading currencies. With no, or a low volume, of international capital flows, exchange rates reflect product market interrelations between countries. High current account imbalances were not possible. With a high volume of international capital flows exchange rates become driven by financial market considerations, especially by the portfolio decisions of international investors, by international credit relationships, by production decisions of multinational companies and by speculation.

Economists have tested all possible hypotheses and used all econometric tools to identify the factors which determine exchange rate movements. It is not possible to find any reliable 'fundamentals' like inflation rate differentials, growth differentials, productivity differentials, interest rate differentials or any other factor which determine exchange rate movements.<sup>3</sup> Financialisation in currency markets led to a situation in which exchange rates between the key currencies in the world developed in an unpredictable way – comparable to prices in asset markets like stock markets or the market for gold.

The deregulation of international capital flows led to a massive increase in the volume of international transactions on foreign exchange markets. Table 1 shows that spot transactions increased substantially, but this was even more true of transactions in future markets (outright forwards and foreign exchange swaps). Daily trade transactions are small in comparison to total transactions. This means that international capital flows, including huge capital flows to exploit very small arbitrage possibilities, dominate the foreign exchange market and not transactions reflecting international trade. In 2013, for example, the total turnover in foreign exchange markets was over forty times the volume required by trade transactions.

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<sup>3</sup> Dornbusch and Frankel, (1988, p. 157) made this clear very early: 'The clear conclusion is that exchange rates are moved largely by factors other than the obvious, observable, macroeconomic fundamentals. Econometrically, most of the 'action' is in the error term.'

**Table 1. Global foreign exchange market turnover in US billion, selected years**

<b>Instrument</b>	<b>1989</b>	<b>1995</b>	<b>1998</b>	<b>2001</b>	<b>2004</b>	<b>2007</b>	<b>2010</b>	<b>2013</b>
Spot transactions	317	680	762	519	839	1305	1829	2459
Outright forwards	27	115	155	164	261	434	558	816
Foreign exchange swaps	190	777	1052	934	1329	2250	2352	2931
Total traditional turnover	590	1633	2099	1705	2608	4281	5043	6671
Daily trade transactions	17	28	31	35	50	74	-	-

Source: Bank of International Settlements, Triennial Central Bank Survey 2013, 2007

Future foreign exchange markets allow firms, banks and other economic units to reduce exchange rate risks via future contracts. However, it has to be kept in mind that future markets usually cover only a few months and future markets for more than one year ahead are almost not existent. Thus, medium-term and long-term exchange risks cannot be insured. Although difficult to quantify, in many cases at least one partner of a future contract is typically a speculator. The huge volume of transactions in future markets suggest that spot exchange rates are largely determined by future exchange markets. Given the future exchange rate, interest differentials and arbitrage processes determine the spot exchange rate. This is the substance of the covered interest rate parity hypothesis which is empirically, to a large extent, fulfilled as soon as future markets in a currency exist and capital flows are deregulated.

From a theoretical point of view, the fact that future exchange rates determine spot exchange rates does not automatically mean that spot exchange rates do not reflect fundamentals. If future markets reflected fundamentals, an assumption based on the neoclassical theory of rational expectations, then spot markets would also be ruled by fundamentals, following the interest rate parity theorem. This is the substance of Dornbusch's (1976) model of exchange rate determination. Expectations in future markets, the argument goes, are based on neoclassical fundamentals with the outcome that future and spot markets reflect neoclassical fundamentals (especially the purchasing parity theory of exchange rate determination). The neoclassical argument of exchange rate determination depends on the assumption of efficient financial markets and rational expectations. However, these assumptions cannot be presumed to hold in relation to the functioning of asset markets. Economic agents are confronted with fundamental

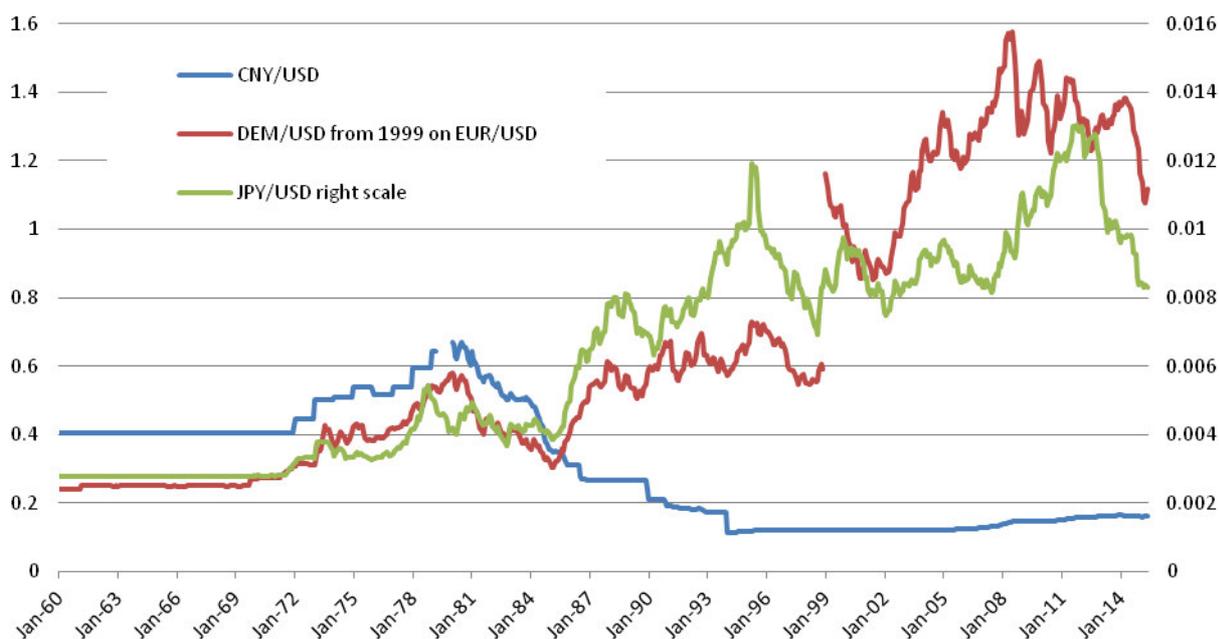
uncertainty which does not allow them to ascertain from past developments what will happen in the future. Agents can have very different expectations even if they have the same information. Even if they search for fundamentals, they may not know which fundamentals are important and how to judge them. Expectations of the majority of agents can be wrong. In addition, asset markets including foreign exchange markets are influenced by herding and cumulative processes (for an overview about the functioning of asset markets see Detzer and Herr, 2015).

Future markets and thus spot exchange rates are largely driven by expectations. But, expectations depend on a universe of factors which only can be explained in a historical context. As long as long-term expectations dominate, economic agents try to develop a comprehensive evaluation of potential future exchange rate movements. As the base of such evaluations is vague and flimsy, sudden and quick changes in long-term expectations become likely (Keynes, 1937). However, many agents in foreign exchange markets have a short-term horizon and speculate. Some speculators use computer based programs; some base their actions on so-called irrational technical analyses (Schulmeister, 2006 and 2009). Overall, under a regime of flexible exchange rates very unstable medium-term and even short-term exchange rate movements must be expected which are not predictable. Under the existing regime of almost unregulated capital flows and flexible exchange rates, the foreign exchange market looks more like a casino than a market which can regulate international trade in a rational way.

The instability of currency markets is intensified by an unstable world currency. In a hegemonic currency system there is an unchallenged currency at the top of the currency hierarchy delivered by a hegemonic country. The latter has, at least to a certain extent, an incentive to provide a stable exchange rate and the international public good of a stable world economy (Kindleberger, 1986). During the last few decades, the USA has been neither willing nor able to take on this function. When we look at the international role of currencies, the US dollar is still clearly number one and there are no signs of a rapid erosion of the international role of the US dollar. But since the 1970s the German mark, and later the euro, has been a competitor with the US-dollar. In 2014 around 60 per cent of international credits and international liquidity holdings were denominated in US dollars. In the same year the euro had a total share of around 25 per cent, with almost 50 per cent of international debt securities but below 20 per cent of international bank credits. The US dollar dominated even more in official reserve holdings and the denomination of internationally traded goods like oil or gas. Currencies like the Japanese yen, the pound sterling and the Swiss franc play a small international role (ECB, 2014). Several currencies at the top of the currency hierarchy give international wealth owners the opportunity to 'jump' from one international reserve currency to another according to the existing and, even more, the expected economic and political constellation.

Figure 3 shows the enormous instability of exchange rates after the breakdown of the Bretton Woods system. Changes in nominal exchange rates of 50 per cent or even more within just a couple of years have not been exceptional. However, not all countries introduced flexible exchange rates in the 1970s. In 2014, from the around 160 currencies, 43 were pegged to the US dollar, 26 to the euro, 8 to other currencies, and 12 to a basket of goods (IMF, 2014, Table 2). Most of the remaining currencies follow a regime of managed floating as completely flexible exchange rates would create excessive shocks which for most countries are difficult to digest.

**Figure 3. Monthly exchange rates of selected currencies against the US dollar**



Source: fxtop.com, monthly average data

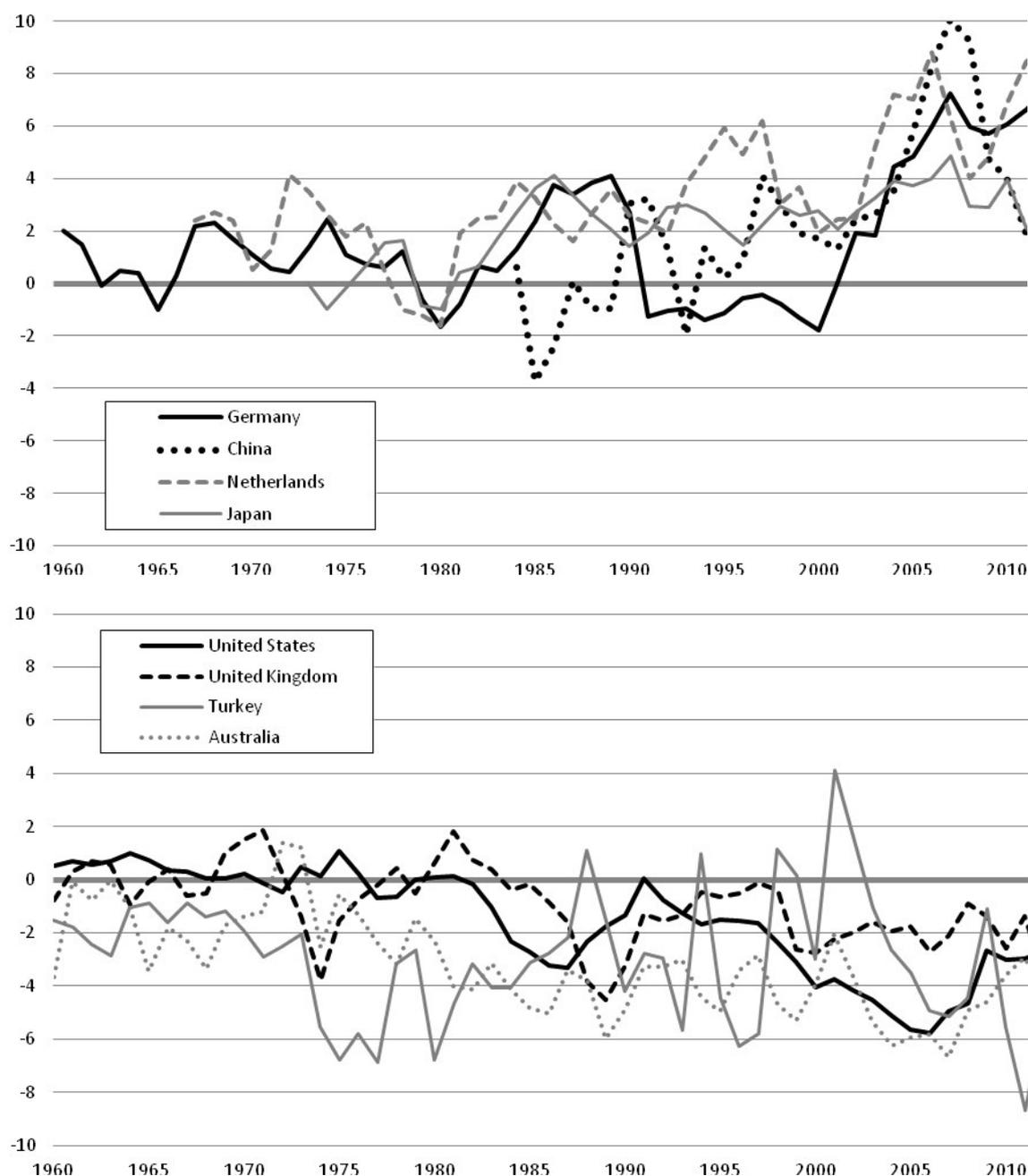
Unpredictable, volatile exchange-rate movements, especially in a medium-term time horizon, disturb more than just asset markets. Nominal depreciations can trigger depreciation-inflation spirals (see the excellent analysis of Joan Robinson (1938)); appreciations can push countries into deflation. Exchange-rate movements influence aggregate demand and thus economic activity. Appreciations can lead to the destruction of the international competitiveness of whole industries overnight – a costly destruction of productive wealth. Later, depreciations will not lead to the reconstruction of industries destroyed previously. Real depreciations in a situation of debt in foreign currency lead to an increase of the real debt burden and, potentially, currency crises.

The deregulation of international capital flows has allowed and at least partly created waves of current account imbalances unknown between the 1950s and the 1970s (see Figure 4). The relationship between capital flows and trade flows is complicated and depends on the concrete historical constellation. For example, as a result of high US capital imports in the first half of the 1980s, the USA experienced a strong dollar and an increasing current account deficit. After capital imports became weaker and the US dollar collapsed in 1985, the deficit was reduced to

almost zero. In this period, it was the capital flows which were primarily responsible for driving the imbalances in the current account. There are other constellations in which a high demand for imports leads to a capital import. For example, high demand for Chinese imports in the US triggered corresponding interventions by the People's Bank of China. Or the decision of a US importer to buy a German machine leads to a credit demand in Germany by a US importer and a German capital export. In any case, without capital flows current account imbalances are not possible. The key point is that under the Bretton Woods system, mechanisms existed to correct current account imbalances in case they became too big and such mechanisms were abolished after the breakdown of the system in the early 1970s.

During the decades before the outbreak of the Great Recession in 2007, the US assumed the functions of consumer of last resort for the global economy. The US received large capital imports which came partly from private capital flows but also from interventions in the foreign exchange market by central banks around the world which promoted a mercantilist policy to generate current account surpluses for their countries. The best example here is China with its huge foreign exchange market interventions. But other countries, such as Germany, Japan or some natural resource rich countries, also realised big current account surpluses. The US became the biggest debtor country in the world. As a mature international debtor country, the US was able to become indebted almost exclusively in its own domestic currency. This is a significant privilege as a depreciation of the US dollar does not increase the real debt burden of debtors indebted in US dollars. Overall, high current account imbalances lead to the danger of over indebtedness and financial crises. As the adjustment mechanism for current account imbalances is usually asymmetric and mainly falls on the deficit countries, the latter can fall into deep recessions and long stagnation. This reduces world growth, mainly in deficit countries but also in surplus countries.

**Figure 4. Current account imbalances in per cent of GDP of selected countries<sup>1</sup>**



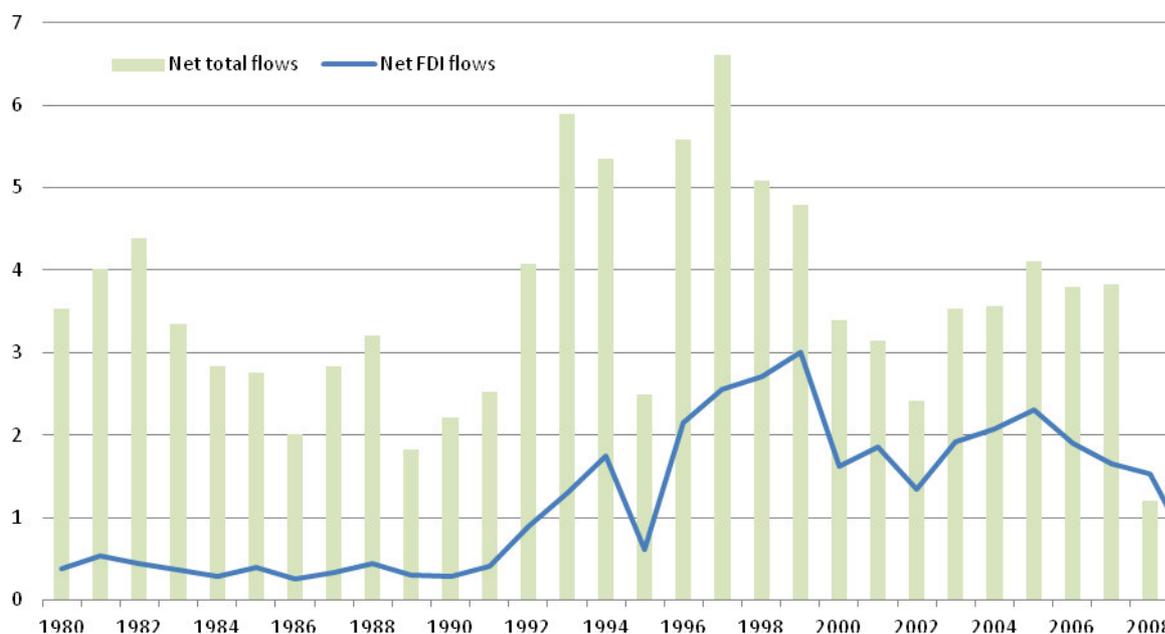
Source: IMF (2015). <sup>1</sup> Countries with biggest absolute deficit or surplus in 2014

Financial markets between developed countries became interconnected through huge capital flows, credit relationships and decisions by an international financial elite. The potentially disastrous effects of this interconnectedness became clear after the outbreak of the subprime crisis in 2007 in the United States. The crisis spread via financial capital flows to (mainly) developed countries, which had previously deregulated their capital account. Costly bailouts of financial institutions especially in developed countries became widespread. The Great Recession and the period of low growth after it brought enormous losses for the world economy.

The consequences of unstable capital flows are in many cases even more severe for developing countries than for developed countries. Developing countries with open capital flows suffer from boom-bust cycles. The boom phase of the cycle takes place on the basis of high confidence of foreign and domestic economic agents in the economic development of a developing country. Capital inflows typically add to asset price bubbles. A currency mismatch is created as debtors in developing countries often have revenues in domestic currency but have to pay back principal and interest in foreign currency. For many developing countries, the 'carry trade' which exploits interest rate differentials, leads to a high stock of short-term foreign debt. The financial system also suffers from maturity mismatch. A sharp depreciation in a high foreign debt situation leads to domestic liquidity and solvency problems. Thus, in developing countries big depreciations and domestic financial crises are like twins who stimulate each other (Kaminsky and Reinhart, 1999).

Since the deregulation of international capital flows in the 1970s, the world economy has experienced several boom-bust cycles (Herr and Priewe, 2011; Williamson 2005). During the first wave of capital flows to developing countries in the second half of the 1970s, capital mainly went to Latin America as other parts of the developing world still had capital controls (see Figure 5). Then, in the early 1990s, a huge new wave of capital flooded the group of developing countries. During this time most of the capital swept into Asian and transition countries which had opened their countries for foreign capital. The so-called Tequila crisis in Mexico in 1994 interrupted this boom cycle for a short time. This wave of capital flowing to developing countries came to a violent end when the Asian crisis in 1997 deeply affected Thailand, South Korea, Malaysia and Indonesia. The Russian crisis followed in 1998 and literally destroyed the Russian financial system. Finally, after struggling for so long, Argentina, a sweetheart of the IMF during the 1990s, fell into a deep currency crisis in 2001. In 2003 and in the years that followed there was a new wave of increasing net capital flows to developing countries, but this came to an end in 2008 when the Great Recession gained momentum. Also, this time several countries fell into a foreign debt crisis including Baltic and Central European states.

**Figure 5. Total net capital inflows and net foreign direct investment (FDI) into all developing countries in million US dollars**



Source: World Bank (2011), author's calculations.

The financialisation of foreign currency markets in the 1970s and 1980s has been the basis for a long sequence of economic shocks in developed and developing markets. Exchange rate movements and international capital flows have no anchor in fundamentals, as suggested by the neoclassical paradigm. With flexible exchange rates, an optimal allocation of resources is not possible (Obno, 1994). The opposite is the case: financialisation in the area of currencies led to a high level of uncertainty, disturbances of production processes and financial crises. It also increased the power of financial agents substantially. Agents in financial markets via portfolio shifts and/or credit rationing can pressure countries into finance friendly policies or can destabilise countries not obeying the logic of international financial markets.

### 3. Energy markets<sup>4</sup>

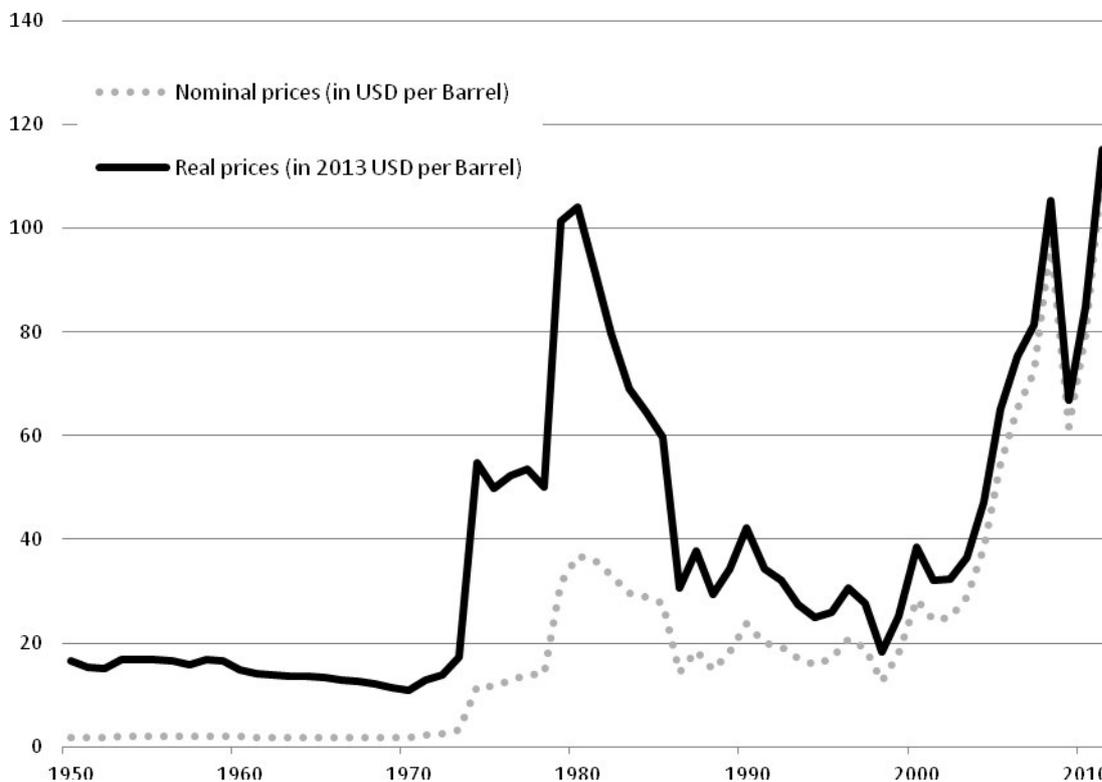
Historically, financialisation in energy markets has unfolded along two main lines: (1) the re-investment of revenues from royalties and profits deriving from a sudden increase in prices of natural resources (i.e., the petrodollars); and (2) the development of financial derivatives and future markets for energy. In this section the latter form of financialisation is discussed. We concentrate here on the market for oil as the key example of financialisation in energy markets.

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<sup>4</sup> This section draws on Ruzzenenti (2015).

After World War II oil prices were administrated by the large multinational oil companies which dominated the market. In 1973 the Organisation of the Petroleum Exporting Countries (OPEC) took over this function. As a response to the 1973 Arab-Israeli War OPEC increased the price of oil from 3 US dollars to 12USdollars in 1974. A second oil shock also enforced by OPEC and mainly triggered by a weak US dollar occurred in 1979 (see Figure 6). In 1986 the oil price collapsed reflecting relatively weak demand and the impact of several additional suppliers. For example, in 1985 Great Britain and Norway started to increase production and declared they would not follow OPEC's price policy. Consequently, the rise and fall of oil prices in the 1970s and 1980s was not caused by financialisation. The situation was different in the 2000s. Oil prices started to increase substantially in 2004 and dropped slightly in 2007. In 2008, a first huge oil-price hike occurred, followed by a sharp fall in oil prices and then in 2012 a new oil price hike, again followed by a sharp fall in spot oil prices. In spite of stable oil production, oil prices doubled between 2006 and 2008, dropped back below the 2006 level and then doubled again. This period of substantial increases and high volatility in oil prices cannot be explained by interventions of the OPEC cartel or other short-term supply factors. In the period before the Great Recession, world GDP growth and oil demand was relatively high, but this is also not a convincing explanation of the bubble which developed in the oil market. The two oil price hikes developed during and after the Great Recession which led to a reduction of world demand for oil. These developments are interrelated with financialisation tendencies in oil markets.

**Figure 6. Development of the price of oil**



Source: BP, 1950-1983 Arabian Light posted at Ras Tanura, 1984-2013 Brent dated; 2014-15 EIA, only nominal Brent dated

Between the years 1986 and 1988 most oil exporting countries switched from an administrated price system to a market-based one. This led to the development of a complex structure of interlinked oil markets consisting of spot markets, forward markets, futures, options and other derivative markets, which are referred to as paper markets, all of which developed during the 1980s. Technological innovations which made electronic trading possible revolutionised these markets by allowing 24-hour trading from any place in the world. It also opened access to a wider set of market participants and allowed the development of a large number of trading instruments both on regulated exchanges and over the counter (Fattouh, 2011).

The two major markets for oil are the New York Mercantile Exchange (NYMEX) and the Intercontinental Exchange (ICE), each trading a specific type of oil. The ICE became a centre for global petroleum risk management after its acquisition of the International Petroleum Exchange (IPE) in June 2001. In 2010, the daily average volume traded of ICE-Brent exceeded 400,000 contracts or 400 million barrels, more than five times the volume of daily global oil production (Fattouh, 2011). In the same year futures on Light Sweet Crude Oil (WTI) traded at NYMEX had a daily average volume of more than 475 million barrels of oil, around 6 times the size of daily global oil production (Fattouh, 2011). Other and smaller exchanges exist. In 2007, for example, the Oman Crude Oil Futures Contract was launched at the Dubai Mercantile Exchange.

Future markets for oil started to play a role in the 1980s, although they were not at first become a disturbing factor. This changed in the 2000s when investment in future markets triggered a huge bubble in the oil market (as well as other commodity markets). Several factors came together.

The Commodity Futures Modernisation Act of 2000 (CFMA) in the United States allowed most over-the-counter derivatives transactions to be exempted from control by the Commodity Exchange Act of 1936 or as securities under the federal securities law. This change in the law allowed banks, hedge funds and investment firms easy access to commodity future markets. The law was passed against the resistance of the US Commodity Futures Trading Commission.

Other factors also played a role. Investment in futures was boosted by new electronic platforms which dramatically reduced the costs of transactions and enhanced access to the market. In addition, newly created commodity indexes, such as the Standard and Poor's Goldman Sachs Commodity Index, facilitated investment in commodity future markets.<sup>5</sup>

In the early 2000s, academic literature demonstrated that commodity future contracts realise the same average returns as equities, while over the business cycle their returns are negatively

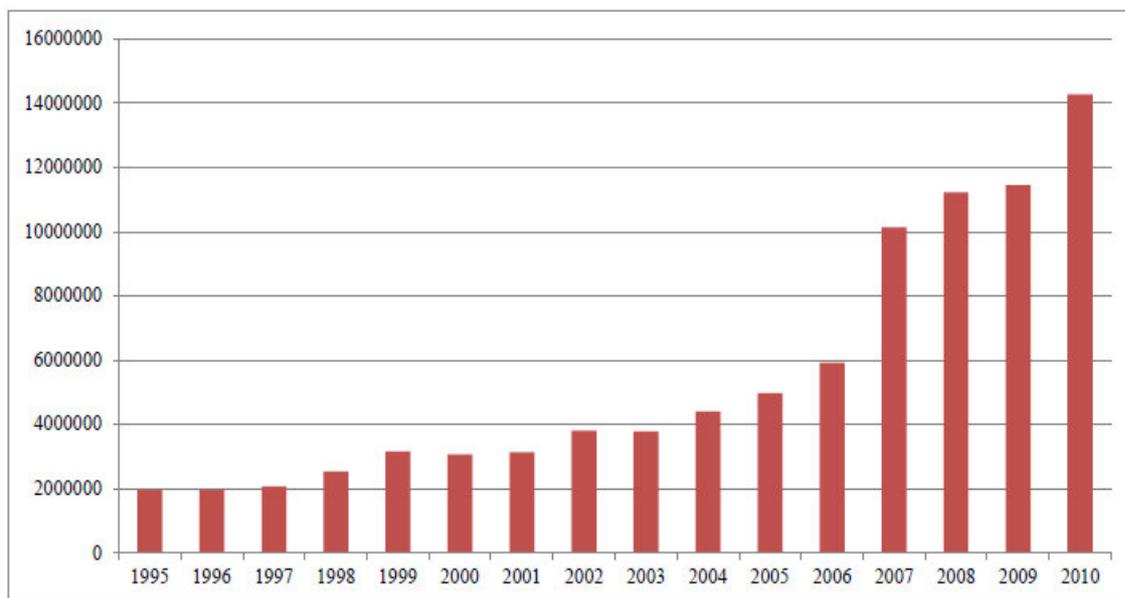
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<sup>5</sup> The index includes 24 commodities and was first calculated by Goldman Sachs in 1991 and taken over by Standard & Poor's in 2007.

correlated with those on equities and bonds. After the collapse of equity markets in the early 2000s at the end of the new economy bubble, investors were looking for high returns and investments which could reduce the risk of their portfolio. Commodity futures seemed to be ideal for this purpose (Gorton and Rouwenhorst, 2006).

Partly because of the changing law and partly because of the other factors discussed above, investment volumes in future markets of oil began steadily increasing in the mid-2000s and shot up before the outbreak of the subprime crisis. A decisive development has been that, since the early 2000s, commodity futures have emerged as a popular asset class for many financial institutions and pension funds (Winters, 2008; Tang and Xiong, 2010; UN, 2011). Institutional and other investors with nearly 30 trillion US dollars in assets under management started to substantially increase their investment in commodity futures. Assets invested in commodity indexes increased from 13 billion US dollars in 2003 to 317 billion US dollars in July 2008 (Masters and White, 2008). Figure 7 shows that the volume of oil traded in future markets increased dramatically in the 2000s. In 2010 oil traded in future markets was about six times larger than oil production (Fattouh, 2011, p. 55).

**Figure 7. Monthly averages in volumes (barrels) trades of the Light Sweet Crude Oil Future Contracts**



Source: Fattouh (2011), p. 55.

There can be no doubt that future prices after the early 2000s were driven by the investments of agents who were not directly involved in actually buy or selling oil. Expectations, and consequently investment in future markets, depend on specific economic, social and political constellations. Some of the investors in the future market for oil may have believed in ‘stories’ like peak oil being reached and that the oil price would go on increasing in the coming decades

and would not decrease again substantially. Others with a short-term horizon used the future market for oil for pure speculation.

There is no consensus in the academic literature as to the extent to which future oil prices determine spot oil prices. The answer depends on the volume of transactions in future oil markets, the extent the future market is driven by irrational expectations or short-term speculation, and the extent to which the arbitrage mechanism works. If, for example, speculation drives future prices of oil to very high levels and the arbitrage mechanism works, spot prices will be pushed up. Looking at the volume of investment in future oil markets and the change of the actors in the market to agents who are not involved in the oil industry, it becomes very likely that future oil prices are driven by speculation. Of course, the capacity to store oil and the costs of storage, including financial costs, are relatively high and can slow down the arbitrage mechanism. However, there seems to be no doubt that arbitrage takes place and that future markets play a role in determining spot prices.

There is a second important argument that future oil prices determine spot oil prices. It is well known that a large share of oil is traded by bilateral, long-term contracts, but what is not known is that in recent years most oil producers have switched from a pricing formula benchmarked to spot markets to a pricing formula benchmarked either to futures contracts or a sample of them. Even if the arbitrage mechanism does not work perfectly, the way that prices are set in the spot market makes future markets an important element of spot price determination (Fattouh, 2011).

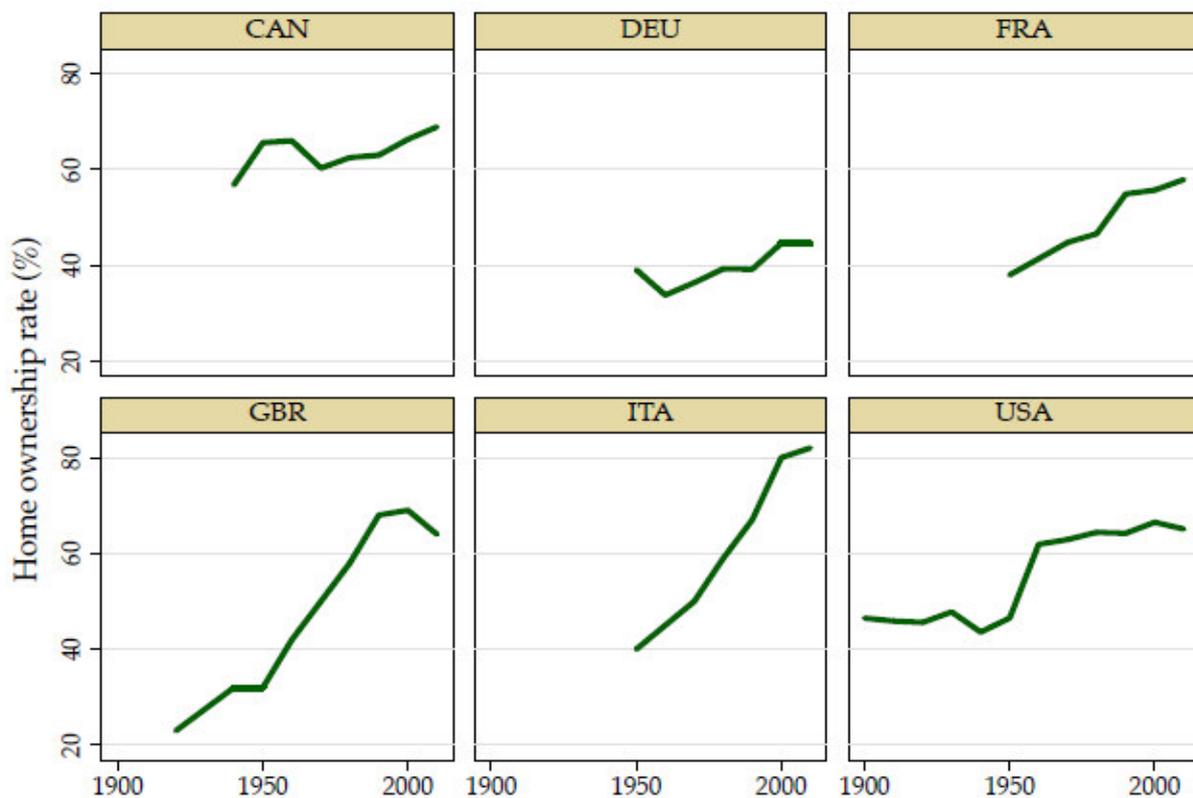
Most experts in the field have come to the conclusion that the future markets for commodities influence spot commodity prices. A United Nations report summarises this in the following way: 'The common view was that the role of financial investors had become more important in recent years. Due to their financial strength they could move prices in the short term, leading to increased volatility, which may harm markets and drive hedgers with an interest in physical commodities away from commodity derivative markets' (UN, 2011, p. 48). There seems to be a consensus that even when oil prices are mostly driven by fundamentals in the oil market, which means the expected demand and supply, financialisation amplifies price movements (see Kaufmann and Ullman, 2009; Kaufmann, 2011).

One last argument seems to be worthwhile mentioning. The correlation between movements of different energy prices was already very high in the last few decades. However, the correlation between the movements of different energy prices became even stronger after the early 2000s. At the same time, prices of non-energy commodities became increasingly correlated with oil prices. A key explanation for this is the increasing use of index trading (Tang and Xiong, 2010). This implies that financialisation does not trigger boom-bust cycles in single commodities but has a tendency to stimulate boom-bust cycles in all commodities at the same time.

#### 4. Residential property market

Home ownership has been steadily rising in most developed capitalist countries for many years. Figure 8 shows that the rate of home ownership in Britain increased from around 20 per cent in the early twentieth century to around 70 per cent in the early twenty first century. By the early twenty-first century owner occupation in four of the countries shown approached 60 - 70 per cent. In Italy the figure was even higher at just over 80 per cent. Even in Germany, where historically many middle-class households have rented rather than purchased property, home ownership has been rising.

**Figure 8. Trends in home ownership rates for six countries**



Source: Jordà et al. (2014), Fig. 3.

The growth of home ownership has been actively promoted by governments (Jordà et al., 2014). In a number of countries, for example, mortgage payments receive preferential tax treatment. Notoriously, Mrs Thatcher's government vigorously promoted the sale of public housing in Britain at highly favourable prices in a scarcely disguised attempt to gain political advantage amongst the predominantly working-class residents. In other countries publicly owned housing was also privatised for short-term budgetary or ideological reasons.

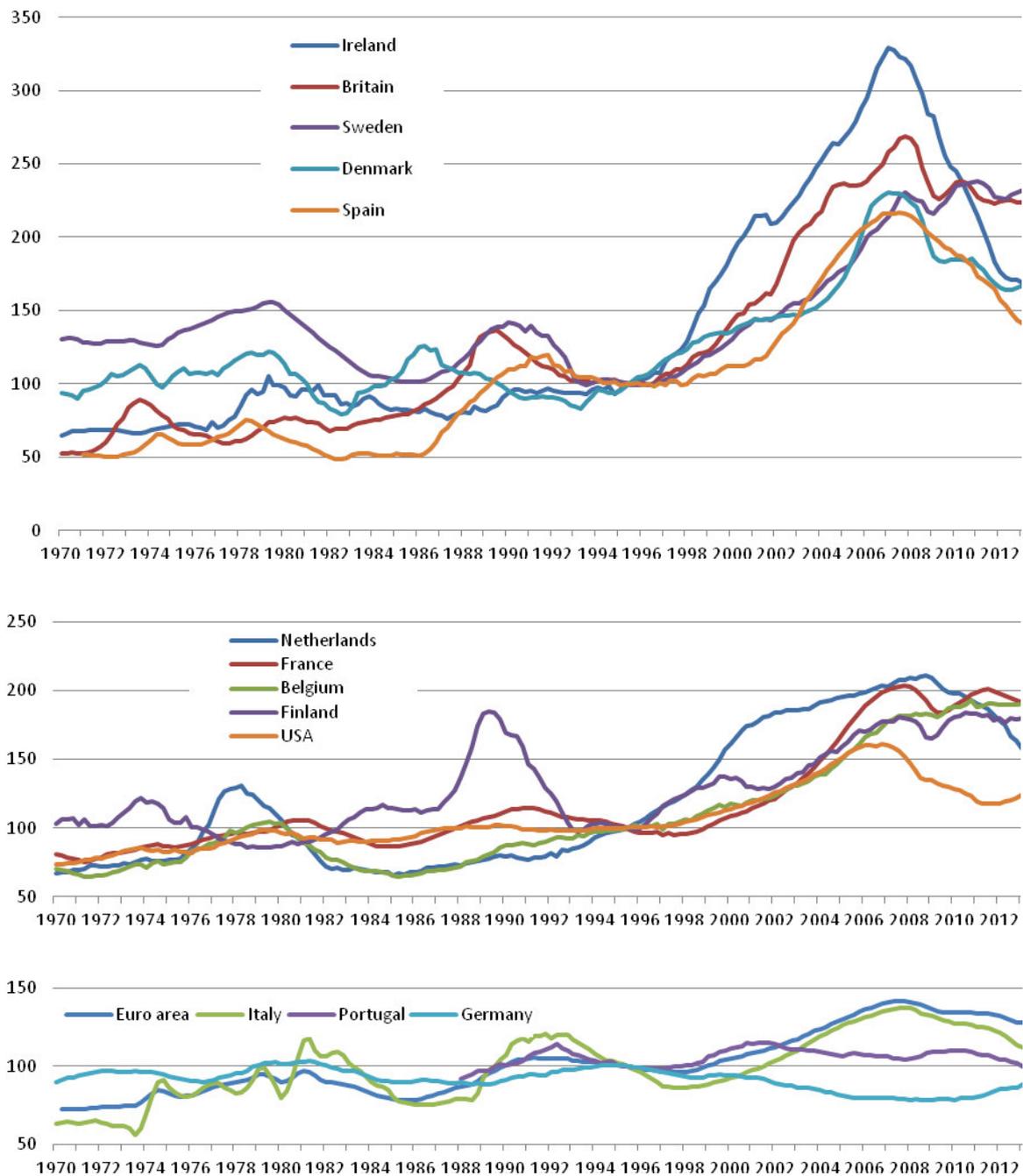
## House prices

Real house prices, as deflated by the consumer price index, were relatively stable from around 1870 up to the mid-20<sup>th</sup> century (Jourda et al., 2014). Then from the 1950s to the mid-1990s real prices registered a gradual rise, with the rhythm influenced by the pattern of the business cycle, so that prices rose more slowly or even fell during periods of recession. From the mid-1990s, however, there was an unusually strong rise in house prices across nearly all the developed capitalist countries, and this continued – with no decline during the international recession in 2001 – through to 2006 in the US and to 2007 or 2008 in most European countries (see Figure 9).

The scale of the rise in house prices varied between countries. The largest increases were registered in Ireland, where real prices rose by over 300 per cent, and Britain where they increased by some 250 per cent, followed by a large group, including Spain, France and several smaller North European countries, where prices rose by around 200 per cent. It is striking that, according to these figures from the OECD, the rise in the US was somewhat more modest. At the other end of the scale, prices increased more modestly in Italy and, despite a small rise in the early 2000s, remained flat in Portugal. The most striking exception to the general development in Europe is Germany, where real prices actually declined somewhat from the mid-1990s until around 2010.

The national figures provide a general indication of how house prices have developed but mask significant differences within countries. Scatinga and his colleagues from the Bank for International Settlement (BIS) (2014) note that house price indicators have different regional coverage, refer to different types of property, use different approaches to quality adjustment, and have different reporting periods. They examine the example of Germany, where there are four different indicators which give somewhat different messages about price developments. They also stress the significance of regional divergences within countries and note that in key markets, such as Manhattan and Central London, prices did not decline in the period between 2007 and 2009 as they did in the rest of their respective countries' housing markets.

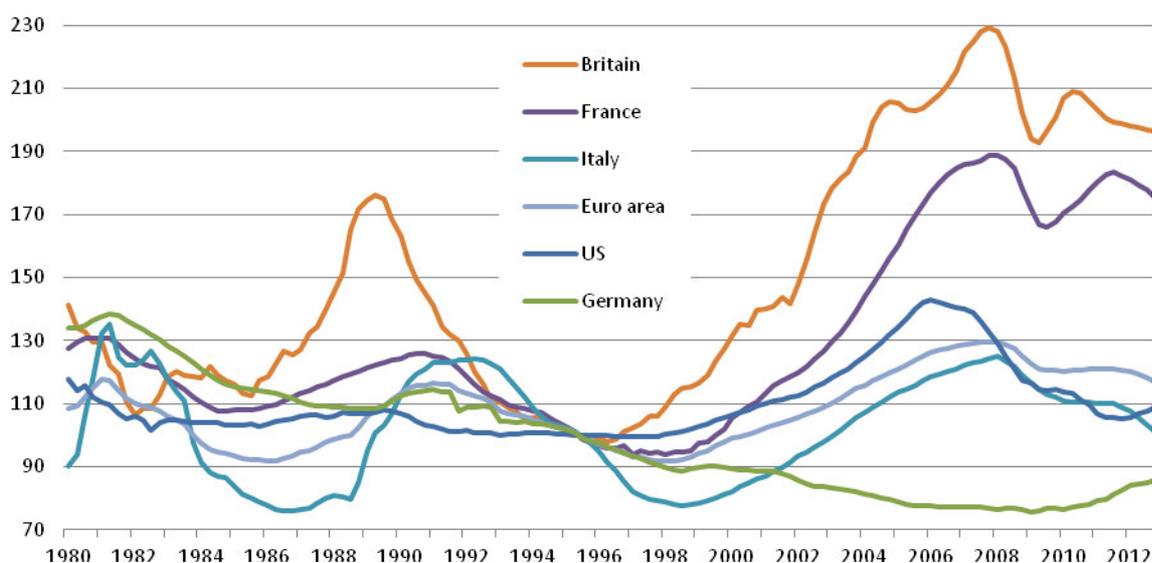
**Figure 9. Real residential house prices, 1970 - 2013 (1995 = 100)**



Source: OECD Housing Prices Database. Nominal prices deflated by CPI. Rebased from 2010 = 100.

The indicators shown in Figure 9 reveal that, in a number of countries, the decline in real house prices came to an end sometime between 2010 and 2013, and prices have since begun to rise again. This is the case, for example, in the US, Ireland, Britain and the Nordic countries.

**Figure 10. Nominal house prices relative to rent prices, 1995 = 100**



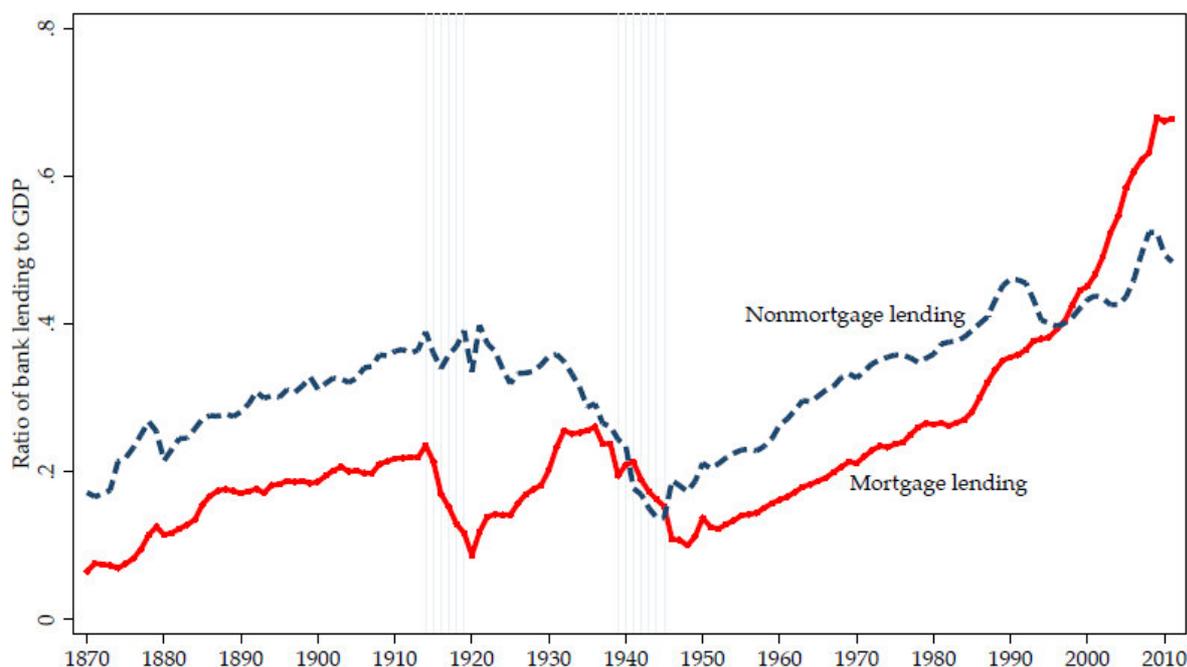
Source: OECD, *Housing Prices Database*, Price to rent ratio. Rebased from 2010 = 100.

In the US, house prices remained relatively stable in relation to rental charges through the 1980s and the first half of the 1990s, but then increased strikingly up to 2006, as shown in Figure 10. In Europe, the ratio of house prices to rental charges registered a more strongly cyclical pattern in the 1980s and early 1990s but without any upward tendency. Here too, however, there was a strong increase from the second half of the 1990s up to around 2008. Of the countries shown, Germany is the principal exception since the ratio of house prices to rents tended to decline from the early 1980s until around 2010, when they began to register a slight rise.

### **The growth of bank mortgage lending**

Figures for bank lending for residential and commercial mortgages in 17 countries show a steady increase in significance from the early 1950s to the 1990s, with average lending rising from around 10 per cent to 40 per cent of GDP (see Figure 11). The rate of increase then accelerated notably in the 1990s and by 2010 mortgage lending had risen to around 70 per cent of GDP. From the 1950s until the 1990s, banks' non-mortgage lending exceeded mortgage lending by around 10 per cent of GDP. However, from the 1990s, the growth of non-mortgage lending slowed markedly and from around 2000 mortgage lending exceeded non-mortgage lending. According to Jordá et al. (2014), by 2011 mortgages accounted for some 60 per cent of banks' balance sheets in the advanced capitalist economies.

**Figure 11. Bank mortgage and non-mortgage lending to GDP, 1870-2011, average for 17 countries (% GDP)**



Source: Jordà et al., 2014. Mortgage lending includes residential and commercial lending to business and household sectors.

The growth of bank lending for mortgages has been closely linked to the deregulation of housing finance. Until the 1980s, housing finance was carried out predominantly by specialist institutions. In the 1980s and early 1990s, however, deregulation led to a major shift of mortgage lending to commercial banks (Green and Wachter, 2007).

The US was one of the first countries to introduce such changes. Until the 1970s, more than a half of mortgages were held by federally regulated Savings and Loan Associations (S&Ls), where households would first accumulate savings and subsequently receive a mortgage at a preferential interest rate. In 1980, in the face of high inflation, the government abolished the legal limit on interest rates introduced in the 1930s, and this was followed in 1982 by the Garn-St. German Act, which liberalised the rules governing S&Ls. Since then, there has been a significant growth of mortgage lending by commercial banks. The bundling of large numbers of mortgage loans in securities which could be sold to investors, and the subsequent creation of highly complex instruments known as collateral debt obligations were at the centre of the crisis which broke in the US in 2007.

In Britain, households had saved towards buying a house through so-called building societies, which were set up as mutual organisations, and any profit was distributed to the members. The Building Societies Act of 1986 allowed these organisations to demutualise. They became privately-owned, profit-making commercial banks and, along with the existing commercial banks, have provided mortgage loans on commercial terms.

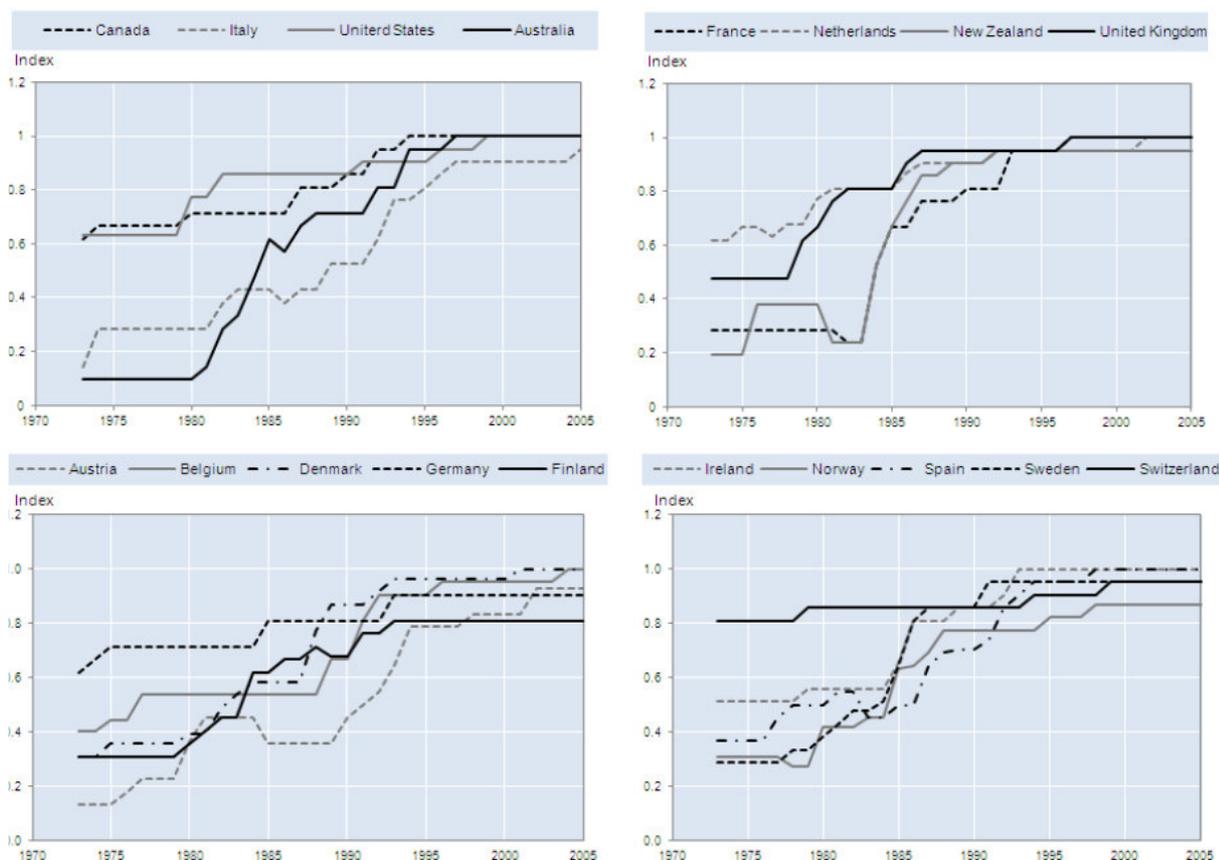
In Spain, housing finance was mainly conducted by local savings banks ('cajas de ahorros'), whose saving and lending rates were tightly regulated by the central bank. From the mid-1980s, however, regulations were lifted, allowing commercial banks to enter the housing finance market.

In Germany, where house ownership was much less common, finance had historically been provided by specialist mortgage institutions ('Bausparkassen'), where households were required to save at low interest rates in order to qualify for a mortgage, and which provided non-prepayable mortgages, funded through covered bonds. Here too, albeit slowly, this has been eclipsed by the rise of mortgage lending by commercial banks.

Green and Wachter (2007, p. 24) summarise developments in housing finance as follows: 'Throughout Europe similar changes were occurring. From heavily regulated and rationed systems modern housing finance emerged with funding increasingly supplied through market oriented commercial banks.'

The deregulation of housing finance was part of a broader movement of financial deregulation which is shown for a wide range of countries in Figure 12. This shows that between the early 1980s and the mid-1990s there was a widespread process of financial liberalisation. The process of deregulation included the dismantling of barriers to international capital flows. This facilitated a significant expansion of cross-border funding of mortgage lending, something that was especially significant in Spain and also in some Eastern European countries, although in countries where mortgages were extended in foreign currencies this led to unhappy situations when the local currency was devalued.

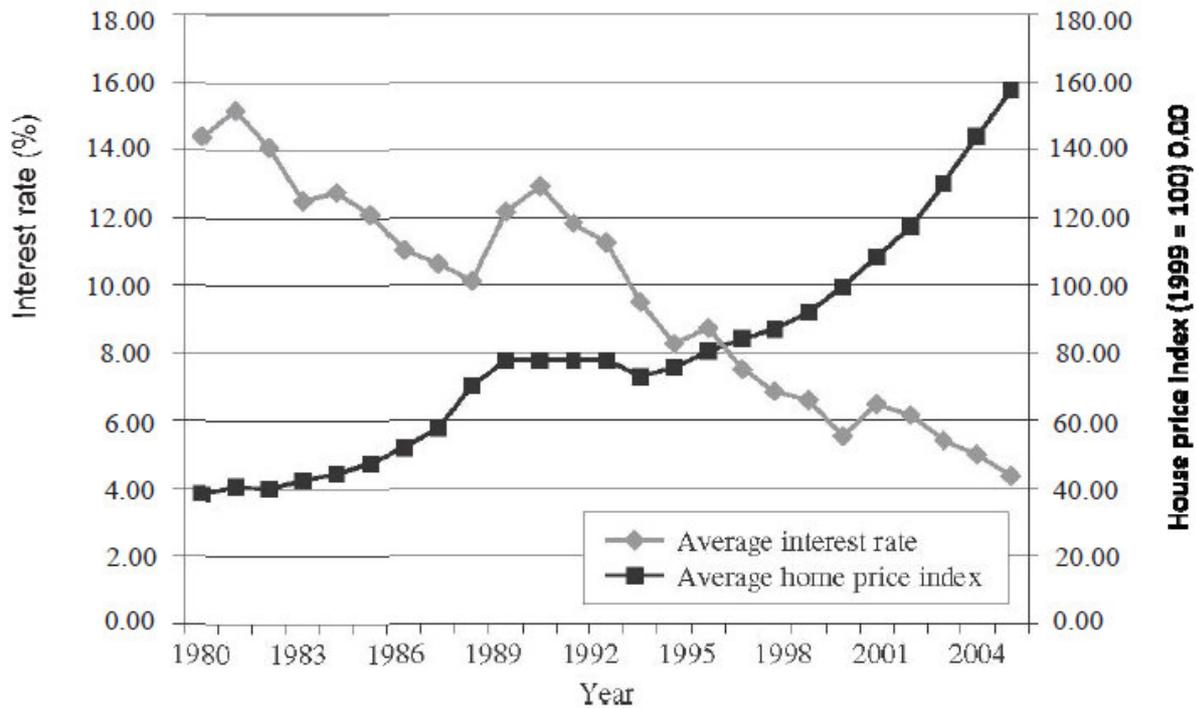
**Figure 12. Index of financial reform: selected countries**



- The index is based on the timing of the removal of: credit and interest rate controls and 'excessively high' reserve requirements, entry barriers, state ownership in the banking sector, capital account restrictions and securities market policy.
- Source: Andrews, 2010, based on Abiad *et al.* 2008.

Green and Wachter (2007) point out that there was a major decline internationally in nominal interest rates from the early 1980s and that this, combined with the link between global capital markets and national mortgage lending, contributed to lower mortgage-lending rates and an increase in the demand for mortgages. Figure 13 shows the inverse relationship between the interest rate and house prices. However, the influence of lower interest rates on house prices is disputed. Jordá *et al.* (2014) find evidence of a direct mechanism linking short-term interest rates and house prices. On the other hand, an OECD paper by Dan Andrews (2010) finds that the impact of interest rates on real house prices is small. In any case without the deregulation of the residential property markets interest rates would not have such a stimulating effect on mortgage lending and house prices.

**Figure 13. Average interest rate and home price index (nominal values)**



Source: Green and Wachter, 2007. Based on figures for Spain, Ireland, Britain, Netherlands, Belgium, United States, Japan, France, Canada, Italy, Australia, Sweden and Germany.

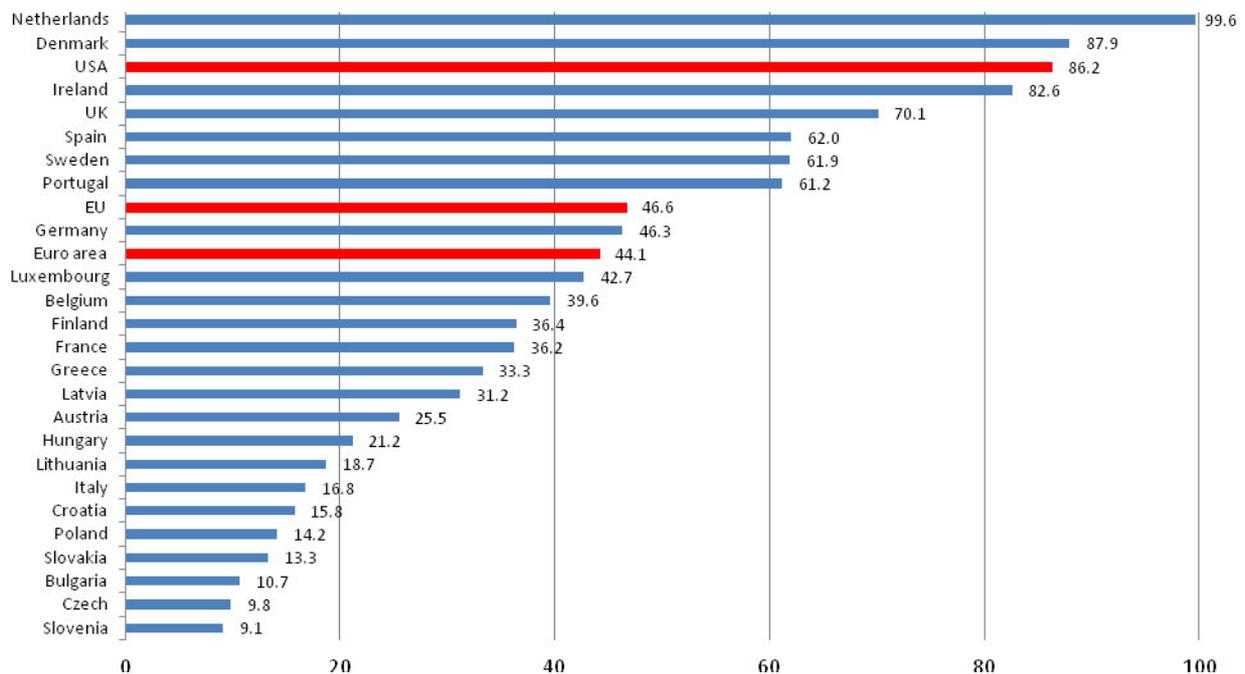
As shown in Table 2, long term mortgages have become available in a wide range of countries, with maturities generally ranging between 15 and 30 years. In most countries, mortgages cover between 60 and 80 per cent of the value of the property, although some countries have maximums that reach 100 or even 110 per cent, and the figure for the Netherlands is 125 per cent. In most countries mortgages now have variable interest rates although, in some countries, fixed interest rates are available. The value of outstanding loans as a percentage of GDP is shown in Figure 14 for 2008, at the end of the boom in mortgage expansions. This shows that mortgage debt ranged from around 100 per cent of GDP in the Netherlands, to a mere 16 per cent in Italy and even less in many Eastern European countries.

**Table 2. Characteristics of Mortgages**

	Typical length of contract (yrs)	Estimated average LTV (%)	Max LTV (%)	Mostly fixed or variable
<b>Europe</b>				
Austria	25	60		Fixed
Belgium	20	80–85	100	Fixed/choice
Denmark	30	Max 80	80	Fixed/choice
Finland	15–20	(variable)	75–80	Variable
France	15–20	78	100	Mostly fixed/choice
Germany	20–30 w. initial fix of 5-10	67	80	Fixed
Greece	15	55		Variable
Ireland	20	80	100+	Variable
Italy	5–20	55	80	Variable (mixed)
Netherlands	30	87	125	Fixed (mixed)
Norway	15–20	70		Variable
Portugal	25–30	83	90	Variable
Spain	15–20	70	100	Variable
Sweden	30–45	80-95		Variable
Switzerland	15–20		80	Mixed
UK	25	69	110	Variable
<b>North America</b>				
Canada	25	60	75 or 95 (w/ins)	Fixed/variable
US	30	76	100+	Fixed (mixed)

Source: Warnock and Warnock, 2008, Tables 1 & 2. Based on sources for 2003-2005. LTV = loan to value; MD = mortgage debt.

**Figure 14. Outstanding residential loans as % GDP, 2008**

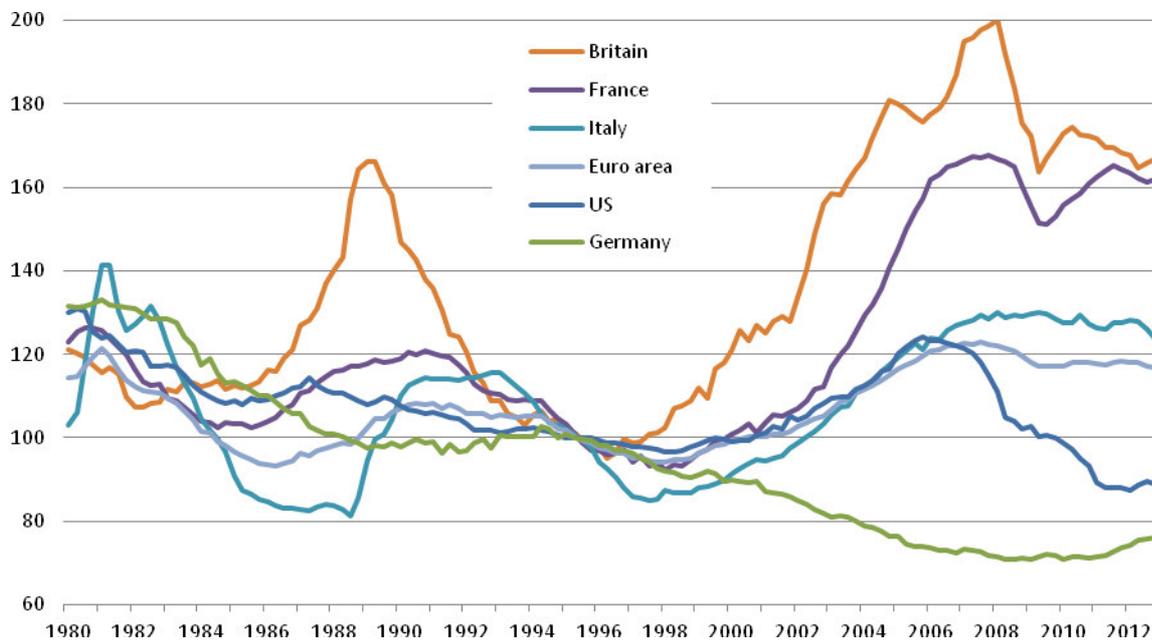


Source: European Mortgage Federation, 2014

## The impact of financial deregulation on house prices

According to Andrews' survey paper for the OECD (2010), house prices have historically tended to rise in line with households' disposable income. He estimates that the long-run elasticity is close to one. In fact, the figures from the OECD's own data base, shown in Figure 15, suggest that in the US there was even a slight decline in the ratio of house prices to income between 1980 and the mid-1990s, while in other countries there was a cyclical pattern around a relatively stable level. It is striking that the countries with the lowest real wage growth (Italy, Portugal and Germany, where real wages did not rise at all between the late 1990s and the peak of the housing bubble) were the countries which registered the lowest rise in house prices.

**Figure 15. House price to income ratio, 1995 = 100**



Source: OECD, *Housing Prices Database*, Nominal house prices divided by nominal disposable income per head. Rebased from 2010 = 100

Since the mid-1990s, the historical pattern of house prices registered a break and began to increase much more strongly. There is widespread agreement that this was closely related to the deregulation of housing finance. In his study of the OECD countries, Andrews (2010) concludes that financial deregulation and mortgage innovations resulted in a noticeable increase in the demand for housing. He examines the impact of a variety of factors on real house prices and estimates that financial liberalisation accounted for some 30 per cent of the rise.

The impact of financial deregulation on house prices has been especially emphasised by Robert Shiller (2007). He concludes that the marked bubble in house prices that developed from the late 1990s cannot be explained in terms of fundamentals, such as rents or construction costs. Instead, he draws on the psychological insights of behavioural economics and argues that, as house-prices began to rise, housing came to be perceived as a great investment, and that a

feedback mechanism or 'social epidemic' developed which attracted more and more investors. The unsustainable nature of the rise in house prices was demonstrated by the subsequent decline in house prices in nearly all the countries which registered strong increases.

In addition to the general impact of financial deregulation, Andrews (2010) also points to several other factors which had an influence on house prices. He notes that prices increased especially strongly in countries, such as Ireland and Spain, which registered a net growth in the size of the population. He also argues that the extent of the price rise was influenced by the responsiveness of supply which, he claims, was more rigid in Britain and Continental Europe than in the US and the Nordic countries. He also points to the scale of tax relief on mortgage payments, something which was particularly significant in the case of the Netherlands.

## **5. Conclusion**

The markets for foreign exchange, energy and residential housing have all been strongly affected by the deregulation and expansion of the financial sector. One key result has been that, as a result of deregulation, these markets have begun to follow the logic of asset markets. This was especially marked in the case of the foreign exchange market from the 1970s, but has also been the case to some extent for residential housing markets since the mid-1990s, and more strongly for energy markets since the early 2000s.

The transition to functioning as asset markets has resulted in attracting more speculative-oriented investors to the three markets. This has been most marked in the case of foreign exchange markets, where some 95 per cent of market trading is dominated by financial institutions – predominantly large banks – taking short-term positions in currencies. But it is also true of the energy markets, where new instruments make it possible to open and close speculative positions very rapidly, and – to a slightly lesser extent – residential property markets. The close link between the different markets was demonstrated in the first half of 2008 when, following the collapse of complex securities based on house mortgages in the US, there was a major inflow of short-term capital into energy and other commodity markets prompting an unprecedented spike in prices.

An important feature of this shift to behaving as asset markets is that prices are driven by long-term expectations which lack a firm anchor and which can move within a very wide, weakly defined range. This is especially true in the case of currency markets and also for energy markets although somewhat less so for residential property markets, where production costs have a greater influence in the longer term. With no or weak long-term anchors, prices are subject to extensive shifts in long-term expectations and short-term speculation.

The increased importance of speculative positions has resulted in a marked rise in medium-term price volatility in which investments are driven by boom-bust cycles. This was evidenced between 2002 and 2008 by the strong rise – and subsequent decline – in the value of the euro, in energy prices and, although it began even earlier, of house prices.

The marked instability of the three markets has contributed to greater instability in the broader economy. One direct effect is that uncertainty about future price developments in the three markets has increased overall uncertainty in the economy. More specifically, the cumulative impact of price rises contributes to the rise in indebtedness and to an accumulation of financial tensions which can culminate in a crisis. Asset price inflations and deflations combined with periods of credit expansions and contractions can lead to spill-over effects which have an impact on the entire economy.

These results lead to a very clear policy conclusion. The deregulation of currency, energy and housing markets has led to far greater price volatility and the rise of unsustainable price and credit bubbles which, when they burst, can pose a significant threat to financial and economic stability. In order to guard against this in the future, it is important that these three markets should be subjected to new and appropriate forms of regulation.

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