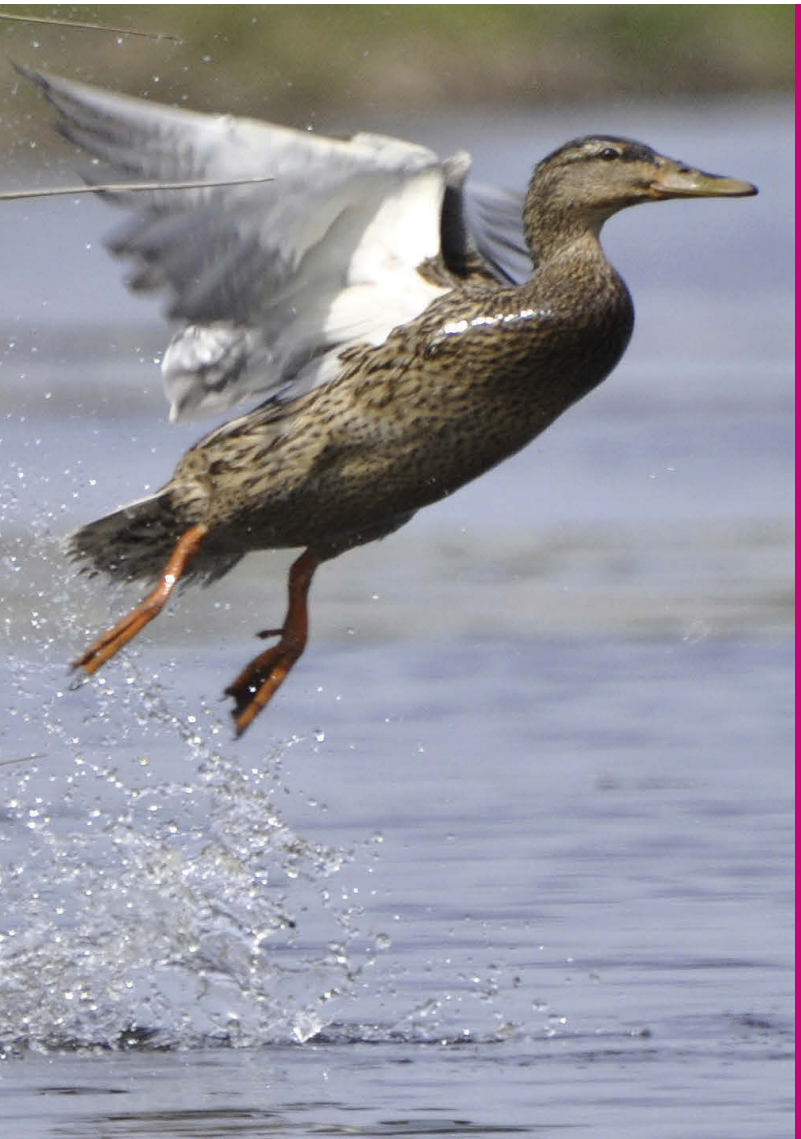
CPB Netherlands Bureau for Economic Policy Analysis

Uncertain supply | *Fragile demand*



Roads to recovery

George Gelauff
Debby Lanser
Albert van der Horst
Adam Elbourne

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Preface

The economies of Europe and the Netherlands have suffered the most severe crisis since the Second World War. The damage to the Dutch economy has been substantial and the crisis has affected many. The current outlook suggests better times, but the precise manner in which the recovery will occur is still unclear. The road to recovery could be steep uphill with many ups and downs, it could be arduous but without severe challenges or it could prove to be a relatively easy walk in the park. The run off to recovery brings the take off of a duck to mind. The duck struggles to make its way from the lake, water splashing around; it may lose momentum or face headwinds and stay close to the surface or it can soar into the sky.

The financial crisis took many economists by surprise. After studies on the origins of the crisis, this book focuses on the aftermath. It presents an overview of stylized economic developments after financial crises in the past, analyses the actual developments in the Netherlands up until now and provides a map for the future ahead, with various roads and associated challenges. This book originated from the authors' curiosity about the current state of the economy, after six years of stagnation, high unemployment and debt, and falling inflation. The reader is invited to share their journey.

George Gelauff, Debby Lanser, Albert van der Horst and Adam Elbourne are the intellectual parents of this book. However, it could not have been written without the help of a large group of experts within CPB. First, the authors of the several chapters, with a special gratitude to Marcel Lever and Wim Suyker, who have participated as critical observers since the beginning of this project. Then, a large group of experts who assisted in the drafting of the scenarios, in particular Frank van Es, Marco Ligthart and CPB staff members from the sector Public Finance. Jeanne Bovenberg improved the English. In the final days of the project, Dick Morks, Nico van Leeuwen and Jeannette Verbruggen provided the all important finishing touches. They all did a great job!

Laura van Geest

1 A newborn spring and a newborn sound?

Debby Lanser, George Gelauff, Albert van der Horst and Adam Elbourne

Een nieuwe lente en een nieuw geluid:
Ik wil dat dit lied klinkt als het gefluit,
Dat ik vaak hoorde voor een zomernacht,
In een oud stadje, langs de watergracht --
In huis was 't donker, maar de stille straat
Vergaarde schemer, aan de lucht blonk laat
Nog licht, er viel een gouden blanke schijn
Over de gevels van mijn raamkozijn.

A newborn spring and a newborn sound:
I want this song like piping to resound
that oft I heard at summer eventide
in an old township, by the waterside –
the house was dark, but down the silent road
dusk gathered and above the sky still glowed,
and a late golden, incandescent flame
shone over gables through my window-frame.

Herman Gorter (Mei, 1889)[1]

[1] English translation http://www.poetryinternationalweb.net/pi/site/cou_article/item/18434/Herman-Gorter-an-introduction/en.

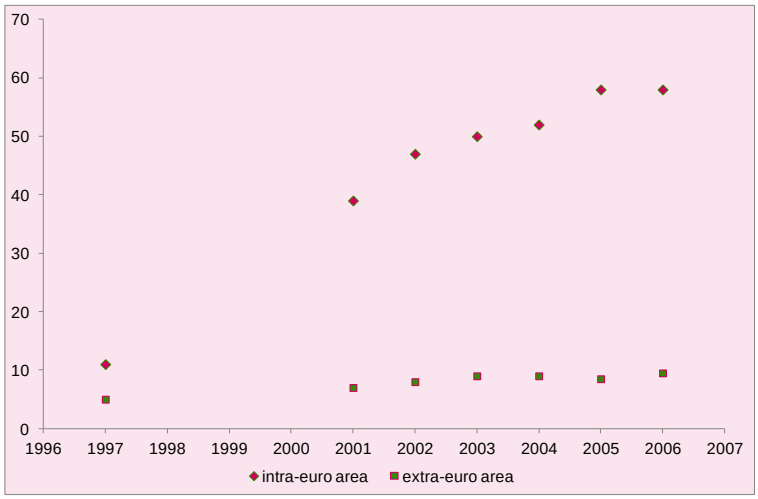
- The Great Recession has struck hard in industrialised countries: a permanent loss of some 6% of GDP, high unemployment, exploded private and public debts.
- The economy has not lost its resilience, growth potential is unaffected. Uncertainty is explored in *Moderate Recovery* and *Accelerated Recovery*.
- Recovery will take time, threatened by weak demand, which is explored in *Delayed Recovery*.

1.1 How it all began

The fall of Lehman brothers in September 2008 was the start of the worst crisis for the Dutch economy since the end of World War II. Dutch GDP fell 3.7% in 2009, and subsequent growth has been anaemic, especially when compared to the pre-crisis trend. The fall of Lehman Brothers resulted from risky investment in US mortgage-backed securities, the values of which had become uncertain when the US housing market downturn started in 2005.

Cross-border financial linkages became ever deeper and more complex, and investments in risky assets surged, see Figure 1.1. Up until the outbreak of the crisis, US banks had flourished, fuelled by capital inflows from foreign investors. China and the oil-producing countries had built up large saving surpluses, which were readily invested in the US and especially into new high-risk mortgage products. The US government had stimulated these so-called Alt-A and subprime mortgages, enabling low-income families to buy their own homes. Many of these mortgages required little or no information on household income, which was fine as long as house prices continued rising. By the end of 2007, 10% of US mortgage debt consisted of mortgages in the Alt-A or subprime class.

Figure 1.1 Cross-border financial linkages became ever deeper (% bond holdings; source: European Central Bank's *Financial Integration Indicators* database)



The riskiness of assets in the US economy continued to increase, yet largely unseen because these risks were well-hidden in complex financial products. Banks bundled mortgages into investment-grade securities. Since house prices seemed to reflect developments in uncorrelated regional housing markets, banks reasoned that bundling high-risk mortgages from different regions would transform risky mortgages into safe securities. Securitisation enabled banks to share the risks in the underlying mortgages even further by chopping up the bundle into smaller tranches. A complex system of financial innovations emerged. Bundles, tranches and so forth were insured by other financial institutions, and in turn sold on to other market participants. Mortgages were given to households that seemed to be less and less creditworthy. The quality of the associated mortgage products fell. However, due to the complex process of securitisation, it was hard, if not impossible, for the end buyer to see the underlying risks also because rating agencies failed to flag those risks.

An explosive, seemingly successful, mixture arose, which was at the roots of a severe global financial crisis. Success had followed success, and unhindered by supervisors banks cut down on equity. The financial system was booming, with carefully hidden underlying risks. When the US housing market slowdown turned into a nationwide collapse of home prices, the complexity of the mortgage-backed securities ensured that no-one could tell who was exposed to what. As a result, market participants no longer trusted one another: previously esteemed financial institutions could in fact be worthless, due to the hidden losses on their mortgage-backed securities. Interbank transactions dried out as mutual trust evaporated (Ewijk and Teulings, 2009). The mortgage-backed securities had also been eagerly bought by European financial institutions. So, when Lehman Brothers fell in September 2008, the problems with the US financial system morphed into a global banking crisis. A severe credit crunch resulted. The problems in financial markets quickly spilled over to the real economy, witnessed by unusually deep falls in the GDP of developed countries amidst a global recession.

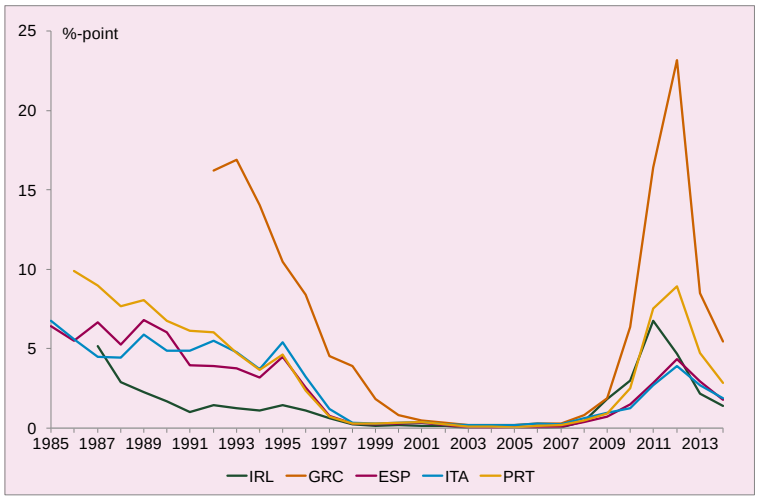
In Europe, the increasing international interrelatedness in financial markets had strongly raised risks. After the introduction of the euro, large firms in euro area countries no longer borrowed from domestic banks, but increasingly issued bonds in euros (Teulings *et al.*, 2011). Also banks financed mortgages and construction projects abroad. For instance, German banks invested heavily in Spanish and Irish real estate. On the other side of the balance, banks opened subsidiaries abroad and lenders increasingly invested their money in banks or investments funds, which came from another country or operated on a European scale. Mutual lending among banks also internationalised further. International interrelatedness implied that more and more banks became exposed to risks from abroad. For instance, the collapse of the Spanish real estate market directly hit Spanish, French and German banks. Since banks in other countries owned loans to these banks, the shock on the financial market spread all over the euro area. Yet, banking supervision remained largely national, complicating effective supervision on the international activities of financial institutions.

In its wake a second crisis, a sovereign debt crisis, emerged. Deep recessions caused tax revenues to fall and government expenditure to rise, worsening government finances across

the developed world. Added to this were the direct costs of bank bail-outs and the implicit value of the government guarantees for too-big-to-fail banks, which further worsened the financial health of euro area sovereigns. The rapid deterioration of government finances in the euro area turned the banking crisis into a government debt crisis.

When Greece's solvency was publicly questioned, the instability of the euro became apparent. The government debt crisis further undermined faith in the financial soundness of euro area banks, since they held large amounts of supposedly risk-free government debt on their balance sheets. In fact, since the introduction of the euro, risk premia for euro area government debt had converged to such an extent that Greek government debt was seen as only marginally riskier than German government debt, see Figure 1.2. Euro area countries were trapped in a vicious circle: weak governments couldn't afford to rescue their own banks, which would fail if governments defaulted on their debt. Weak banks and weak sovereigns were caught in a suffocating embrace, not only domestically but in a complex web of interrelations between European countries.

Figure 1.2 Interest rates on government debt decreased in the run up to the EMU, increasing sharply in the Great Recession, falling after the announcement of OMT



Confidence in assets of banks and in loans by governments evaporated in Europe. CDS spreads on large European banks soared. Interest rates on government bonds skyrocketed in Greece, Ireland, Italy Portugal, and Spain, while they fell in 'safe heaven' Germany. Fear spread that a large European bank would collapse and could not be saved, because it was too big for its homeland government. Risks previously unthinkable in Europe became real: one of the euro area countries might default on its debts. Perhaps the European rescue funds that were being established might be able to handle a default of Greece; they would surely be much too small to absorb the collapse of Italy. Moreover, early resolution of the crisis in Greece appeared out of reach. Complex decision making in the euro zone and European Union did not contribute to efficient crisis management.

In the mean time, interest rates on government debts soared for some countries. This initiated fiscal consolidation programmes, also in northern euro area countries, to convince

financial markets that they would not let their public debts go out of hand. In addition, European rules added to the consolidation drive as public balances fell below the threshold of 3% and public debts rose far above 60%. In the Netherlands, for instance, the government announced consecutive consolidation policies of, on average, 1% of GDP each year for the period 2011 until 2017, which is approximately 54 billion euro in total (Suyker, 2013). Governments raised taxes and cut back on expenditures. In the Netherlands, like in most countries, it proved hard to restore deficits to the European norm of 3%.

Throughout the Great Recession monetary policy acted ever more vigorously. Central banks lowered their policy interest rates to 'historically low levels' (Pattipeilohy *et al.* 2013). After Lehman Brothers collapsed in September 2008 over a period of seven months the ECB lowered its main refinancing rate from 4.25% to 1%. In Europe early signs of recovery, especially in Germany, made the ECB raise its refinancing rate by 0.25 %-points on April 13, 2011 followed by a second step of the same size on July 13. This policy change was rather controversial; the first step came just after Portugal asked for European help with an escalating financial crisis. The recovery proved short-lived. After the euro zone headed for its second dip, on November 9 2011 a cut by 0.25 %-points initiated a period of steadily decline. On June 5, 2014 after a cut by 0.10% points the ECB refinance rate reached a level of 0.15%. Moreover, as the first of the major central banks the ECB made commercial banks pay to deposit money. It set the interest rate on its deposit facility at -0.10%.

Besides rate cuts, central banks massively provided liquidity to the financial system. Already in August 2007 when some European banks faltered after the collapse of the subprime mortgages in the US, the ECB made 95 billion euros available to banks (Peet and La Guardia, 2014). Other central banks quickly followed. Provision of liquidity became essential in 2008 after the Lehman demise made the interbank market dry up and banks on the brink of a breakdown needed liquidity support. Quantitative easing made the FED's balance sheet swell from some $700 billion of Treasury notes before the crisis to a peak of $2.1 trillion of bank debt, mortgage-backed securities and Treasury notes in June 2010. In Europe after Lehman the Enhanced Credit Support facility of the ECB provided unlimited liquidity to banks. From May 2010 onwards the ECB intervened in the market for euro area government bonds with its Securities Market Programme. In late 2011 two ECB Long Term Refinancing Operations (LTROs) injected one trillion euros in the financial system. European banks largely invested the money in government bonds. That helped to reduce the interest rates on government debt, but hardly reached the private sector.

Ultimately in Europe the ECB had to substantiate the lender of last resort position of the central bank. Despite the LTROs in the summer of 2012 amidst great unrest about the financial stability of public finances in the periphery countries, spreads on public debt kept on rising. On July 26, 2012 Mario Draghi, addressing a group of investors in London, said: 'Within our mandate the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough.' (Peet and La Guardia, 2014). Soon it became clear what Draghi had in mind. On August 12, 2012 the Governing Council of the ECB announced the outright monetary transactions (OMT) programme. Under the OMT the ECB promises to buy bonds in the secondary market of a troubled euro area country in order to break a vicious circle of

ever rising interest rates on that country's debt. The extent of these buy ups being unlimited. This policy appeared effective, without the OMT ever being used, gradually interest rates on government debts in the troubled countries began to fall.

A heated debate has raged in economics on the need for consolidation in the crisis. Higher taxes and lower public expenditures caused a further reduction of private consumption and investment, which intensified the drop in demand. By consequence, consolidation contributed only marginally to the fall of the government debt ratio. In fact, it might even have raised it (Delong and Summers 2012). With monetary policy largely ineffective because central banks' policy interest rates had reached the zero lower bound, only fiscal policy remained to prevent a collapse of demand. Keynesian economists emphasized that in particular Germany and its neighbours should have stimulated demand in Europe by fiscal expansion. Others stated that monetary policy remained effective; it only had to become as unconventional as it was in the US. Quantitative easing could have stimulated demand as well (Altavilla *et al.* 2014), which meant that there was less need for fiscal expansion. Moreover, fiscal expansion in Germany would have destroyed the last confidence in the Stability and Growth Pact and would have undermined budget discipline for many years to come.

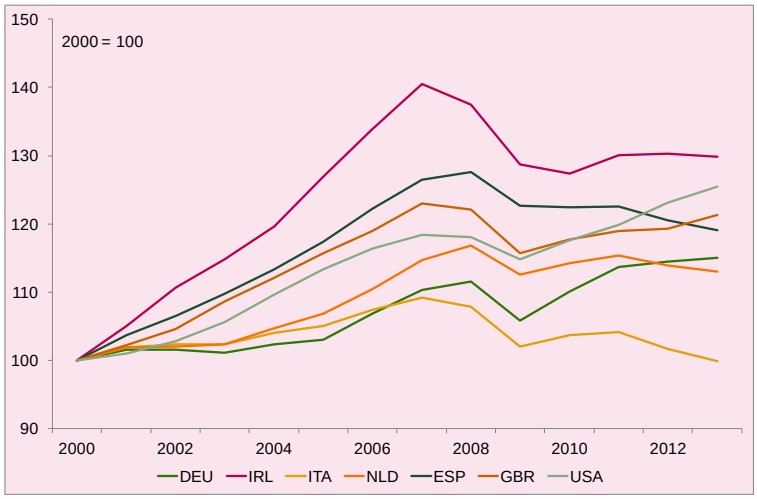
The Netherlands was no exception to the crisis, even more so because it had a large financial sector consisting of five main banks. In the period starting from 2008 onwards to the present, the Dutch government has provided direct support to four of these banks. The experience of massive interventions in the financial sector made the Dutch government vividly more aware of the need to prevent contagion between risks in private and public indebtedness. In 2011, the Dutch government converted to consolidation policies in order to straighten out its finances.

In the remainder of this book, we refer to the double dip described above as the "Great Recession". When for reasons of clarity it is necessary to disentangle the two, the first crisis will be referred to as the *financial crisis* and the second crisis as the *euro crisis*.

1.2 Setting the scene

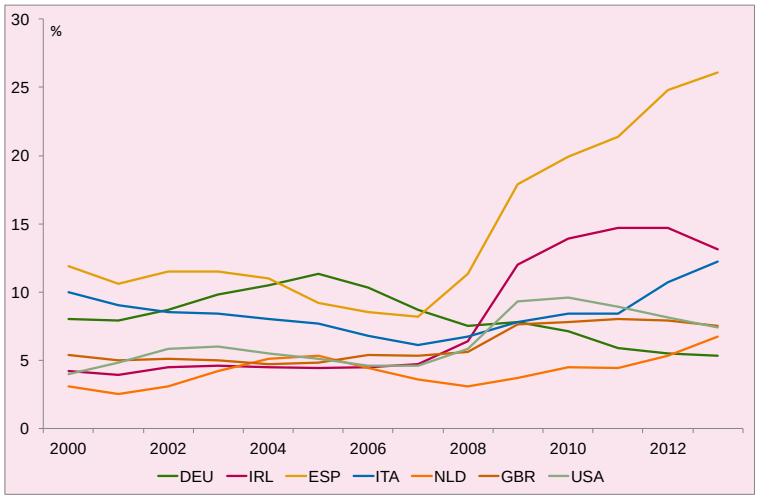
The Great Recession has caused significant and persistent damage to economies worldwide. Prior to the crisis, GDP grew steadily in most developed countries in what was the tail end of the "Great Moderation". That came to an abrupt end when the financial crisis started. Across the developed world, GDP per capita fell sharply; in many cases, declines in GDP of this magnitude had not been seen since the Great Depression of the 1930s. Figure 1.3 shows that the Netherlands has not been an exceptional case. In the Netherlands, GDP fell by 3.7% in 2009, which was similar to France and Spain but significantly less than Germany or the UK. Since then, Dutch GDP has only grown slowly, if at all, making it one of the worst performers in core Europe. The average growth rate from 2010 onwards has been just 0.1%.

Figure 1.3 The crisis interrupted GDP growth (2000=100; Source: OECD)



Not surprisingly, a crisis of this magnitude has significant effects on labour markets worldwide. Although most developed countries experienced sharp falls in GDP, their labour markets reacted differently. In Spain, the real estate bubble burst, many people in the construction industry lost their job and unemployment skyrocketed after the onset of the crisis. Other countries, notably the US and the UK, also saw unemployment rise quickly after the onset of the crisis, although much less than in the European periphery. The Netherlands, in contrast, has experienced a delayed response of unemployment, as can be seen in Figure 1.4. Initially, unemployment remained relatively low, in large part due to labour hoarding, before beginning to rise sharply in 2012 and 2013. By December 2013 unemployment[2] was 6.8% and is projected to still be around 7% in 2015 (CPB, 2014).

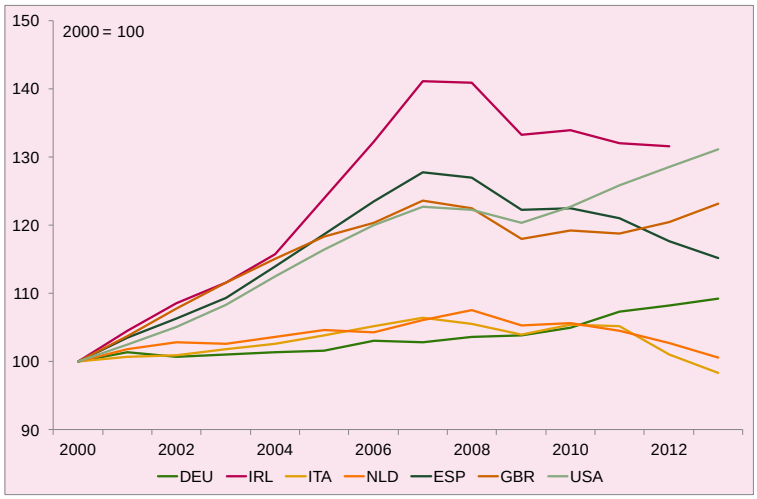
Figure 1.4: Unemployment response to the crisis differed between countries (Source: Eurostat)



[2] International definition (Source: CBS).

Lower incomes and higher unemployment rates hit consumption expenditure. As shown in Figure 1.5, many developed countries had seen steadily rising household consumption before the crisis, with Germany and the Netherlands lagging behind. Consumption fell in 2009 after the onset of the banking crisis, and has stagnated or fallen further in many euro area countries, with the exception of Germany. The worst performer in this group of core countries is the Netherlands, where since the start of the crisis private consumption has steadily fallen and is now at a similar level to 2000.

Figure 1.5 Dutch consumption fell as opposed to other European core countries (2000= 100)

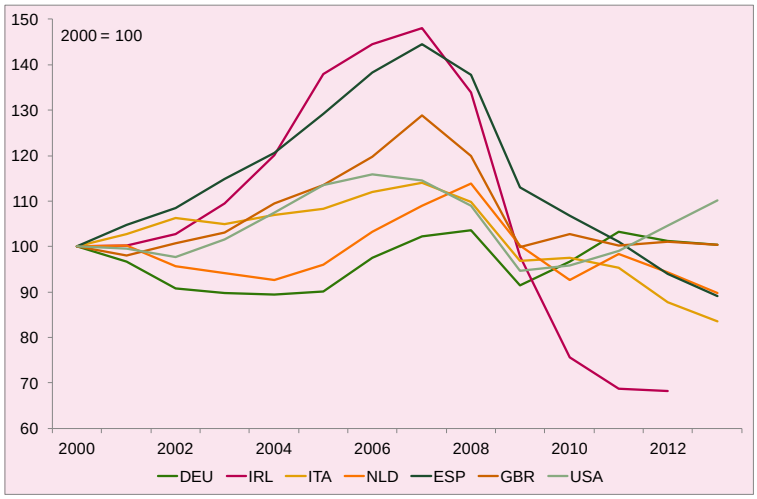


One potential explanation is that Dutch households have been faced with large changes in their net wealth positions due to falling house prices in combination with their high levels of household debt. Net debt increased by 60% over this time period, unaccounted for by a similar increase in liabilities. Household debt is almost entirely related to housing mortgages, which comprise 95% of all loans. The number of mortgages under water (i.e. for which the mortgage exceeds the value of its collateral) increased significantly up to 1.4 mln households,[3] mainly stimulated by a favourable tax deduction system. The Dutch net debt increase was unique within the euro area.

Firms had to deal with falling demand for their goods and services and with reduced access to credit. Figure 1.6 shows investment since 2000 for a number of countries. In Germany and the US, investment has rebounded since the trough in 2009, but in other countries it has stagnated or continued falling. In the Netherlands, a decrease in investment in dwellings is responsible for the relatively large drop in investment. Excluding dwellings, the investment-to-GDP ratio only slightly falls, which is in line with regular responses to a typical economic slowdown. This suggests investments are not overly affected by a severe credit crunch. This contrasts to the literature showing that a financial crisis almost always results in a credit crunch and the fact that small- and medium-sized firms (SMEs) report that they have difficulty obtaining credit.

[3] CBS (2014), this number is uncorrected for assets in mortgage related products such as life Insurance.

Figure 1.6 Investment including dwellings decreased (Source: OECD)



Not only the private sector has been affected by the crisis, see Figure 1.7. Nearly all countries have seen their government debt burdens increase significantly, for two main reasons. Firstly, governments across the world have had to provide emergency liquidity support and direct equity injections into a large number of banks. Secondly, in the wake of the crisis, automatic stabilizers have stimulated the economy at the expense of government finances. The reduction in economic growth significantly reduced tax revenues.

Debt in Southern European countries, in particular, has skyrocketed. In the Netherlands, partly due to the lower starting level, government debt is still relatively low, compared to other developed countries. Since 2010, in response to these rising debt levels, European governments have undertaken significant consolidation programmes, further lowering aggregate demand across the euro area.

Figure 1.7 All European countries experienced a sharp increase of gross government debt-to-GDP

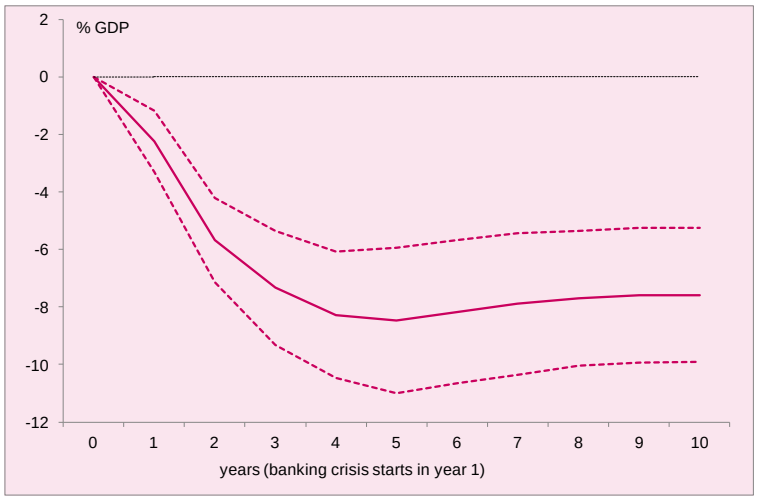
1.3 Permanent damage to a resilient economy

The Dutch economy has suffered severely from the Great Recession. Some of this damage will be permanent, other damage will have a more transitory nature. This section provides a first impression of the damage incurred distinguishing between permanent and temporary effects.

One way to determine what the permanent changes (if any) will be, is to look at the effects of past financial crises. Financial crises are not ordinary recessions (see Cerra and Saxena, 2008; Reinhart and Rogoff, 2009; Teulings and Zubanov, 2013; and IMF, 2009). The empirical literature shows that there are typically large permanent effects on the level of GDP relative to the pre-crisis trend. Figure 1.8 shows the average effect of an average crisis relative to trend, as estimated by Cerra and Saxena (2008). By their calculations, an average banking crisis leads to a permanent loss of about 8% of GDP for a broad set of countries. Within the subgroup of industrialised countries their estimated loss is 6%. Therefore, a new equilibrium will likely be at a lower level of GDP than would have been the case without the financial crisis.[4]

Figure 1.8 also contains good news, which is common in the literature. The growth rate after a crisis is, on average, the same as before the crisis. That means that the crisis hits hard, but does not undermine the resilience of the economy. After the blow has been overcome and the damage has been repaired, economic growth may return to its pre-crisis trend. A lower trend growth rate would prove very costly in the long run. Yet, repairing the damage is no sinecure; it may easily take a decade. Nor is recovery guaranteed; resilience on average hide both excellent and very poor performing countries after a financial crisis.

Figure 1.8 Effect of a typical banking crisis on GDP (Authors own reproduction of Cerra and Saxena, 2008)



[4] The average effect of a financial crisis hides considerable variation at the individual country or crisis level, see Chapter 4.

The economic literature is largely convinced that a financial crisis generates permanent damage, but it is less clear about the causes of the damage. Changed risk perceptions may raise risk premia and financing costs for firms and consumers. Necessary regulation and supervision to prevent another crisis may come at a cost to innovation and productivity in the financial sector. In some countries a cutback on investment in real estate may require a smaller construction sector. But productivity has been hit in almost all sectors, not just the financial and construction sector. That may originate from firms having to spent resources to crisis control, such as adjusting production lines and work planning to a strong fall in demand, or finding new suppliers or new sources of finance. Also skills of people who are unemployed for a long time may decline. By consequence, they will be less productive when they return to the labour market.

Some of the labour market damage seems to be of a more temporary nature. Labour supply levels and unemployment will return to their natural rate. The effects of labour hoarding, *i.e.* employers keeping on redundant employees and the self-employed cutting back their working hours, will fade. The same holds for discouraged and added worker effects. The crisis temporarily caused discouraged workers to abandon hope of labour participation as their perspectives diminished. Yet, when prospects recover they generally start looking for a new job. Added workers are those who increased their labour supply during the crisis, for instance to supplement household income when a household member became unemployed. After the crisis these workers either hold on to their job or withdraw from the labour market.

Yet, temporary damage does not disappear overnight. A major challenge for recovery is at the labour market. The difference between actual and structural unemployment is high, and the same holds for labour supply. Figure 7.4 in Chapter 7 shows the gap between actual and structural unemployment for several European countries. In some countries, including the Netherlands, actual unemployment considerably exceeds structural unemployment levels; see Chapters 5 and 7. A key question is whether a slowly recovering economy will yield a full closure of the unemployment gap in the next decade.

When growth accelerates, employment will increase once again. By consequence, incomes and tax revenues will rise. Virtuous circles might appear. Trade will benefit from the recovery in individual countries of Europe. Consequently, also in the Netherlands demand will recuperate and the economy will head toward recovery.

1.4 Supply uncertainty and demand risks

Virtuous circles cannot be taken for granted. Economic growth primarily depends on supply, *viz.* the growth of the labour force and of productivity. Already on the short term, but certainly over a 10 year horizon, the way supply factors develop is uncertain. When supply develops strongly, virtuous circle are more probable. In that case demand will most likely adjust to supply. Productivity growth translates into higher wages and higher consumption,

investment increases to adjust to higher productivity, and international trade will thrive. However, if there is one thing that the Great Recession has taught economists and policy makers, it is that demand risks cannot be neglected. The legacy of the recession consists of several factors, such as an immense debt overhang, that may entail considerable demand risks for the future.

Supply uncertainty primarily pertains to technological progress, which is inherently uncertain. ICT drives the current wave of technological progress throughout the world, accompanied by large organisational changes within and between firms. That may continue or perhaps intensify for another ten years, but the contribution of ICT to productivity growth may also slow down to some degree.

In addition, structural reforms in Europe may strengthen supply. Europe faces several growth challenges. The periphery countries, including Greece, Portugal, Italy and Spain, struggle with dual labour markets, which protect insiders and preclude the entrance of new personnel, as firms are reluctant to hiring. Also product markets, particularly the market for services, may benefit from structural reforms. The OECD (2013) reports severe barriers in services markets across Europe. In the Netherlands structural reform on product and labour markets has progressed significantly compared to other European countries, making it one of the ingredients for a resilient economy. Yet, also the Netherlands might benefit from structural reforms, for example concerning the housing market and its pensions system.

Structural reform cannot be taken for granted. It affects the position of insiders on labour markets and product markets, which may invoke social and political resistance. Experiences in several countries have shown that these insider forces can be strong. Therefore, the question whether structural reform may succeed or not, adds to the supply uncertainty in Europe.

Downward demand risks originate from several legacies of the Great Recession. The two crises have eroded the financial position of households, firms and governments. In a number of European countries housing markets have suffered strong blows. Low inflation can intensify the debts problems. It is unclear whether all weak spots in the financial sector have been sufficiently dealt with. Finally, international developments may intensify demand risks.

Households, firms and sovereigns might deleverage to reduce their debt level in a sustainable level. Dutch household net debt increased by 60% over the Great Recession, unaccounted for by a similar increase in liabilities. Firms will be reluctant to invest and governments raise taxes of curtail expenses. Overall the financial position of Dutch firms is healthy, but that cannot be said from firms in other European countries. Moreover, all over Europe small and medium sized enterprises (SMEs) face tight credit conditions. Government debt-to-GDP ratios grew substantially. In an attempt to repair their balance sheets, households, firms and governments did cut back on their expenses. Households may save more than expected on the basis of consumption smoothing and may implement additional consolidation measures. All these actions will curb demand.

Demand shortfalls during the Great Recession have lowered inflation. The rate of inflation is a crucial factor that affects deleveraging. Accelerating inflation, or an increase in house prices, will lower public and private debt in real terms, which averts the risks of deleveraging. In contrast, when the inflation rate remains at its current low level or falls even further, the risks of setbacks due to deleveraging increases.

The housing market in the Netherlands seems to be stabilizing. The decline in house prices has cautiously turned, demonstrating a first slight increase. On the other hand, mortgage conditions have tightened and a decrease in the loan-to-value ratio by local banks might ration demand. And what can be said about the availability of credit and stricter credit conditions? Banks might be reluctant to increase supply again when trust is not yet restored.

With the implementation of the Outright Monetary Transactions (OMT) programme by the ECB, the risk spreads turned away from the danger zone. The Banking Union is another major step that may help to resolve the suffocating embrace of sovereigns and banks. Whether the Banking Union will break the vicious circle cannot as yet be determined, though. Two risk factors remain: the design of the Banking Union and the strength of the banks that are subject to its regulations. The Banking Union consists of a complex set of institutions. It still has to demonstrate that it operates decisively in practice. Too many unhealthy banks may overstretch the resolution fund when a new banking crisis develops. This is why the Asset Quality Review and stress tests are crucial for its success. When unsuccessful, the Banking Union may stall, stranding consumers and SMEs with persistently tight credit conditions.

Foreign demand may also entail risks. When growth in the US or Asia falters, Europe will be hurt as well. Tensions in international relationships may hamper trade. The Dutch open economy highly depends on foreign demand.

1.5 Three scenarios, a newborn spring and a newborn sound

As if heralding the arrival of a newborn spring, Dutch GDP growth has picked up, and forecasts for the Dutch economy for 2014 sound like a prelude to better times. The initial signs of recovery are visible. For the first time since the beginning of the crisis, consumption growth cautiously turns positive. Investments and exports look promising as well. The OECD (2014) *Economic Outlook* reports for 2014 and 2015 that recovery will continue at a moderate pace though. Growth in the US and the UK will advance further. Economies in the euro area are on track, although diversified and still lagging behind other advanced economies.

Although better times seem to be peeking around the corner, the challenges and risks facing Europe and the Netherlands in particular, might easily turn back a cautious recovery. We investigate the future of the Dutch economy for the next ten years from two basic principles: uncertain supply and fragile demand. On the supply side, we have witnessed a permanent

downward shift in productivity (see Chapter 4). Starting from the underlying strong structure of the Dutch economy, supply developments depend on regular uncertainty associated with technological progress and the speed of recovery. On a European level structural reform forms a second uncertain supply factor. Downward risks are concentrated on the demand side, yielding a vulnerable economy. We summarise the key uncertainties about supply in two scenarios: *Accelerating Recovery* and *Moderate Recovery.* The *Delayed Recovery* scenario explores the consequences of accumulating demand risks. The scenarios are briefly described in this section and are explored more fully in Chapter 8.

Each scenario sketches a likely outcome of the Dutch economy up to 2023, starting from a brief description of concurrent developments in Europe as well. The Netherlands is a small open economy with over 30% of its GDP stemming from exports and a trade balance of over nearly 10%; its recovery is thus closely linked to that of Europe (and for that matter, the rest of the world). The three scenarios differ in assumptions about supply and demand, driven by the extent to which downward demand risks appear and growth and inflation challenges are being met.

In the *Accelerating Recovery* scenario, supply flourishes and demand adjusts. World trade benefits from the rapid recovery in the US and from continuous high demand from Asian countries, such as China. Europe is on the road to success. Necessary product and labour market reforms are implemented, thereby stimulating growth. The banking union can live up to its expectations and confidence in the financial system is restored, even resulting in a revival of more risk-taking behaviour. Prices recuperate as well, and the ECB inflation target is met. Income increases together with employment. In addition, household consumption and government spending are not threatened by deleveraging, as real debt benefits from inflation and increasing house prices. In ten years, the output gap will be closed and unemployment returns to equilibrium.

In the *Moderate Recovery* scenario, supply and demand both increase at a modest pace. Growth in Europe increases, although hampered by mild headwinds. Structural reforms are not that effective, as insiders prevent a quick implementation. World trade increases moderately. Confidence in financial markets is restored by a strict implementation of the AQR and stress tests. Not all banks will pass these tests, however, and requirements will restrain credit availability for some time. Structural labour productivity is in the lower half of its uncertainty distribution; the contribution of ICT to technological growth diminishes. Demand increases just about enough to meet supply and to close the output gap. Monetary policy can play an effective role in this scenario, with inflation rates close to the ECB target.

In the *Delayed Recovery* scenario, demand is suppressed by downward risks. The potential growth of the economy is similar to growth in the *Moderate Recovery* scenario, but demand lags behind. Households and sovereigns deleverage all over Europe, credit constraints are maintained, some banks go bankrupt and trade suffers from unsuccessful reforms. Although recovery will settle in when balances are restored and confidence picks up, the unemployment rates will be too high to be resolved in the remaining years of our scenario horizon. Consequently, the output gap will not be closed within ten years.

1.6 Outline

This book consists of two parts. First, we explore the challenges, risks and opportunities facing the Dutch and other European economies. Our findings provide the main ingredients for three scenarios, which are subsequently discussed in the final chapter of this book.

Chapters 2 and 3 cover markets at risk. The financial sector (Chapter 2) and the housing market (Chapter 3) were at the roots of the current crisis. As they were part of the problem, have they been and will they be part of the solution?

Chapters 4 and 5 analyse the supply side of the economy. Chapter 4 seeks to quantify the damage to labour productivity caused by the Great Recession and explores which part of this damage is permanent. It discusses several underlying explanations, although a clear-cut decomposition of the causes of this damage is impossible and unprecedented. The chapter also discusses the consequences for growth of the Great Recession and explores the opportunities and risks facing investment. Chapter 5 turns to the labour market. Unemployment and labour supply are expected to recover, but at what pace? What can we learn with hindsight from the developments on the labour market during the financial crisis and euro crisis? Which of these factors have been resolved, what opportunities does the labour market have in store, and what are the risks that might postpone a quick recovery from high unemployment rates?

Chapter 6 (consumption) and Chapter 7 (Europe) further explore the demand side of the economy. Consumption fell significantly during the crisis. When the economy picks up, income increases and inflation will move closer to the ECB target. Debt will decline, disposable income will increase and consumption will recover. However, when downward risks prevail, households may save rather than consume. Chapter 7 analyses Europe-specific challenges and risks that may influence the Dutch economy.

Finally, Chapter 8 discusses three roads to recovery: *Accelerating Recovery*, *Moderate Recovery* and *Delayed Recovery.* Each scenario is explored in detail, with an analysis of their outcomes for the Dutch and European economy.

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2 Markets at risk: Banks and financial markets

Adam Elbourne, Nancy van Beers, Michiel Bijlsma and Johannes Hers

- Disruptions in credit supply have large, negative consequences for macroeconomic performance.
- Small and medium size firms have been hit much harder by the Great Recession than larger firms.
- Key risk in the recovery is the repair of the balance sheets of Dutch banks. Financial problems with firms may resolve themselves as economic recovery gathers pace.

2.1 Introduction

The current period of low economic growth started with the banking crisis sparked by the fall of Lehman Brothers in 2008. Whilst the crisis started with losses on financial products linked to the American housing market, the subsequent losses and disruptions to financial markets were not limited to the US because financial interlinkages quickly spread problems from bank to bank. European banks had invested heavily in financial products linked to the American housing market and the realisation that the true value of those products was uncertain, although considerably less than previously thought, set in motion a sequence of events,[5] including collapsing housing market bubbles in Ireland and Spain, that resulted in government bailouts for many European banks. The Netherlands was no exception: between 2008 and today, Fortis/ABN AMRO, ING, AEGON and SNS REAAL have all received emergency support from the government, whilst DSB was allowed to fail and Dutch depositors of the Icelandic bank Icesave were protected. The only major bank not to receive government support was Rabobank.

Recent events are not exceptional in the aftermath of a banking crisis. As introduced in Chapter 1, banking crises have significant effects on the real economy and are associated with significant disruptions in credit intermediation (see Claessens and Kose, 2014). This can mean that firms and households can no longer get credit for profitable investments detrimentally affecting macroeconomic performance. The sensitivity of an economy to banking problems depends on the importance of banks within the financial system: countries with bank-based financial systems are likely highly susceptible to disruptions in credit intermediation. When banks get into trouble, several feedback loops come into play. First, banks reduce credit to the private sector, which negatively affects economic growth. Second, low economic growth feeds back into banks' health by lowering bank profitability and negatively affecting the quality of banks' assets. Lower economic growth also means

[5] The book '*De grote recessie*' (Teulings and Van Ewijk, 2009) provides a popularised and detailed account of this episode.

higher government expenses on, for example, social welfare, increasing sovereign debt levels. In the Great Recession, deteriorating government finances were worsened further by the costs of bank bailouts. Weaker government finances further weakened the banks in two ways: because European banks hold large quantities of euro area sovereign debt and because large banks depend on implicit government guarantees for lower interest rates on their debt payments. Thus, a vicious circle had started whereby weaker banks lead to further disruptions in credit intermediation, further weakening government finances and further reduction in economic growth. The banking crisis in Europe thus morphed into a sovereign debt crisis.[6]

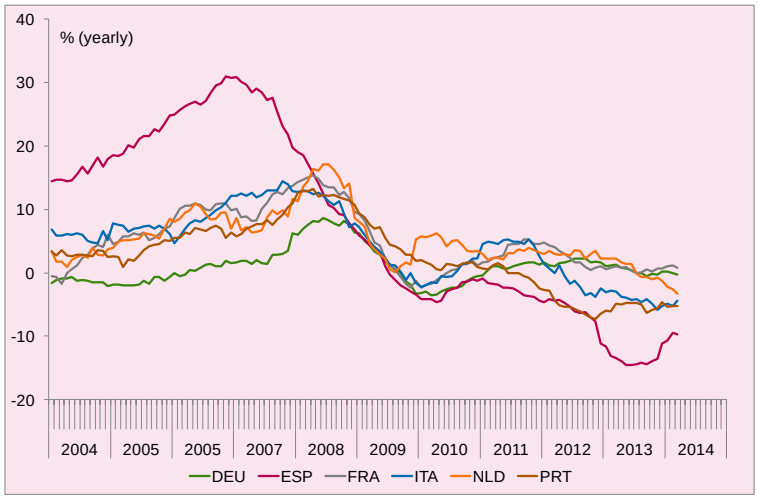
This chapter highlights some recent developments with regards credit intermediation before detailing some channels through which developments in financial markets can have an impact on the real economy. Subsequently our focus will turn to the Netherlands, where we highlight some factors that make the Netherlands more or less sensitive to disruptions in bank lending. Finally, since macroeconomic performance will not return to normal unless credit intermediation returns to normal and weaknesses in the banking system have the potential to hamper recovery, we round of this chapter by discussing some key risks and uncertainties that are likely to arise in the coming ten years.

2.2 Recent developments

Banking crises typically involve serious disruptions to credit intermediation. Figure 2.1 shows the growth rate of bank lending in a number of European countries since 2004. Before the crisis started, most countries saw bank lending to firms grow by about 10% per year. Spain and Germany were outliers: high loan growth in Spain because of their real estate bubble and low growth in Germany, which has been attributed to higher than expected loan growth in the preceding period (Eickmeier *et al*., 2009). As can be clearly seen, lending growth had already slowed considerably by the summer of 2008, even before the fall of Lehman Brothers. Since 2009 bank lending has grown at a much slower rate or has even fallen significantly in the euro area crisis countries. Once again, Spain is an outlier: the bursting of the Spanish housing bubble and subsequent deep recession has caused the rapid pre-crisis growth in bank lending to reverse severely. In the Netherlands, bank lending growth held up well in comparison to other countries at the start of the crisis and grew at about 3% until mid 2013. Since July 2013, however, lending to firms in the Netherlands has contracted and the rate of contraction has accelerated recently - in 2014 lending to firms has contracted at an annualised rate of about 3%. That makes the recent developments in bank lending in the Netherlands more similar to the crisis-countries of the periphery than the core euro area countries.

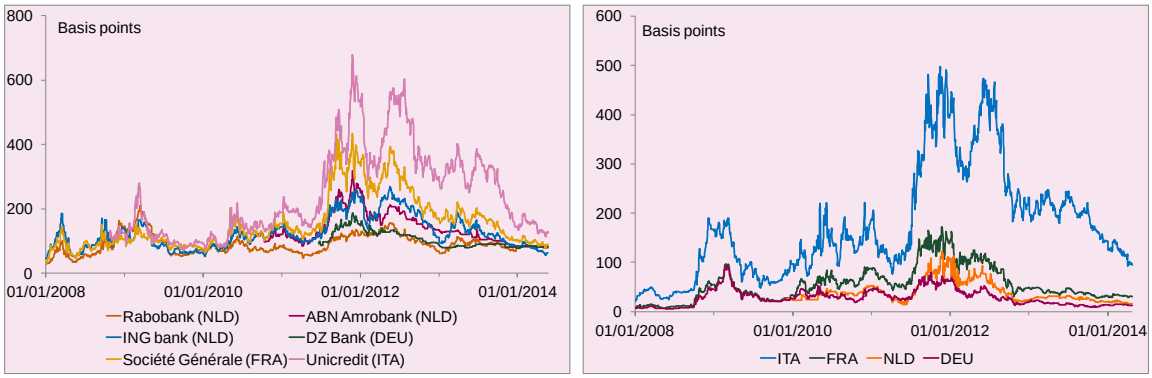
[6] With a vicious circle, the starting point can be anywhere in the process. For example, Greek banks are weak because weak Greek government finances started the ball rolling.

Figure 2.1 Growth in bank lending to firms (Source: ECB)



As one would expect, the banking crisis has also had an impact on the banks themselves. Figure 2.2 left compares the credit default swap (CDS) rates for three Dutch banks with a large bank in each of France, Germany and Italy. CDS rates reflect the perceived probability that banks will default on the debt. CDS rates rose after the fall of Lehman brothers with the rate for the Italian bank Unicredit almost reaching 300 basis points and the rate for the Rabobank exceeding 200 basis points in early 2009. However, those increases have been dwarfed by the high CDS rates seen since the crisis morphed into a sovereign debt crisis in Europe: the rate for Unicredit rose to almost 700 basis points towards the end of 2011. Figure 2.2 right also shows CDS spreads for sovereign debt. What is clear is that the banks with high CDS rates are in countries with weak government finances, highlighting the important link between weak government finances and a weak banking system. ABN and ING did show higher CDS rates than Rabobank and required government bail-outs.

Figure 2.2 CDS spreads of selected banks (left) and countries (right)



This section has shown that the Great Recession coincided with a dramatic slowdown in the growth of bank lending and also that banks are seen as significantly more risky than before the crisis started. This section has, however, left open the question of causation - has the Great Recession caused the supply of credit to shrink or has the demand for bank loans been

the key determinant of the slowdown in bank lending? In the next section, we will introduce channels through which developments in financial markets can have real effects.

2.3 Financial developments and the supply of credit

As shown in Chapter 1, the Great Recession and the subsequent government debt crisis have gone hand-in-hand with poor macroeconomic performance across almost all of the euro area. Before the crisis started, many macroeconomists abstracted from financial developments when thinking about the real economy (see, for example, Angeloni et al 2002, Ng and Wright, 2013 and Roger and Vlcek, 2011). There was, however, a large micro-economically oriented literature on this topic (see Freixas and Rochet, 1998 or Tirole, 2006, for example) describing ways in which financial developments could lead to real effects through the supply of credit in the real economy. But because shocks in financial markets were small during the Great Moderation, the magnitude of these effects on the macro economy in normal times was thought to be small. Clearly, 2008 marked the onset of exceptional times. This section introduces two channels through which developments in financial markets have impacted the supply of credit and the real economy: the bank lending channel, which depends on the strength of banks' balance sheets, and the financial accelerator, which depends on the strength of borrowers' balance sheets (for more information, see Anthony and Broer, 2010 and Bijlsma *et al.*, 2010).

Both channels are the result of asymmetric information (moral hazard or adverse selection in economic jargon), where one party in a transaction has more information than the other. In short, because lenders have less information on the quality of management or investment plans than the borrowers, they need some other way of reassuring them that the borrowers will not simply run away with the money if they lend to them.[7] The bank lending channel applies this logic to banks, who borrow deposits or other sources of finance to make loans. The financial accelerator applies it to firms and households who borrow funds (mainly from banks) and need to convince lenders of their creditworthiness. A key requirement of both the bank lending channel and the financial accelerator is that firms and households have little access alternative financing via capital markets.[8]

The bank lending channel exists because firms that borrow from banks often do so for a reason: they can only secure a loan by submitting to monitoring, something that banks specialise in. Monitoring goes some way to overcoming the asymmetric information problems which typically characterise financial transactions. This monitoring activity makes banks special in the sense that their role cannot easily be replaced by other potential lenders. However, banks themselves also need sufficient incentives to monitor their borrowers. Their own equity levels provide such an incentive. Thus, when banks are hit by financial shocks, their monitoring capacity is reduced and they cut back on lending or increase interest rates.

[7] This asymmetric information typically means that borrowers, especially small firms and households, are reliant on banks for loans.
[8] Asymmetric information makes sure that these alternative sources are indeed not available: alternative lenders have the same information problems as banks.

This has an impact on the real economy, putting some firms into financial difficulties, further lowering the value of assets of banks' balance sheets, which starts a vicious circle of deteriorating economic performance.

The financial accelerator has a different mechanism. The alternative to bank monitoring is to have sufficient equity or collateral to convince financiers that the investments are worth financing. Sufficient equity or collateral is a credible sign of the creditworthiness of the borrower because, in the case that the borrower defaults on the loan if the borrower defaults they lose their equity stake or the collateral used to secure the loan. When the value of collateral drops during a recession, borrowing capacity of these firms is reduced, which lowers investment and, therefore, aggregate demand. Once again, this fall in aggregate demand impacts the real economy, further decreasing the value of collateral leading to yet lower credit supply. This vicious circle[9] magnifies business cycle fluctuations, hence the name accelerator.

The remainder of this section will focus first on evidence for the bank lending channel before turning attention to the financial accelerator.

2.3.1 The bank-lending channel

When banks' balance sheets are hit by a shock, these banks have to recapitalise somehow. How they recapitalise has important consequences for those firms reliant of bank financing. Banks can recapitalise by 1) issuing new equity capital, 2) retaining profits[10], 3) selling assets and 4) shrinking the balance sheet. Selling assets may not be attractive to banks if many banks have simultaneously been hit by shocks, since asset prices may no longer reflect their fundamental value. Retaining profits involves cutting back the supply of new loans and raising interest rates, which, unlike issuing new equity, has negative consequences for the real economy.

However, banks may find it difficult to raise equity capital, for example, because market participants no longer trust the creditworthiness of banks. If financiers do not know exactly how many hidden losses are on bank balance sheets they may suspect that only weak banks are asking for more funding.[11] Furthermore, banks' equity holders may be reluctant to issue new capital because of debt overhang,[12] or it may also be that special talents are needed to invest in bank equity capital. Finally, if there is also uncertainty about regulatory developments, such as the phasing out implicit subsidies, that can affect the value of bank equity and make raising new equity capital expensive for existing shareholders. As a result, banks will cut back on lending or raise interest rates instead of issuing new equity capital (see Marinova *et al.,* 2014). An important distinction should be made between the short- and long-run costs of raising bank equity. The bank lending channel relates to the costs of raising

[9] The expositions of the bank lending channel and the financial accelerator here have focused on negative shocks. Following a positive shock the mechanisms work in reverse, putting in process virtuous circles.
[10] Retaining profits is used here as a short-hand expression for a range of activities, from not paying dividends to raising interest rates, all of which would allow banks to rebuild their capital positions out of profits.
[11] A so-called lemons problem.
[12] Debt overhang is when existing debt is sufficiently large that existing debt holders will likely claim a share of future profits sufficient to make the expected return of raising new equity capital negative.

new equity, not the costs of higher equity levels in general. The former are likely significantly more costly than the latter (see Bijlsma and Zwart, 2010).

So what do shocks to banks' balance sheets look like? Banks balance sheets can deteriorate from shocks to either side of the balance sheet: a capital shock to the asset side or a shock to their ability to raise finance on the liabilities sides. The empirical data on the impact of liquidity shocks is limited because it is very difficult to identify liquidity shocks. Nevertheless a few studies exist that do suggest bank lending responds to liquidity shocks (see for example, Kapan and Minoiu, 2014, and Iyer *et al.*, 2014). In contrast, the effect of capitalisation on lending has been studied in more detail and has been found more important, e.g. Peek and Rosengren (1997), Peek and Rosengren (2000) and Houston *et al*. (1997). Examples of cross-sectional studies include Puri, Rochol and Steffen (2009), Jimenez *et al.* (2010), Albertazzi and Marchetti (2010) and Berrospide and Edge (2010).

The bank-lending channel not only has an affect on the quantity of credit in an economy, it can also affect the price of loans. For example, there is evidence that weak banks charge their customers more for loans (see Lown and Peristiani, 1996, and Hubbard *et al.,* 2002). Because firm-bank relationships often rely on information built up over years of repeated interaction, especially small firms will likely find it difficult to switch banks and avoid these higher costs. This observation may be particularly relevant for the Netherlands where, as will be shown in Section 2.4, small and medium sized enterprises (SMEs) pay higher interest rates for loans than comparable firms in other core euro area countries.

All in all, the evidence clearly shows that when banks are hit by a capital shock, they reduce lending. How big the subsequent impact of reduced lending by banks is on the real economy is a different, and less well-studied, issue. Macro level studies would automatically take this into account simply by taking a macro perspective. However, at the macro level there are fewer studies investigating the bank-lending channel, mainly due to the difficulty of incorporating banking institutions into macro models, e.g. Villa (2013).

2.3.2 Survey measures of bank-lending conditions and the macro economy

A more direct way to determine if banks have reduced the supply of credit is to look at surveys of bank lending. There are a number of papers that investigate the link between changes in survey measures of banks' lending criteria and subsequent economic effects. They typically find that changes in lending standards precede significant changes in economic activity, e.g. Lown *et al.* (2000), Lown and Morgan (2002, 2006) and Bassett *et al.* (2014) for the US and Blaes (2011), De Bondt *et al.* (2010), Cappiello *et al.* (2010), Ciccarelli *et al.* (2010), Del Giovane *et al.* (2011) and Maddaloni and Peydró (2013) for Europe. Driscoll (2004) opposes these results.

Van der Veer and Hoeberichts (2013) find that in the Netherlands banks have reduced loan supply growth by 3-4% since the crisis started on top of the fall caused by reduced demand for credit. That said, their results still argue that more than half of the large slowdown in credit growth for firms since the start of the crisis has been due to lower demand for credit,

not lower supply of credit. Others have made this point previously (see, for example, Pattipeilohy *et al.*, 2010).

2.3.3 The financial accelerator - firms' balance sheets

The financial accelerator[13] channel works through the balance sheets of firms or consumers. This channel operates because firms and consumers are faced with credit restrictions, which arise from asymmetric information in the form of moral hazard or adverse selection (see Tirole (2008) for a theoretical background). In a world without information asymmetry only the expected future cash flows from an investment are relevant for whether an investment project gets financed. If these expected cash flows weigh up against the risk, lenders will be willing to lend money to a firm that wants to invest their money. As a result of adverse selection and moral hazard the amount of investment in an economy depends on the net wealth of the firms in it.

How does this work in the case of moral hazard? Moral hazard can occur when the success of an investment project depends on the effort of a firm's manager and that effort is costly for the manager. Then, if the payoff for the manager is not related to the success of the project, the manager has insufficient incentive to make the effort required to make the project a success. However, giving the manager a share of the expected profits can ensure that they have an incentive to make the project a success. Consequently, to ensure the right incentives, the company must reserve a minimum proportion of the profit for workers performing the project itself. Because virtually all investment projects rely on the efforts of managers or other employees, firms cannot promise to pay all future income from an investment to those who have funded it. As a result, the amount of investment in an economy depends on the net wealth of the firms in it.

The second form of asymmetric information, adverse selection, causes an increase in interest rates to lead to a contraction of bank's loan portfolios (credit rationing à la Stiglitz and Weiss, 1981). When an investment project is funded externally with a standard debt contract, the potential loss to the firm is limited to the value of the collateral, whilst they receive all the profit remaining after deduction of interest. In other words, the firm profits from the upside of risky projects, but has limited losses from the downside. This means that the expected profit of the company increases with the risk of the investment project. Therefore, when interest rates rise, firms want to finance riskier projects, which is bad for the loan portfolio of banks. To combat this, banks can ask for more collateral, which ensures greater losses at firms if a project fails. Again the amount of investment in an economy depends on the net wealth of the firms in it.

Having more equity reduces moral hazard, since the firms themselves have more to lose should a project fail. Likewise, firms can also bring down the costs of financing by pledging their possessions as collateral. If the project fails the firm will lose their collateral. In other words, pledging collateral internalises the costs of moral hazard. Consequently, the value of

[13] Bernanke and Gertler (1990) and Kyotaki and Moore (1997) are two early papers that build the financial accelerator into a model. Bernanke and Gertler (1990) focus on net wealth, whilst Kyotaki and Moore (1997) focus on the value of collateral. Bernanke, Gertler and Gilchrist (1999) provide an overview of the literature.

collateral a firm has available affects the amount of funding that firms can attract. Because collateral is often the means of production of firms or real estate, its value is typically procyclical. This means that companies can borrow more in booms, allowing them to invest more, which in turn increases growth, further increasing the value of the collateral allowing firms to borrow yet more. In recessions the mechanism works in reverse.

There is empirical research that shows how high leverage and declining prices of firms' assets lead to low investment and low growth. The clearest empirical evidence is at the micro level (and especially for the US) and suggests that the financial accelerator exists in practice. For example, the studies of Gertler and Lown (1999), Mody and Taylor (2003) and Gilchrist *et al.* (2009) find a negative and non-linear relationship between corporate bond spreads and economic activity. Since the crisis, a growing number of papers have also found evidence that a financial accelerator mechanism plays an important role in explaining the macro effects of the Great Recession. Examples include Gilchrist *et al.* (2009) and von Quejo Heideken (2009). These papers are, however, still controversial - see for example Brzoza-Brzezina and Kolasa (2013) who found that models with a financial accelerator provide no better explanation for the recession in 2009 than standard models without the mechanism.

2.3.4 Households' balance sheets

As we have argued above, large firms often have access to multiple sources of financing for their projects, but small firms do not. Households have even fewer sources of credit: for mortgages, they are almost always reliant on bank finance and need to pledge their house as collateral. There are a number of empirical studies providing evidence of the importance of debt and credit developments for households in the Great Recession. They typically find that areas with high household debt before the crisis started showed the largest falls in consumption during the Great Recession. Examples include Dynan (2012), Mian, Sufi and Rao (2012) and Mian and Sufi (2012). As Dutch households have relatively high levels of debt, see for example Bijlsma and Van Beers (2013), this may play a role in the Netherlands.[14] For a more detailed look at the housing market and at the households' financial positions and consumption, we refer to Chapter 3 and Chapter 6, respectively.

2.4 What has the crisis done to the Netherlands?

In the previous section, we described a number of mechanisms whereby developments in the financial sector can affect the real economy. But that begs the question: how important are these mechanisms currently for Netherlands? In this section we describe the main conditions that can strengthen the mechanisms and how important they are for the Netherlands.

[14] Note that the mechanisms that relate falling housing prices to inefficiently low consumption and reduced economic growth typically do not involve the financial-accelerator. In a permanent-income framework, consumers respond to lower house prices by increasing their savings or pay-off their debt in order to make-up for the loss of wealth. This need not be inefficient nor negatively affect consumption, as increased savings or debt pay-offs end up elsewhere in the economy. Inefficient adjustment, may, however, occur if prices do not adjust sufficiently, which may happen if interest rates hit the zero lower bound.

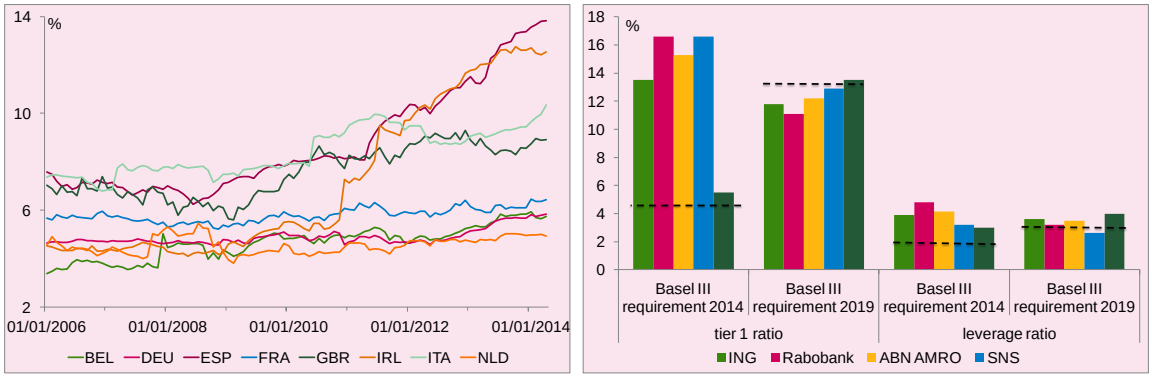
2.4.1 Banks and lending

In the discussion above, we saw that banks that are weakly capitalised, heavily dependent on short-term external finance or hold poor quality assets will likely reduce the supply of credit in an attempt to rebuild there balance sheets and to make themselves resilient to liquidity shocks . This section looks at data for Dutch banks to see how relevant these factors may have been in the current economic slowdown.

Bank capital

Internationally comparable data on the strength of Dutch banks' capital positions paint a mixed picture. Compared with other European banks, Dutch banks have relatively low unweighted capital levels but score well on risk-weighted measures, as shown in Figure 2.3 left. Since the start of the crisis, banks in most European countries have slowly been building up their equity relative to their assets, especially banks in the bail-out countries. In contrast, the build up of equity by Dutch banks has been relatively slow: at the start of 2014 Dutch banks had the lowest ratio of equity to assets of the major European economies. This suggests that at least at the onset of the financial crisis Dutch banks may be relatively weakly capitalised and that this may have been a factor behind the weak loan growth scene in Figure 2.1 at the start of this chapter.[15] To put this further into perspective, European banks have been much slower raising capital levels than their US counterparts, who were forced to raise equity early in the crisis (see Marinova *et al.*, 2014). In line with the discussion above concerning the side effects of different ways banks can raise capital levels, this difference may go some way to explaining the superior performance of the US economy in the aftermath of the Great Recession.

Figure 2.3 European unweighted leverage ratios (left) and leverage ratios for Dutch banks (right)



Asset quality

Of course, the simple ratio of equity to assets does not take into account the quality of the assets held by banks. The riskier the assets the more capital banks need to soak up any potential losses. Risk weighting gives a better indication of the idiosyncratic risk of banks' balance sheets.[16] Unfortunately, as we saw at with the valuation of apparently low risk mortgage backed securities in the run-up to the Great Recession, the risk weights depends on

[15] EU state aid rules complicate the picture somewhat. On one hand, they have reduced competition between Dutch banks allowing them higher profits (and, hence, to raise capital levels more quickly), whilst on the other hands placing limits on direct equity injections from the state.

[16] Note that risk-weights do not account for tail risk or systemic risk.

the perceived risks of the assets involved, which may not be correct. As such, there is still uncertainty regarding the quality of assets held on banks' balance sheets - that uncertainty has been one of the key factors in the current crisis.[17] Hence unweighted leverage ratios also form part of the new Basel III regulatory environment. Figure 2.3 right plots current leverage ratios of the major Dutch banks against the Basel III requirements for 2014 and 2019 (shown with a dashed line). As can be seen, the major Dutch banks have risk-weighted leverage ratios well in excess of the minimum requirements for 2014 and are already close to satisfying the stricter 2019 requirements.

Currently, in attempt to clear up uncertainty surrounding the quality of assets on banks' balance sheets, the ECB is undertaking an asset quality review (AQR) and stress test of the largest banks in the euro area as part of the move to the European Single Supervisory Mechanism (SSM).The AQR is, as its names suggests, an examination of the quality of the assets that around 130 euro area banking groups have on their balance sheets, including ABN AMRO, Bank Nederlandse Gemeenten, Rabobank, ING, Nederlandse Waterschapsbank, The Royal Bank of Scotland and SNS in the Netherlands (see ECB, 2013). The assets of all institutions covered total about 85% of euro area banking assets. The stress test will then subject banks asset holdings to a baseline and an adverse scenario to see if banks' capital positions are sufficient to cover any losses. In Europe, the European Banking Authority (EBA) has already carried out three stress tests in 2009, 2010 and 2011, which failed to clear up the uncertainty about the health of euro area banks' balance sheets. However, the stress test that follows on from the AQR is considerably stricter than the previous stress tests. For example, the current stress test will be based on banks withstanding a 7% fall in GDP relative to baseline and a 19.2% fall in euro area house prices relative to baseline instead of 2% and 9.7%, respectively, in the 2011 test (see ECB, 2011, and ESRB, 2014). However, it is still not as strict as, for example, the US stress tests where GDP falls in excess of 8% and house price declines over 20% were used (see Federal Reserve, 2012). For more details on the AQR and stress test, see Van Veldhuizen en van Beers (2014).

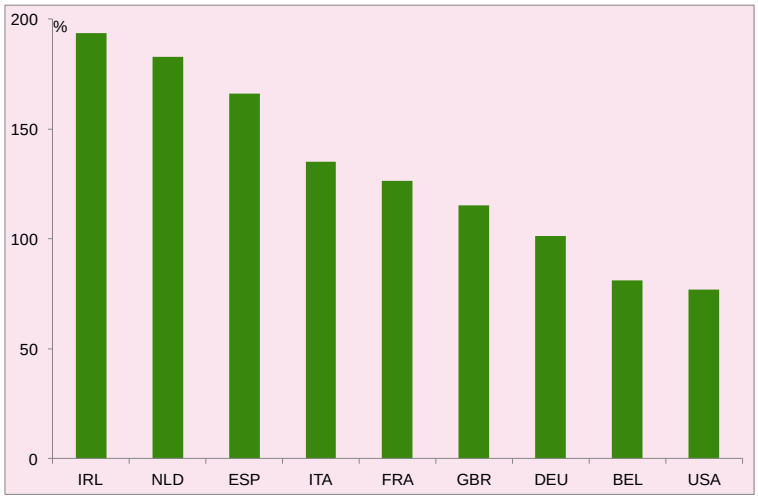
Susceptibility to liquidity shocks

A bank's susceptibility to liquidity risk depends on the amount of wholesale, short term, funding, which is relatively less stable, and the amount of stable funding, in the form of equity, long-term wholesale debt, and deposits. Due to their relative size, Dutch banks have relatively high foreign liabilities, which likely take the form of wholesale funding. That means that Dutch banks rely relatively heavily on non-deposit financing to finance their loan portfolios. The ratio of the value of loan portfolios and the deposits held by banks is shown in Figure 2.4. Dutch banks' reliance on non-deposit financing is high by international standards. At the end of 2012, the value of Dutch banks' loan portfolios was 83% more than the value of their deposits.[18] That is much more comparable to the crisis countries of Ireland, Italy and Spain, than France, Germany or the US.

[17] Dutch banks have large holdings of relatively low risk mortgages, many of which are backed by the National Mortgage Guarantee (NHG) system, which transfers the risk of some losses to the Dutch government. That further reduces the risk of these mortgages.

[18] This has been falling slowly, in 2013 the differences was 75% (see DNB, 2014).

Figure 2.4 Loan-to-deposit ratio of banks in various countries (end 2012)



Source: BIS, DNB and ECB.

This makes Dutch banks susceptible to liquidity shocks, such as occurred when Lehman Brothers fell. This susceptibility makes lending to Dutch banks riskier. Nonetheless, market prices do not seem to reflect the higher susceptibility of Dutch banks to liquidity shocks. This may, of course, be due to the implicit subsidies that arise because too-big-to-fail banks can expect to be bailed-out.

This section has provided some tentative evidence that Dutch banks are relatively sensitive to those factors that make the bank-lending channel more powerful. It is difficult to draw any more detailed conclusions because of the uncertainty surrounding the quality of assets on banks' balance sheets - we must wait for the outcome of the ECB's comprehensive review in October before we will know more about that.

2.4.2 Firms' access to credit

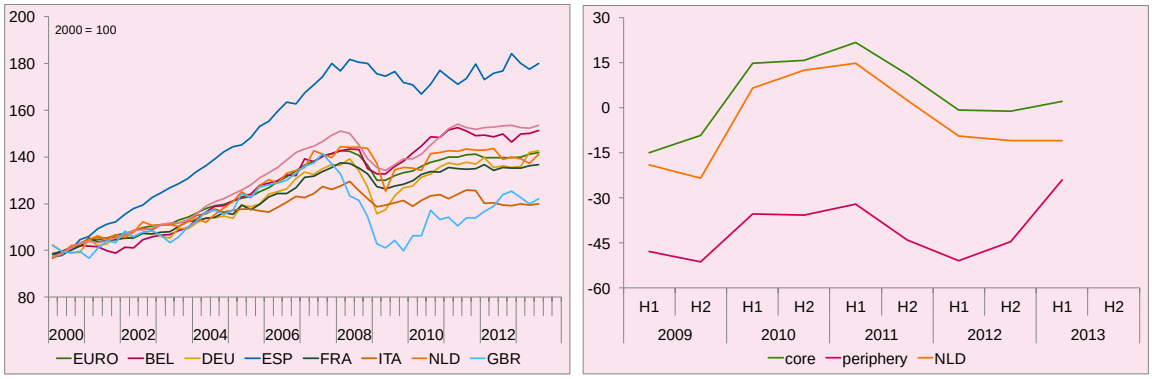
As described above, loan growth in the Netherlands has slowed dramatically since the onset of the Great Recession.[19] Whether this is because the supply of loans has grown more slowly or because the demand for loans has fallen is important because the former implies that firms cannot get sufficient funds to finance profitable investment. Section 2.3 detailed mechanisms through which financial developments impact the supply of loans. However, in a recession as deep and prolonged as the Great Recession, one would expect the demand for loans to contract significantly - if a firm has fewer customers they don't need to produce as much and, therefore, need less external finance. The trouble is, distinguishing between the supply and demand for credit is difficult.

Some firms are reliant on bank financing. Empirical evidence has shown that credit supply did contract in the OECD in 2008 and 2009 and that the effects of this could be seen in industries most dependent on external finance (Bijlsma *et al.* 2013). As described above, firms' ability to obtain external finance depends on their financial health. Figure 2.5 left

[19] This section focuses on lending to firms. Mortgage finance will be discussed in more detail in Chapter 3.

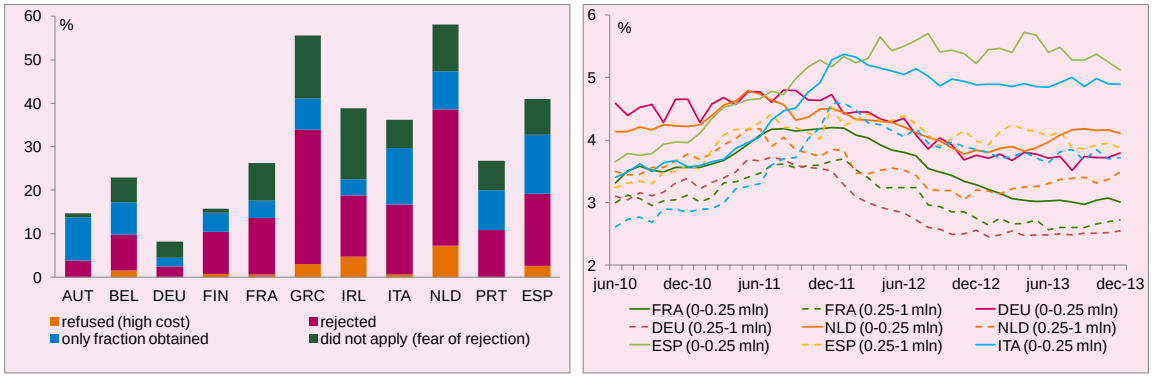
shows one measure of firms' financial health, namely total profits in the Dutch economy in comparison to a number of European countries. Profits at Dutch firms fell sharply in 2009, which is no surprise given the deep recession. Thereafter, profits in the Netherlands have recovered to a similar level as before the crisis in 2008. In fact, these profit figures show a very similar pattern to the euro area as a whole. In any case, firm profits were hit nowhere near as hard as in the UK.[20] Whilst the average firm in the Netherlands is financially healthy with significant savings and hasn't been particularly constrained by lack of access to credit, that average hides significant differences between different firms. Large firms have healthy profits and bank weaknesses do not appear to be a significant constraint on their activities. Whilst Figure 2.5 right also shows that small firms in the Netherlands have similar profitability as in other core countries, their access to credit is much more similar to the crisis-countries of the periphery, as shown in Figure 2.6 left. In fact, SMEs in the Netherlands had the lowest proportion of accepted credit applications in first half of 2013 at 32%, even lower than Greece at 33%. There is some evidence that this is a selection effect. Financially strong firms don't need credit with current low levels of demand leaving only weaker firms applying for loans.

Figure 2.5 Gross operating surplus for selected countries (left) and profit index of SMEs (right)



Source: Eurostat, ECB and CPB calculations.

Figure 2.6 Credit rejections of SMEs (left), interest rates on small loans (right)



Source: ECB, Survey on the Access to Finance of SMEs, ECB.

[20] Profits in the UK were hit exceptionally hard due to the fall in profits in the financial sector itself, which is included in Figure 2.5 left.

Even so, SMEs in the Netherlands that are successful in obtaining loans pay significantly higher interest rates than, for example, in France or in Germany (see also Figure 2.6 right).

For firms that are unable to finance their investment internally the value of collateral is often important for taking out a loan. The falling value of collateral ensures that firms are no longer able to borrow as much as previously. It is in the nature of net wealth and collateral values that these fall in business cycle downturns. SMEs typically rely on housing and real estate, which were particularly hit in the Netherlands. Since SMEs rely on these to signal their creditworthiness they have problems obtaining credit. Once the recovery picks up their net wealth and the value of their collateral should rise, reducing the difficulties they currently face obtaining finance.

In broad terms, there is evidence that the average Dutch firm has relatively healthy finances compared with firms in other European countries. That average, however, hides some important differences between firms in the Netherlands: SMEs have suffered more than larger firms, and more so than SMEs in other core euro-area countries. More details on SMEs access to credit can be found in Van Veldhuizen and Van Beers (2014).

One puzzle is why this isn't more obvious in investment statistics at the macro level. The investment-GDP ratio has fallen in the Great Recession, but by no more than would be expected in a typical recession. In a recession caused by a banking crisis, one would expect investment to fall more than in a normal recession, see also Chapter 4.

2.5 Risks and uncertainties in the coming ten years

In this section, we ask whether banks in the Netherlands will be able to finance the recovery and whether the links between banks and governments are going to continue to plague the euro area financial system. Looking further ahead, we also discuss the possibility that the Netherlands moves towards a financial system where SMEs are less heavily dependent on bank finance and, hence, less susceptible to disruptions in bank credit.

Response to the comprehensive review

The first key element of the picture is the health of banks' balance sheets, which are currently the subject of a comprehensive review under the auspices of the ECB. Over the next year or two, the outcome and responses to the comprehensive review will be key factors for the economic recovery in the Netherlands. The banks taking part in the AQR and stress test have been told by the ECB that they will be expected to cover capital shortfalls within six to nine months (see, ECB, 2014). The official line is that banks will have to first turn to shareholders and classes of creditors (bail in) to cover the capital shortfalls. Deposits under 100.000 euros will never be touched, they are entirely protected at all times. Of course, how feasible that is depends on the size of any capital shortfalls. A bad outcome would be if a significant number of large banks fail the comprehensive review and require such large amounts of extra capital that they are unable to raise them from private sources. In that case, the single resolution mechanism (SRM) will have insufficient funds as it will only slowly

build up to its target size of €55 billion, reaching that only in 2024. Instead, national governments will have to step in or face disorderly bankruptcies - and some national governments may be unable to raise the funds either. That governments may not be able to bail their banks out, in turn, implies that the negative feedback between the financial position of banks and their governments will not be broken, which has been a key feature of the government debt crisis in the euro area. It also complicates the resolution process because agreement between the SSM, the SRM, the ECB and the national government will be needed.

An even worse scenario would be that the ECB comes under pressure to weaken the comprehensive review (there have already been three comprehensive stress tests in 2009, 2010 and 2011 in Europe). Then the uncertainties regarding the creditworthiness of banks that have plagued banks in Europe for the last five years will remain, with the result that banks may not be able to supply all of the credit that firms and households in the euro area demand.

In contrast, a much more favourable outcome would be that, because the largest banks in Europe have recently written off a large volume of bad loans or announced that they plan to raise more capital (perhaps in preparation for the AQR), very few banks need substantial capital injections. Those that need more capital are forced to issue new equity, since this doesn't have the negative side effects for the real economy that increasing earnings by reducing loan supply does.

At present, this discussion must remain speculative as it is unclear how many bad loans banks have or what their sensitivity to new shocks is until we see results from a strict and credible comprehensive review. For that we must wait until October for publication of the results of the comprehensive review.

New regulatory framework

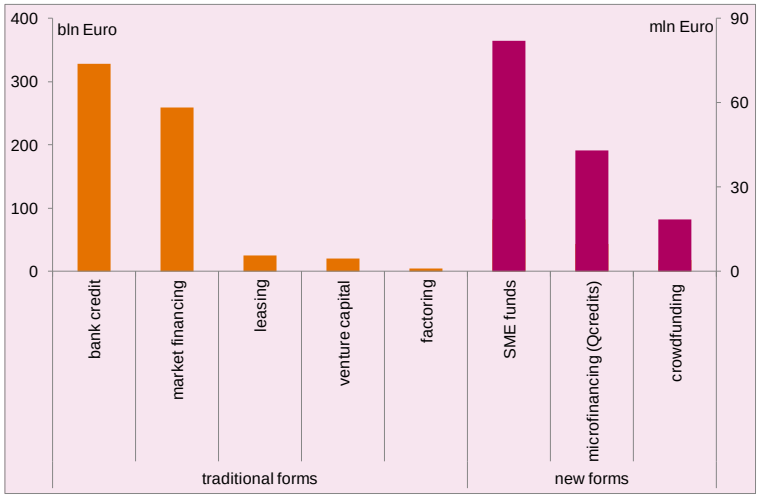
New regulations are also coming into effect, which may have important consequences for the real economy. As shown in Figure 2.3 (right) above, the major banks in the Netherlands already meet the minimum standards of the endpoint requirements of Basel III as formulated in the Capital Requirements Regulation (CRR/CRD IV). In addition to the international requirements, national regulators can require additional capital for systemic banks, which DNB has done for four banks in the Netherlands. ABN AMRO, ING and Rabobank have been told to raise an extra 3% of risk-weighted assets between 2016 and 2019 whilst SNS bank has been told to raise an extra 1%. Dutch banks may have trouble meeting these requirements through retained earnings if economic recovery remains weak (Webbink *et al.* 2014). Indeed, how banks raise extra capital is important. Whilst having more equity will make the Dutch financial system more robust in the long-run and carries little economic costs, in the short-run transition cost may play a role (Bijlsma and Zwart, 2010).

These transition costs arise if the major banks raise capital by reducing the supply of credit instead of issuing equity, firms may not have sufficient funds for investment.[21]

Interaction between government and bank finances

We have seen above that one reason why euro area bank finances are weak is that they hold large quantities of euro area government debt, which has become considerably riskier since the onset of the Great Recession. If the coming decade were to see robust economic growth, for example because structural reforms in the euro area (see Chapter 7 for more on structural reforms in the euro area), government and household debt problems would be reduced relative to higher nominal incomes. In that case the health of banks balance sheets would also improve, allowing them to increase lending as required by the growing economy.

Figure 2.7 Size of traditional forms of finance (left axis) and new forms (right axis)



Source: ECB, DNB, Douw and Koren, FAAN, Nederlandse vereniging van participatiemaatschappijen, Leaseurope, Qcredit, NPEX.

In the long-run, the single supervisory mechanism should also go some way to break the link between weak governments and weak banks. Pan-European supervision lowers the risk of captured regulators, with beneficial consequences for financial stability. Furthermore, more internationally diversified banks would also make the banking system more robust since. For example, the total debts of Greece and Ireland are only small relative to the banking system and similar losses could easily be absorbed if they were evenly distributed across Europe.

Alternatives to bank finance

It is also possible that the financial system in the Netherlands will develop such that firms are less reliant on bank financing. Figure 2.17 shows the relative importance of traditional and new forms of finance. Whilst still small in comparison to traditional forms of finance, the new forms have grown rapidly in recent years. In the long-run, broader sources of finance

[21] Hebbink et al. (2014) present a number of scenarios for how banks' efforts to raise capital may restrict lending and, therefore, investment and economic growth. Clearly, the required supply of credit depends on where that economic growth comes from. For example, Hebbink *et al*. argue that credit supply may be a restraint on growth in an investment led recovery. That's much less likely to be the case in, for example, an export led recovery.

will make the Dutch economy more robust to problems with banks. Over the next decade, such alternative forms of finance may be able to substitute for some of any shortfall in bank credit supply.

2.6 Summary: credits and risks

This chapter has discussed the developments with banks and financial markets since the start of the Great Recession and it has detailed international evidence for two theoretical channels that explain why developments in financial markets matter for the real economy. This chapter has also provided some tentative evidence for the importance of these channels for the Netherlands and has concluded that there is some evidence for weaknesses on banks' balance sheets that may be lowering the supply of credit in the economy. It has also highlighted the problems that small and medium size firms have obtaining credit, although it appears these problems are symptoms of asymmetric information during the economic downturn. Finally, this chapter has also discussed some key risks for the coming ten years. The key risk is that market participants will view the current comprehensive review as insufficiently strict, which means that the current uncertainty about the financial health of banks and sovereigns in the euro area will continue to plague the processes of credit intermediation. Even with a strict and credible AQR and stress test there is a risk that, instead of issuing new equity, banks will restrict lending to build up their capital levels to those required by regulators and market participants. This restricted credit supply may limit the speed of economic recovery. In contrast, many of the financial weaknesses of banks, governments, firms and households would be significantly reduced by faster economic growth.

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3 Markets at risk: Housing market

Machiel van Dijk, Ona Ciocyte, Adam Elbourne, Stefan Groot, Marco Ligthart

- Volatility in house prices has important consequences for the rest of the economy.
- High mortgage debts have forced over a million Dutch households into the red. Their negative home equity will severely constrain their mobility and possibly their consumption.
- Nominal house prices are expected to grow between -0.5% and 4% annually.

3.1 Introduction

The housing market has played a key role in the current crisis. The decline in the US housing market that started in 2005 contributed to a sharp increase in delinquencies in residential mortgage loans. Eventually, the decline led to large losses on subprime mortgage loans and escalated into a global banking crisis and a global economic recession[22] (Van Ewijk and Teulings, 2009).

Difficulties in housing markets have not been confined to the US. In the Netherlands, house prices have dropped by more than 20% since their peak in 2008 and nearly 30% in real terms. Combined with the high loan-to-value (LTV) ratios typical in the Netherlands, the drop in nominal house prices has forced numerous households into the red as their mortgage debt exceeds the market price of their house. Declining house prices affect household consumption both through their role as collateral, which was introduced in Chapter 2, and through wealth effects.[23] Moreover, having a larger outstanding mortgage than the value of the house it is secured on can make moving house difficult, if not impossible. This, in turn, could harm labour market mobility if people need to relocate for a new job. Furthermore, falling house prices have the potential to increase the weaknesses on banks' balance sheets since the value of the collateral that banks will get in the case of loan defaults has declined (even though the number of foreclosures has remained relatively low in the Netherlands and a part of the losses is covered by the National Mortgage Guarantee). Finally, lower house prices have also harmed the construction sector, as the building of new houses has become much less profitable.

Low private consumption and dramatically lower investment in housing have been key symptoms of the economic crisis in the Netherlands. As such, the future of the housing market will play an important role in how the Netherlands recovers from the current economic downturn. Due to the large price decreases and low mortgage interest levels, the affordability of housing has substantially improved (to one of the most favourable levels of

[22] Following the IMF definition of a global recession (IMF, 2009, pp. 11-14).
[23] The interaction between the housing market and consumption will be examined in more detail in Chapter 6.

the past 25 years). With an improved macroeconomic environment the stabilisation of house prices that has been observed since June 2013 could signal the end of the downturn in the housing market. However, given the large number of houses that are currently for sale, it will take time before the housing market fully recovers.

A number of factors can stimulate the recovery of the Dutch housing market. To the extent that uncertainty and a lack of confidence explains the developments of the last five years, growing financial and economic stability can help existing and potential homeowners to become less pessimistic about the housing market. Furthermore, the low levels of construction during the crisis have lowered supply and should lead to higher house prices in the long-run.

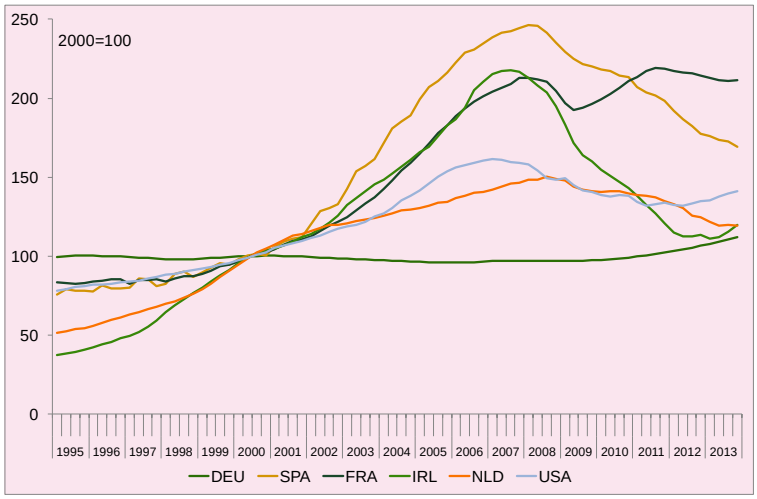
On the other hand, the recovery of the housing market could be delayed if housing market pessimism remains. If households remain concerned about their personal finances and their jobs, they may refrain from buying another home. Furthermore, it may take years for households to decrease their mortgage debts below the value of their homes, particularly if house prices do not recover. Moreover, if banks are unwilling to refinance households' debt, these households are, more or less, forced to stay in their current homes, which may affect their labour market mobility. On the other hand, one can argue that the relatively small commuting distances in the Netherlands limits the labour market consequences.

This chapter describes recent developments in the Dutch housing market and, given the typical characteristics of housing markets, what can be expected in the next decade. Although many households rent their homes, the focus of this chapter will be on the owner-occupied sector. This sector has a much larger macroeconomic impact and entails many more uncertainties than the heavily regulated rental sector. In the next section we will look back at what happened to the Dutch housing market during the crisis. Section three introduces a number of stylised facts for housing markets in general, in order to give us some idea what can be expected during a typical housing market downturn. The fourth section then describes important features of the current crisis that set it apart from a normal downturn. The final sections describe the key uncertainties in the coming ten years and conclude with three scenarios for the future of the Dutch housing market.

3.2 What happened in the Dutch housing market?

Since the downturn in the Dutch housing market started in the second half of 2008, house prices in the Netherlands have dropped by over 20% in nominal terms, and by almost 30% in real terms. The Dutch housing market crash started several quarters later then in many other European countries, which can be explained by other countries economic slowdowns starting earlier. In several countries the housing market already showed some signs of recovery in 2009. However, in the Netherlands, like Ireland, Italy and Spain, the housing market downturn has been persistent (Figure 3.1).

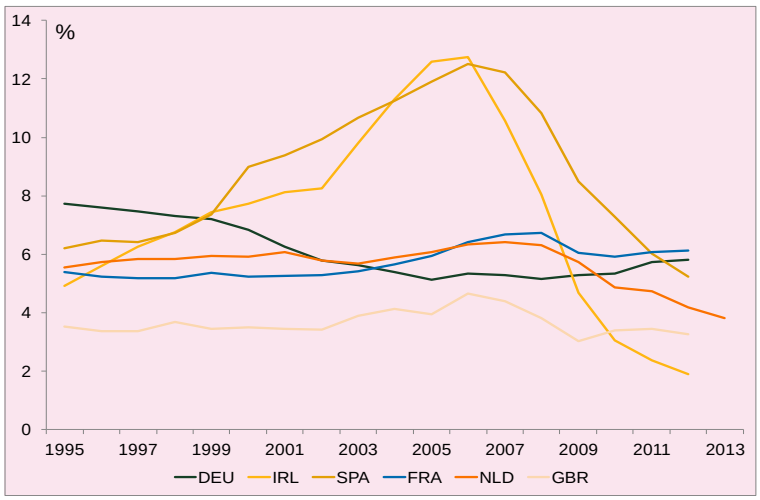
Figure 3.1 House prices during the boom and bust (index, 2000=100)



Source: Statistics Netherlands and Dallas Fed.

At first, the downturn of Dutch house prices was relatively mild: between 2008 and the third quarter of 2010 house price fell just 6%. However, coincident with the double-dip recession starting in 2011 house prices started to fall more quickly, falling a further 17% by the second quarter of 2013. As described in Chapter 5, the double-dip recession coincided with rapidly increasing unemployment and a public debate on housing policy reforms, which had a negative effect on the housing market. Furthermore the number of buyers expecting further falls in house prices was growing (OTB, 2011). At the same time, the Dutch government introduced reforms aimed at lowering fiscal subsidies to homeowners and lowering their mortgage indebtedness. For example, the LTV-ratio for first-time buyers was lowered to 106% and the proportion of any mortgage that could be interest-only was restricted to 50%. Therefore buyers could borrow less, limiting the amount they could pay for a house.

Figure 3.2 Housing investment during the boom and bust



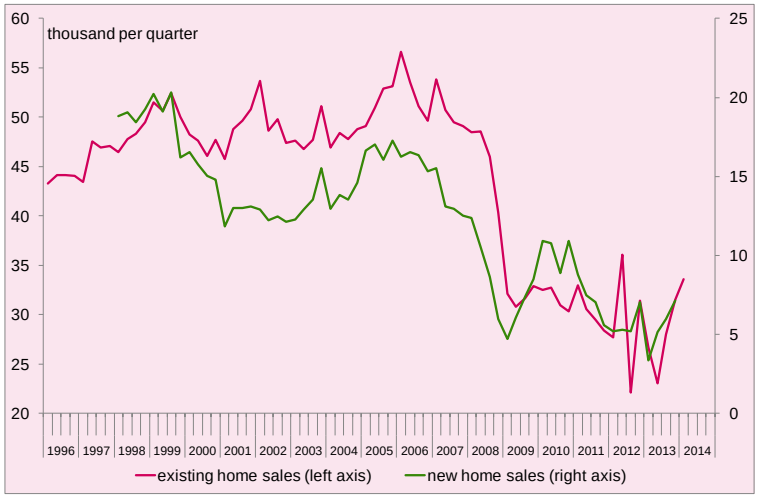
Source: Eurostat.

Lower house prices and less demand for homes led to lower investment in housing. In most countries before the crisis, investment in housing as a proportion of GDP increased, especially in Ireland and Spain. This can clearly be seen in Figure 3.2 where the proportion of GDP accounted for by housing investment in Ireland and Spain rose from 5-6% in 1995 to over 12% in 2006. In turn, when the crisis started they took the hardest hit. Like many other European countries, the Netherlands saw housing investment increase before the crisis, albeit much less than in Ireland or Spain. However, after Ireland and Spain, the Netherlands has seen the biggest drop in the investment ratio, falling from about 6.5% in 2006-2008 to under 4% in 2013. During the two decades preceding the crisis, the share of GDP accounted for by investment in housing remained close to 6%.[24] It is therefore likely that the drop since 2008 reflects a deviation from the long-run equilibrium.

An important difference between the Dutch housing market crisis and the crises in countries that experienced a large construction boom during the last decade is that the availability of housing relative to demand remains relatively low in the Netherlands. The Dutch housing market is characterised by "a surprisingly small supply of houses for such a high income country" (OECD, 2010, p.116). In countries with excess supply of housing, dwellings may remain unoccupied which may depress house prices for a long period of time. The relative scarcity of housing in the Netherlands improves the chance of a quick recovery.

The fall in investment coincided with a dramatic fall in sales of new homes, as shown in Figure 3.3. Sales of new homes fell from around 12 to 16 thousand per quarter to around 5 thousand per quarter in 2012. Having difficulty selling newly completed homes clearly doesn't encourage investment in yet more new houses. It wasn't only sales of new homes that fell dramatically: sales of existing homes plummeted from around 50 thousand per quarter before the crisis to around 30 thousand per quarter in each of the last 5 years.

Figure 3.3 Home sales in the Netherlands



Source: Statistics Netherlands and Monitor Nieuwe Woningen, own calculations.

[24] Investment in housing was relatively higher in the 1970s and 1980s, however.

According to data from Statistics Netherlands, 1.4 million households have a mortgage worth more than the value of their home. That is, about 1 out of 3 households that own a house is under water. Their overhang is on average 61.000 euros. These numbers are not corrected for households' savings or savings and investment products directly linked to household mortgages. DNB (2014) reports that 30% of the mortgages are under water when corrected for savings in savings or investment products. This number amounts to 1.1 million mortgages with negative equity. For these mortgages, the value of "under water" debt is unknown.

Negative equity is concentrated among younger owners. Two-thirds of homes with negative equity have owners younger than 45, with people under 40 the worst affected (CBS, 2014). Often, these are the people who bought their home just before the crisis and have paid little of their mortgage off. Consequently, they also run the greatest risk of selling their homes at a loss and being left with residual debt. By comparison, older home owners typically do not face this problem: in January 2013, nearly 45 per cent of home owners over 65 had no mortgage debt and only 3% had negative housing equity.

Although the amount of homes with negative equity is relatively high compared with other countries, mortgage delinquencies are very low (see Table 3.1). However, according to the Rabobank (2014) there is a delay between the peak in unemployment and the peak in delinquencies of around two years. Even so, the level of delinquencies will probably remain low compared with other countries. Possible explanations for this are the relatively unfavorable Dutch recourse laws (especially compared to the US), relatively low unemployment rates, a well developed social safety net, as well as low net interest rates due to the income tax deductibility of mortgage interest payments.

Table 3.1 Financial impact crisis on household in selected countries (source: DNB, 2014, p. 21)

	Netherlands	Denmark	Ireland	Spain	UK	US
Fall in nominal house prices (%)	-21.5	-20.1	-48.9	-30.1	-13.5	-18.1
Delinquencies 2013 (%)	1.3	0.3	12.3	5.2	1.3	9.3
Under water (%)	30	n.a.	52	20	1.6-6.4	13

Although home sales are at historically low levels there are signs of recovery in the Dutch housing market. First of all, house prices are no longer falling: they have been stable since the first quarter of 2013, and affordability of housing has substantially improved. Existing and new home sales have been steadily increasing since then, a sign that potential buyers are becoming less reluctant. Along with the consumers' confidence, housing market sentiment has been rising for more than a year (VEH, 2014). Moreover, surveys indicate that a growing number of potential buyers think further price decreases are unlikely and it is currently a good time to buy a house (OTB, 2014).

3.3 Stylised facts

As we have seen in the previous section, house prices have fallen significantly in the Netherlands leaving many households with mortgages that are worth more than the houses they are secured against. By definition, the problems of negative equity would disappear if house prices were to return to their former level. Therefore, to put the observations of the previous section in perspective, this section outlines the most important stylised facts for housing markets. We start by discussing the long-run determinants of house prices and then move on to shorter-term price volatility and credit restrictions. Finally, we also discuss evidence of the role that recent trends in the housing market play for household mobility.

Long-run determinants of house prices

Long-run house prices depend, first of all, on the availability of land. Besides the physical availability of land, spatial planning policies and zoning laws are important determinants of house prices. These are important factors in the Netherlands, as the land available for building new dwellings is strictly limited by law (OECD, 2005). Building costs are relevant for the supply side as well, but these are generally quite stable over time.

On the demand side, household income, demographics and the user costs of housing are the main determinants that affect long-run equilibrium prices. Also here, housing policies can be relevant. Tax subsidies for home ownership, for instance, drive down user costs, which lead to greater demand for housing and pushes up house prices when supply is less than fully elastic. Rental market regulations have a similar effect. The excess demand for rental housing that regulation creates partly spills over to the owner-occupied sector, leading to higher house prices for comparable houses.

Finally, from an investor's perspective, the long-run interest rate and the premium that can be earned by investing in housing together determine the value for real estate (see DiPasquale and Wheaton, 1996). In equilibrium, investing in housing must be equally attractive compared to investing in other assets after controlling for risk.

Price volatility and disequilibrium

However, housing markets are characterised by largely fixed stocks in the short-run, which only slowly adapt to changing market conditions (DiPasquale and Wheaton, 1996). This implies that short-term price fluctuations can be substantial. As stocks cannot immediately adjust, a shift in demand fully translates itself into price adjustments. This is especially the case for downward shocks to housing demand since the existing housing stock can only decline slowly through depreciation. Furthermore, the supply of housing may even continue to increase for several years as cancelling construction projects already in progress may be costly. Eventually, the price changes do affect construction. But as these flows are small compared to stock levels, it can take many years before a new long-term equilibrium is reached. As mentioned earlier, in the Netherlands, the price elasticity of supply is particularly low due restrictions on the availability of land for residential housing. This is especially the case in the Randstad, where the restrictiveness of planning restrictions has

increased over time and employment growth has outpaced the local supply of housing (OECD, 2010).

Therefore, from a theoretical point of view it is easy to understand why it can take a long time before housing markets adjust to a new steady state. Even if house prices are, in any period, equal to their short term equilibrium values, the sluggishness on the supply side hinders a rapid adaptation to changing market conditions. For example, Ambrose *et al.* (2013) show that actual market prices can persistently and substantially deviate from their fundamental values. In particular, they decompose the rent-price ratio into the discounted expected future real interest rate, the discounted expected future growth of rents and the discounted housing risk premium. Using 355 years of data on housing transactions on the Herengracht in Amsterdam, they conclude that the convergence of prices and fundamentals may take decades.

One possible explanation for the weak convergence of prices and fundamentals follows from Glaeser (2013), who argues that booms and busts in housing markets are, to some extent, driven by the limited cognition of investors. Buyers of property don't appear to be fully rational. High prices during a boom and low prices during a bust are, in his view, compatible with reasonable models of housing valuation and defendable beliefs about future price growth or decline. However, investors appear to systematically underestimate the impact of the elasticity of long-run supply on the long-term price, which can increase the volatility of housing prices in the short and medium run.

Price volatility is also addressed by Brunnermeier and Julliard (2008), who argue that money illusion in times of falling inflation drive a boom-bust cycle in house prices. When inflation falls, households fail to take this into account when predicting future nominal house price growth, which leads to a boom in real house prices. This explanation is particularly relevant in the Netherlands, where inflation averaged 3% between 1998 and 2003, but just 1.6% between 2003 and 2008. This may have contributed to an overvaluation of housing prices in the years just before the crisis.

The characteristics of housing market booms and busts

So if house prices are volatile and booms and busts are typical, what are the key characteristics of booms and busts? One specific feature of the housing market is the dependence on the credit conditions, which plays a role in housing market booms and busts having a strong self-driven mechanism: an increase in house prices increases households' leverage and thus improves their access to credit, which can further increase housing demand causing house prices to rise further.

Due to the self-driven mechanism we see prolonged house price booms and busts: Agnello and Schuknecht (2011) use house price data for 18 countries over the period 1970 to 2007 and identify booms and busts as prolonged exceptional price increases or decreases. They estimate the average length of a boom or bust length to be seven years, although booms range from three to 11 years, whilst busts range from three to 15 years. In their sample, they find that nine out of 25 booms were immediately followed by a bust rather than experiencing

a gradual slowdown. A further seven booms were immediately preceded by busts. So it is common for the house prices to have long adjustment cycles and for price booms and busts to happen immediately after each other. They also note that the length and magnitude of house price booms and the following busts are strongly positively correlated: longer and more severe booms are followed by longer and more severe busts.

Igan and Loungani (2010) describe the typical appearance of housing booms and busts in 55 countries from 1970 to 2010. They find that the typical boom lasts 20 quarters, during which real house prices rise by around 50%, whilst the typical bust lasts 18 quarters during which real house prices fall 23%.[25] Housing market busts also follow financial crises. Reinhart and Rogoff (2009) identified 15 systemic financial crises and analysed the consequences they had on macroeconomic variables. They find that real house prices fall on average 36% after the outbreak of a financial crisis.

It's not just prices that are subject to the boom-bust cycle: during the cycle the volume of transactions often follows house prices.[26] Initially when the prices start falling, home-owners (sellers) do not want to recognise losses and the number of transactions falls. It typically takes some time before home-owners lower their asking prices. Transactions may also fall because some potential buyers wait if they expect prices to fall further. Then, when prices have fallen enough to become affordable for a large number of potential buyers and potential sellers are willing to realise the losses, the number of transactions starts increasing. These increased sales are a signal that house prices may stabilise, which entices more potential buyers who were waiting to enter the market and the number of transactions increases further.

3.4 What is different this time?

Housing policy reforms

Since 2010, the Dutch government has announced various reforms in its housing policy. In 2011, the property transfer tax for private households was lowered from 6% of the transaction price to 2%. Deductibility of mortgage interest payments has also been limited. Since 2013, interest payments on new mortgages are only tax-deductible for annuity or linear mortgages, where the principal is steadily repaid during the lifetime of the mortgage. In addition, from 2014 onwards the maximum deduction rate of 52% (for the highest income tax bracket) for interest payments will be reduced to 38% in steps of half a percentage point per year. Finally, the maximum LTV ratio will be reduced stepwise from 104% to 100% in 2018.

In the rental sector, maximum rents in the social housing sector have been increased, where the actual annual increases depend on the income of the tenant. Furthermore, social housing

[25] Many other studies have also described housing markets as being subject to booms and busts. They include Case and Shiller (1989), Muellbauer and Murphy (1997), Bordo and Jeanne (2002), Martínez Pagés and Maza (2003) and Bénétrix *et al.* (2012).
[26] This description follows Rabobank (2013).

corporations will be subject to a levy. However, in the long-run, the increased revenues from the increase in maximum rents will offset the tax. This will make investment in rental housing more profitable, inducing more supply of rental housing.

Taken together, these reforms imply a lower fiscal subsidy for owner-occupants and a larger supply of rental houses. Both negatively affect the demand in the owner-occupied sector. Therefore, part of the decline in Dutch house prices can be explained by the reforms in Dutch housing policy that have been announced. However, even when taking into account the highly inelastic supply side, the reforms alone cannot explain the drop in house prices that notably started before the reforms. Obviously, the economic crisis played a key role as well.

Negative housing equity and household mobility

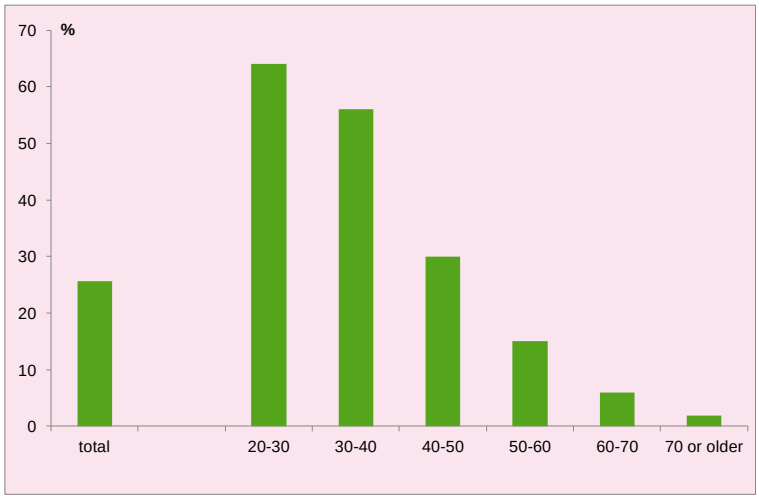
As described above, a distinctive feature of the current housing market crisis is the large share of households with a mortgage worth more than the home it is secured against. As Figure 3.4 shows, the share of underwater mortgages is particularly high for younger families, who often have 'top'-mortgages both when compared to the value of housing and their incomes. Starting in the 1990s, it became common in the Netherlands to not only buy a house without any down payment, but also to finance sales taxes (6% until 2011) and other costs related to buying a house with loans. Hence, a large fraction of households already had their mortgage between 8 and 10 percent underwater at the moment of buying. Many new homeowners therefore had an under water mortgage just after buying. Until the crisis high nominal house price growth typically resolved this within a few years, thereby removing constraints on their mobility. Banks have become less willing to finance mortgages with a high LTV ratio, making this practice less common.

A high incidence of interest-only mortgages has further contributed to the high share of households with their mortgage underwater, since the outstanding principal is not reduced over the lifetime of the mortgage. Given their initial preference for interest-only mortgages, it is not obvious that these households will compensate for this by other forms of saving.

It is worth mentioning that in the Netherlands more than half of all underwater mortgages are covered by the National Mortgage Guarantee (NHG) (DNB, 2014). If households are forced to sell their house (for example, because of divorce, unemployment or disability), NHG may, under some conditions, cancel debts that remain after selling the house. In these cases, the remaining debt is remitted without personal bankruptcy. Through the NHG scheme, the government ultimately bears a substantial part of the financial risks of underwater mortgages, thereby reducing risks for financial institutions.

Since 2008, the number of households with an underwater mortgage has tripled. There are several ways in which having an underwater mortgage affects the behaviour of households. It reduces the mobility of these households, thereby potentially reducing their labour mobility as well. Further, these households may reduce their consumption to save or repay their mortgage. While Chapter 6 discusses the effects of underwater households on consumption and saving, this section will focus on how negative home equity affects household mobility.

Figure 3.4 Share of households with underwater mortgages, 2013



Underwater households have limited options, and their mobility is severely constrained due to liquidity problems (Stein, 1995). Even though affordability of housing has improved during the crisis, and many owners are in the stage of their lifecycle where incomes tend to increase, if they wish to move house they will need to cover the remaining debt. Since it is difficult to take a loan higher than 105% of the new house's current price, they will generally need to have savings to be able to buy a new house. They can also move to a rental house by selling the current house and finance the loss by taking out a loan. However, the ability to rent another house will also be constrained by the outstanding liabilities from the previous house. As real interest rates on personal loans without collateral are much higher than those on mortgages, these liabilities can be substantial. At the reduced rates offered by banks for this specific purpose, there is currently[27] a premium of about 400 basis points. Also, households currently living in an owner-occupied house will often not be eligible for social renting, and renting in the private sector is more expensive than owning a house. An option that many households use is to put the house on the market for a price higher than the market price and wait. Because selling the house at a price above the market value is next to impossible, this option boils down to waiting until the market has recovered.

Besides liquidity constraints, loss aversion may also affect mobility negatively. As losses are only realised when a property is sold, households may avoid this such that the loss remains theoretical. Even though loss aversion may be particularly strong for households that are underwater (because they end up with a residual debt), it could play a role for households with lower mortgages as well. Empirical research (see Van Dijk, 2013, for an overview) has shown that loss aversion increases the minimum price at which households are willing to sell their property, which reduces housing market turnover.

Empirical evidence on the mobility of the underwater households is mixed. For the US, some studies find evidence of housing lock-in (see, for example, Ferreira *et al.* 2010 and 2011, or Andersson and Mayock, 2012), whilst a significant number of others find no evidence (Coulson and Greico, 2012 and Valletta, 2012). A few even find that households with negative

[27] May 2014, ING website.

equity are more likely to move than other households (Demyanyk *et al.*, 2013 and Coulson and Grieco, 2013). However, lending conditions in the Netherlands are substantially different from the US, where households often have the option to default on their mortgage by returning the keys to the bank. This may be one of the reasons why only 13% of all mortgages in the US are underwater (DNB, 2014). There are also a number of studies that analyse negative equity in European countries. In the UK, Henley (1998) finds that negative equity reduces the probability of a household moving. For households with negative equity, the probability of moving quickly falls from 10% per year for a typical household to zero as negative equity gets worse. However, based on the relatively small relation between commuting time and the probability to move, he concludes that the effect on labour market mobility may be relatively small.

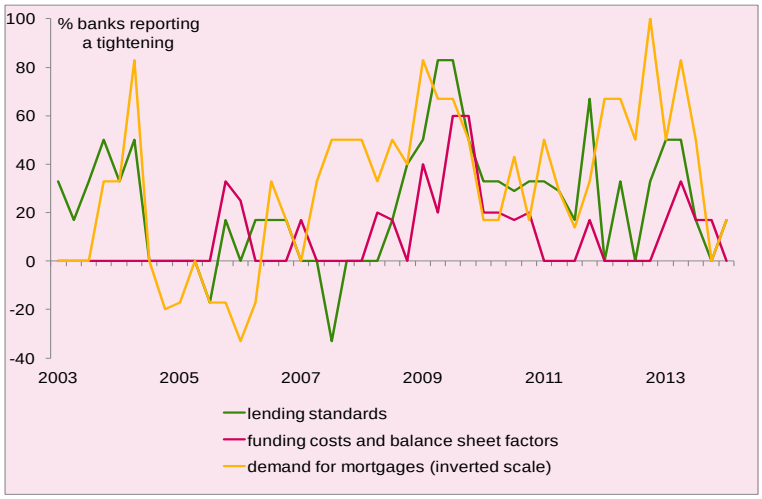
Even though there is some evidence that negative equity limits housing mobility, the literature shows that the associated labour market effects are likely to be limited. Moreover, due to the relatively small commuting distances in the Netherlands, especially in the Randstad region, the effects of negative equity on labour market mobility may even be smaller than in other, larger countries.

Restrictions in mortgage lending

Figure 3.5 shows how bank lending standards have changed over time for mortgage applicants. The data come from the Bank Lending Survey of DNB, where banks are periodically asked if their lending standards have changed. This figure shows the net percentage of banks that reported to have tightened their lending standards. So, if 30% of banks report a tightening and 10% report a loosening, the net percentage is simply 20%.

Since the crisis started in 2008, banks have clearly tightened lending standards for mortgages. In all years since 2008 the banks that reported a tightening outnumbered the banks that reported a loosening. Although, as the discussion in Chapter 2 made clear, these survey responses do not distinguish supply from demand effects, the survey does ask banks why they have changed their lending standards. Banks have often reported that the typical mortgage applicant looks different now from their perspective than the typical applicant before the crisis. When the downward risks to house prices increase, that means that the probability that the value of the collateral pledged when securing a mortgage falls also increases. This, in turn, increases the risk that a bank will not be able to get its money back, should there be problems with the loan. Therefore, banks are less willing to lend when house prices are falling. Similarly, lower transaction volumes make housing markets less liquid, further increasing the probability of losses for any given loan. If we add in the fact that unemployment has increased, which increases the probability that a given mortgage applicant will be unable to meet the monthly payments, we can see why applicants are more risky than before the crisis.

Figure 3.5 Bank lending survey for mortgage conditions



Source: DNB Bank Lending Survey.

As Figure 3.5 shows, the reported lending standards are also positively correlated with both funding cost and balance sheet issues and negatively correlated with the perceived demand for mortgages.[28] Whilst banks have been tightening lending standards for mortgages since 2008, some of that tightening follows from reduced demand for mortgages since 2007 and some from a reduction in the supply of mortgage credit. As described in Chapter 2, weak banks restrict lending to rebuild capital positions - and lending standards have only got stricter since the crisis started.

In short, the developments in the housing market over the last five years have made banks less willing to lend to households. Tighter lending standards limit the number of households who can secure a mortgage and also limit how much they can borrow. This translates into lower demand and lower house prices.

3.5 Key uncertainties in the coming ten years

The recovery of the Dutch housing market depends on many factors. We identify three key uncertainties that will most likely shape the developments in the Dutch housing market over the next ten years. Obviously, regional differences will play a role as well, but here we focus on the Dutch housing market in general.

As the signs of economic recovery are only weak, many households are probably not explicitly considering moving yet. But in time, the latent desire to move can become more manifest. However, as we discussed in this chapter, being underwater can seriously limit housing market mobility. Will households anticipate this and give priority to deleveraging? And if so, to what extent are they willing to sacrifice current consumption in order to save more and pay off some extra mortgage debt? The future behaviour of households who

[28] Inverted scale - when the depicted demand line goes up, demand for mortgages has fallen.

currently face negative equity constitutes the first key uncertainty in the Dutch housing market. If households put only limited effort into deleveraging their financial positions, many of them will find it very difficult to buy another house in the coming ten years. A substantial part of the potential demand for housing will then be ineffective.

The second key uncertainty relates to the availability of mortgage lending. International organisations advice further reforms of the mortgage deductibility regime. While lending standards have been tightened, their future developments over the next ten years are uncertain. A further tightening would ration household credit. Significant uncertainty about future reductions in LTV ratios also has the potential to lower demand and reduce prices. The Dutch government has already imposed a gradual reduction of the maximum LTV ratio to 100% in 2018. However, they have also announced that in the long-run, a further reduction would be desirable. Although no concrete policy measures have been announced, it is possible that after 2018 the maximum LTV ratios will be further reduced.

Finally, consumers' confidence in the Dutch housing market will also play a key role. Consumers' confidence will obviously be related to actual developments on the housing market and will, therefore, be partly related to the previous two key uncertainties. Additionally, confidence in the housing market can also be fed by consumer confidence in general. So a further recovery of macroeconomic conditions and global financial stability could make households more confident and increase their willingness to consume more housing services.

3.6 Summary: the housing market in three scenarios

Since the start of the Dutch housing market crisis in 2008 house prices, transactions and construction have dropped substantially. Even though real estate markets, with highly inelastic short-run supply conditions, have a cyclical nature where booms and busts are common, the current crisis has a number of distinctive features. Of particular interest is the large number of Dutch households with negative equity, which likely forms a substantial hurdle for moving. Furthermore, during the crisis the Dutch government has announced various reforms in its housing policy. These reforms imply a lower fiscal subsidy for owner-occupants and will eventually induce a larger supply of rental houses. Both reduce demand in the owner-occupied sector.

Therefore, part of the decline in Dutch house prices can be explained by the announced reforms in Dutch housing policy. The other part is related to the crisis. Eventually, one might expect that the negative impact of the crisis will eventually vanish. But even though house prices have stabilised since mid-2013, it remains uncertain to what extent and at what pace the Dutch housing market will recover. Recovery will largely depend on three key factors: deleveraging by households, credit availability and consumer confidence. Below, we summarise the range of possibilities in three scenarios that will be further developed in Chapter 8.

Accelerating Recovery: Recent figures on house prices and transactions contribute to growing confidence. Current low interest rates stimulate demand as well, the growing latent desire to move gradually becomes manifest, and availability of mortgage credit will increase. As a result demand increases, leading to rising house prices and favourable credit conditions. Fewer and fewer households are underwater as house prices increase, which further increases mobility. In the accelerating recovery scenario, nominal house prices will increase by 4% per year on average. After a number of years in which house prices fell much more than what would be expected from their fundamentals, this growth rate is consistent with a robust recovery towards their fundamental level.

Moderate Recovery: In this scenario, households put some effort into deleveraging and are helped by nominal house prices increases. Nevertheless, some households remain underwater and postpone moving. Mortgage availability remains at the level during the crisis and consumer confidence in the housing market is more or less neutral. Nominal house prices increase by 3% per year in this scenario. This growth rate is consistent with a slow recovery towards the fundamental house price level.

Delayed Recovery: Homeowners only put a little effort into deleveraging. Only when above water, do they consider moving. Ongoing or renewed global financial instability results in continuing job uncertainty and low consumer confidence. Banks further restrict mortgage lending; loan-to-value ratios are limited to levels below 100%. Consequently, demand from both new and existing home owners is restricted, resulting in decreasing nominal house prices (-0.5% per year on average). House prices do not move towards their long run fundamental values in the projected period for this scenario.

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4 Productivity after the Great Recession

Bert Smid, Adam Elbourne and Rob Luginbuhl

- Dutch labour productivity declined 3.5% in just three quarters after the onset of the Great Recession and there has been no rapid recovery since.
- On average, banking crises are associated with large, permanent declines in productivity relative to the previous trend.
- There is no evidence that banking crises have a long-run effect on the growth rate of productivity.

4.1 Introduction

Gross domestic product (GDP) is the product of total hours worked and the value added per hour worked, or labour productivity. Put differently, GDP can be increased by working more hours or by producing more output per hour. It is the latter which is important for our long-run living standards. That is because long-run developments in wages are driven by improvements in labour productivity. Labour productivity itself is a function of the capital intensity, the amount of capital each worker has available, and total factor productivity, or TFP. Growth in TFP is the part of productivity growth that is not due to increases in factor inputs (e.g. more physical capital or better educated workers). For a given size of the labour force and capital stock, a higher level of TFP results in a higher level of output.

The link between productivity and living standards is, in the current circumstances, cause for concern, because labour productivity in the Netherlands declined 3.5% in just three quarters after the onset of the Great Recession. As with the long lasting impact on GDP shown in Chapter 1, there has been no rapid recovery in labour productivity: four years after the trough the level of productivity was still below its pre-crisis level and the average growth rate has been less than 1%, much lower than before the crisis.

How can the substantial fall in labour productivity and subsequent slow recovery be explained? Which mechanisms are behind the fall and will there be a permanent loss of labour productivity? These issues are discussed in this chapter. In the next section we describe in more detail the recent developments in Dutch productivity, capital intensity and TFP, all three of which have fallen significantly below their pre-crisis trend. We review the empirical literature that investigates the effects of financial crises on labour productivity and then discuss a number of mechanisms that may account for the productivity declines since the start of the Great Recession. We then turn our attention to the possibility that the long-run growth rates of these three variables may be declining, as some have recently argued in

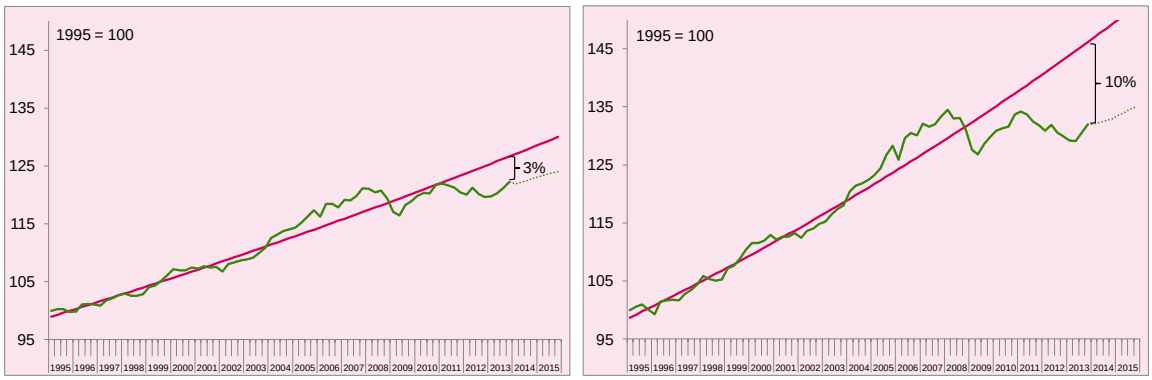
the literature. Finally, this chapter concludes by describing three paths for each of labour productivity, capital intensity and TFP, which give an indication of the possible developments in productivity over the coming ten years.

4.2 Dutch labour productivity and the Great Recession

As introduced above, labour productivity can be decomposed into TFP, the quality of labour inputs and capital intensity. This section will first discuss recent developments in measures of labour productivity and TFP, before turning our attention to investment, which is the key factor behind the level of capital intensity in an economy. Finally, this section takes a look at productivity developments across the different sectors of the Dutch economy.

For advanced countries that are close to the technology frontier, the average growth rate of labour productivity over longer periods has been between 1.5 and 2.5% annually.[29] There can be substantial cyclical fluctuations around the average growth rate, however, because labour productivity declines in a typical recession. Compared to the magnitude of typical fluctuations, the onset of the Great Recession coincided with exceptional declines: labour productivity in the Netherlands declined 3.5% in just 3 quarters. In the market sector, the decline was even bigger at 4.7%.

Figure 4.1 Labour productivity total economy (left) and market sector below pre-crisis trend



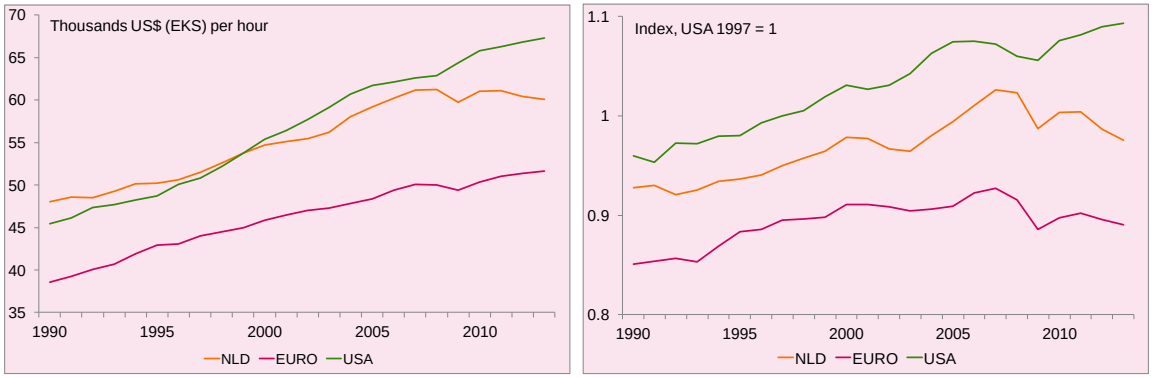
Index of labour productivity per fte, 1995.1 = 100. The trend is based on the period 1995-2004, the 10-year period that ends three years before the onset of the crisis. The dotted lines are CEP 2014 forecasts.

Figure 4.1 compares labour productivity in the total economy (left) and in the market sector (right) to a trend for 1995-2004.[30] By the end of 2013, the difference between observed productivity and the pre-crisis trend had accumulated to 10% for the market sector, which is substantial. For the whole economy the difference was smaller at 3%.[31] The size of these

[29] See Smid (2005) for an overview of growth rates of labour productivity since 1870 in advanced countries.
[30] This is the pre-crisis trend based on the ten-year period ending three years before the onset of the crisis, using the same method as in IMF (2009).
[31] The difference is lower in the total economy, mainly due to an increase in growth of the labour productivity in the health care sector since 2004. The pre-crisis trend in the health care sector is downward sloping i.e. labour productivity was actually falling in the health care sector before 2004. It is implausible that the recent increase in productivity growth is related to the credit crisis.

deviations from trend depends critically on the time period chosen for calculating the trend. For example, if we calculate the pre-crisis trend over 1998-2007, the loss for the whole economy in 2013 is 8%.

Figure 4.2 Dutch labour productivity falls behind United States (left), TFP gap widens



Source: Total Economy Database, GGDC-paper benchmark level TFP 1997.

The Netherlands is not the only country to have experienced falling productivity levels since the onset of the crisis. Figure 4.2 puts Dutch productivity in an international context by comparing recent developments to those in the United States and the euro area, where TFP has also fallen. The level of Dutch labour productivity is high and followed the level of the United States until the onset of the crisis. Whereas productivity in the United States subsequently continued to grow, Dutch productivity is still below its 2007 level. A similar pattern is visible in the level of TFP: according to data from The Conference Board, Dutch TFP is 5% lower than its peak in 2007. That is similar to that of the euro area as a whole, which has fallen 4%. However, in contrast to the Netherlands, the euro area started in 1990 at a significantly lower productivity level than the United States. Moreover, over the period 1990-2007, Figure 4.2 shows that the euro area as a whole did not catch up with the productivity level of the United States.

Statistics Netherlands also publish a decomposition of changes in value added in the Growth Accounts, as shown in Table 4.1. The table confirms that the larger part of the decrease in value added since the crisis was due to multifactor productivity, which is a similar concept to TFP.[32] Out of a total decline in output from 2008 to 2012 of -2.7%, declining multifactor productivity accounted for -1.9% points of the fall. In fact, annual growth of multifactor productivity was fully 2% points lower than the average from before the crisis. Besides multifactor productivity, labour also contributed to the decline.

In contrast, the contribution of capital was positive at an average annual contribution of 0.1%. However, this was still significantly lower than in the pre-crisis period when annual growth in the capital stock contributed 0.7% points to value added. The lower contribution of capital is, of course, the result of lower investment during the Great Recession, as described in Chapter 1. A large part of that fall can be explained by investment in dwellings,

[32] Statistics Netherlands do not adjust labour inputs for composition effects, e.g. due to education. Therefore increases in educational attainment are part of multifactor productivity growth. Apart from this, multifactor productivity resembles TFP.

which has declined substantially since the onset of the crisis and will be treated in more detail in Chapter 3.

Difficulties in measuring productivity

Labour productivity (value added or GDP (Y) per hour worked (L)) depends on total factor productivity (A), labour quality (Q) and capital intensity (K/L). Total value added is

$$Y = AF(L \cdot Q, K)$$

where $F()$ is the production function.In growth accounting exercises, in general, constant returns to scale and perfect competitive factor markets are assumed. In that case, it is possible to write

$$\Delta \ln\left(\frac{Y}{L}\right) = \Delta \ln A + v_l \Delta \ln Q + v_k \Delta \ln\left(\frac{K}{L}\right)$$

This equation decomposes labour productivity growth into the contribution of total factor productivity (TFP or $\Delta \ln A$), the contribution of the quality of labour and the contribution of capital intensity.[a] Statistics Netherlands do not separate the effect of the quality of the labour inputs, their multifactor productivity is the sum of total factor productivity and the contribution of the quality of labour.

In practice it is difficult to measure these variables. Labour productivity should be measured per hour worked. During recessions employers will tend to cut overtime and may even practice labour hoarding: temporarily keeping workers idle either because it is too expensive to fire them, or because employers may anticipate that the workers will soon be needed when economic conditions improve. When labour hoarding occurs, measured labour productivity will decline because there are workers standing idle not producing, even though they are officially continuing to work the same number of hours. During an economic boom, the opposite may occur.

Capital intensity is difficult to measure primarily because the level of the capital stock is not generally directly measured. Instead the capital stock is typically a constructed by cumulating investment in capital over time, while also allowing for the depreciation in the capital stock each period. The rate of depreciation in the capital stock is itself uncertain. It is generally thought to vary over the various types of capital, and there is little consensus about the correct rate for any of these types. Even if we had an accurate measure of the capital stock, this measure would still be subject to variable capital utilisation: during recessions an increased fraction of the capital stock stands idle, not producing anything due to insufficient demand.

In general total factor productivity (TFP) is the most difficult to measure accurately. This is due to the fact that it is obtained as the residual in the equation above. Once we 'know' labour productivity Y/L and capital intensity K/L and make an assumption about $f()$ it is possible to calculate A. This means that measurement errors in the other variables will also influence TFP. This residual is also dependent on the functional form of the production function assumed, and on whether other factors have been taken into account such as a correcting for capacity utilization or the level of human capital in the labour force.

TFP is also strongly influenced by the business cycle. Once the raw residual has been calculated the HP filter is typically used to remove the business cycle, leaving the trend. Filtering, however, only diminishes the extent to which the business cycle affects the trend, but cannot eliminate it. This is particularly the case at the end of the sample period when the HP filter is less effective at distinguishing between changes in the trend and temporary changes due to the business cycle.

[a] See The Conference board (2014) for a useful methodological note on measuring TFP.

Investment in dwellings will have an effect on the production of the construction sector, but not on the productivity of the market sector, which depends on investment in productive machinery. However, as Figure 4.3 shows, investment excluding dwellings also declined (and also relative to GDP) in the Great Recession, which has resulted in the capital stock growing

at a slower rate than before the crisis. Nonetheless, according to Statistics Netherlands the net contribution to growth was still positive in 2009-2012.

Table 4.1 Decomposition of lower level of value added of the commercial sector

	Level 2012 vs. level 2008 in %	Annual growth 1996-2008 % per year	Annual growth 2009-2012 % per year
Value added commercial sector	- 2.7	3.1	- 0.7
Contribution of			
Labour	- 1.1	0.9	- 0.3
Capital	0.4	0.7	0.1
Multifactor productivity	- 1.9	1.5	- 0.5

Source: Statistics Netherlands. The commercial sector roughly equals the market sector plus mining and the health-care sector.

The ratio of investment to gross value added has decreased since 2000.[33] This is mainly driven by lower relative prices of capital goods, especially of ICT, although this effect has diminished somewhat recently. Figure 4.3 shows the ratio of investment to gross value added since 1969. From 1974 onwards the ratio remains reasonably constant: there does not seem to be a declining trend. However, since 2002, the ratio has been below the long-term average. It may be that the ratio (excluding dwellings) will stabilise at a level lower than the average over the last 40 years. In addition, investment in dwellings has decreased substantially since the start of the Great Recession.

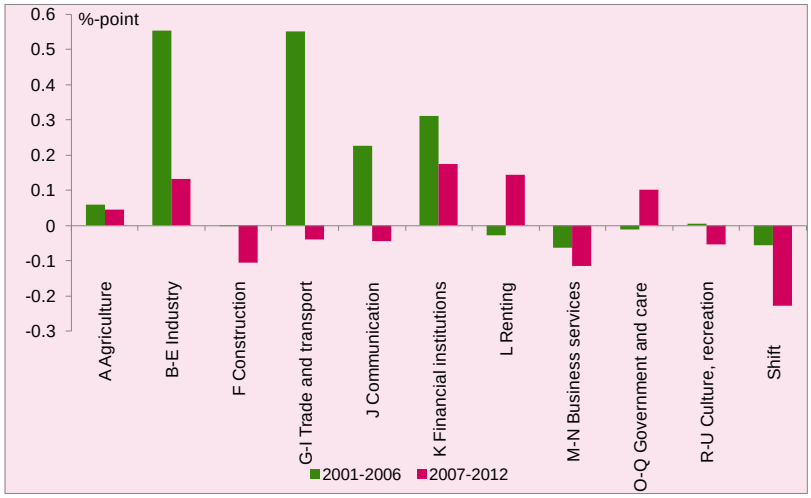
The ratio of investment to gross value added also fell in the Great Recession. However, investment is procyclical and more volatile than GDP, which implies that the investment-output ratio falls in recessions. In the Great Recession it is not clear if the fall was due to lower aggregate demand reducing the demand for investment or credit restrictions reducing the supply of funding for investment projects. As Chapter 2 showed, there is evidence that credit restrictions are real and that SMEs have had difficulties obtaining credit because of problems within the banking system. However, as Figure 4.3 shows, the fall in the investment-output ratio during the great recession is no larger than the fall during the economic slowdown in the early 1990s. In contrast, one would expect *a priori* that investment, which is often dependent on external finance, would be harder hit following a banking crisis than in a typical economic slowdown. Unfortunately, we don't have a counterfactual for what would have happened to the investment-output ratio in such a recession without problems in the banking system - it could have been that it would have risen back towards its long-run average. Therefore, it is difficult to explain the macro level investment data, which remains a puzzle.

[33] See the box "Wat bepaalt de sterke daling van de Nederlandse investeringsquote?" in CPB (2014), p. 41.

Figure 4.3 Nominal investment to gross value added ratio (left) and real investment by firms (right)

Which sectors of the economy were behind the productivity slowdown in the Great Recession? The average productivity growth of the total economy was 1.6% per year in 2001-2006 but only 0% in 2007-2012. Figure 4.4 decomposes these total growth rates into the contribution of different sectors.[34] Except for renting of dwellings and government and health care, all sectors contributed to lower productivity growth in 2007-2012. The effect was largest in the manufacturing sector, which had a 0.4%-point lower contribution, and the wholesale and retail trade sector with a 0.6%-point lower contribution.

Figure 4.4 Contributions to labour-productivity growth by sectors, 2001-2012



In summary, during the Great Recession, there was a large decrease in labour productivity and slow growth in the years after the crisis. In the market sector, labour productivity is now about 10% below the pre-crisis trend and the stalled productivity growth is widely spread across sectors.

[34] The figure shows the results of a shift-share analysis that decomposes the total growth into two parts. The first part is the contribution of a sector to total productivity growth. This is the productivity growth multiplied by the employment share of the sector, assuming a constant employment share of the sector. The second part is the composition effect of changes in employment across the sectors.

4.3 Empirical analyses of productivity losses in financial crises

The previous section described the substantial decline in Dutch productivity levels since the start of the Great Recession; this section places those declines in context by comparing them with other financial crises. There is, in fact, a considerable literature that examines the effects of financial crises on macroeconomic performance. The majority of these studies focus on the consequences for GDP, which is only a rough proxy for what happens to labour productivity. A clear result that arises from this literature is that, as introduced in Chapter 1, financial crises are not ordinary recessions — they tend to cause large, permanent falls in the levels of both GDP and productivity, without affecting growth rates permanently. The main findings of selected papers are shown in Table 4.2.

Table 4.2 Effect of banking crises on macroeconomic aggregates

	Variable	Sample	Effect
Reinhart and Rogoff (2009)	GDP	14 banking crises	9.3% peak-to-trough
Cerra and Saxena (2008)	GDP	Industrialised countries	6% permanent loss
Teulings and Zubanov (2013)	GDP	54 non-African countries	6% fall after 9-10 years
IMF (2009)	GDP	88 banking crises	10% fall after 7 years
Abiad *et al.* (2009)	TFP	27 banking crises	5% fall after 1 year
Oulton and Sebsatiá-Barriel (2013)	Labour productivity	61 countries	About 1% permanent loss

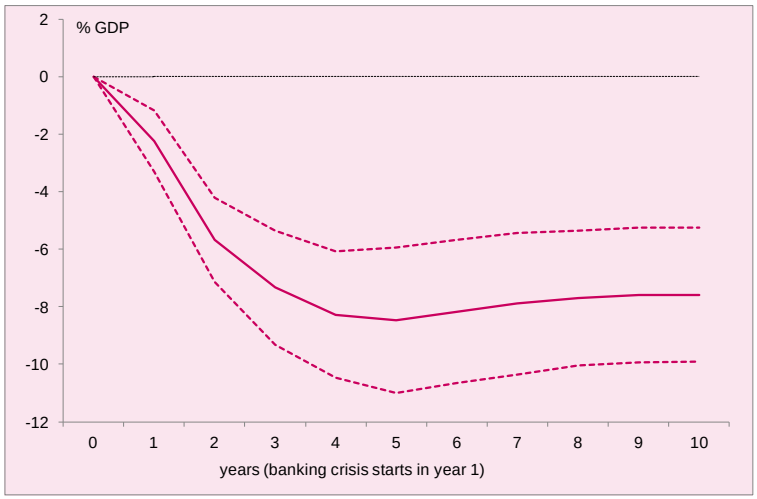
Reinhart and Rogoff (2009) look at fourteen major banking crises and find that banking crises cause deep, long recessions. Further analysis in CEP (2009) showed that for these fourteen cases the average growth rate of GDP in the ten years before the crisis (3.9%) was about the same as in the ten years after the trough (4.1%). That implies that the 9.3% peak-to-trough reported by Reinhart and Rogoff is largely permanent.

Other authors have also found that banking crises have large, permanent effects on GDP. Cerra and Saxena (2008) report that, using a sample of 112 banking crises distributed over 125 countries, the average effect of a banking crisis is that GDP falls permanently by about 8%. They find no evidence that the growth rate of GDP after the crisis is higher or lower than before the crisis, on average. For the subset of industrialised countries they find a similar result as for the full sample, with a permanent loss of about 6% of GDP. Their findings for the average effects of a banking crisis on GDP are shown in Figure 4.5.

This picture has been confirmed by other studies. For example, Teulings and Zubanov (2013) undertake a similar exercise to Cerra and Saxena and find that in non-African countries the average effects of an average banking crisis is a loss of about 6% of GDP 9-10 years after a banking crisis. IMF (2009) also finds large medium-term effects of banking crises. They compare growth rates before and after banking crises based on a sample of 88 banking crises and find an average deviation of 10% of GDP relative to its pre-crisis trend. Like the other studies listed above, they find that the growth rate returns to its pre-crisis level in the medium-term. They also provide evidence that the individual country experiences around

the average are extremely varied. Only the middle 50% of cases lie between 6% above and 26% below the pre-crisis trend after seven years - the other 50% are more extreme.

Figure 4.5 Effect of a typical banking crisis on GDP (Authors own reproduction of Cerra and Saxena, 2008)



The evidence for productivity is less compelling – there are fewer studies and more problems with data definitions. Abiad *et al.* (2013) is one study that looks at the consequences of a banking crisis for TFP by comparing TFP before and after a banking crisis. On average, they find that TFP drops immediately to a new level 5% below the old trend in the year after the crisis hit and then stays there. In the long-run, both average GDP growth and average TFP growth rate is the same as before the crisis.

There is also evidence that banking crises have permanent effects on labour productivity. Oulton and Sebastiá-Barriel (2013) find that each year of crisis reduces long-run labour productivity relative to the pre-crisis trend by between 0.8% and 1.1%. They argue that this effect is at least partly explained by a lower capital-labour ratio, which they find falls on average by about 1%. Oulton and Sebastiá-Barriel also look at the effects of financial crises on GDP for which they find a similar result to the other studies mentioned above: a permanent loss relative to the pre-crisis trend.

As highlighted in the discussions of both Cerra and Saxena and Teulings and Zubanov above, there may be differences in the effects of banking crises between rich and poor countries. In both these studies the point estimates of the permanent loss of GDP was smaller in developed countries, although the differences were statistically insignificant. Abiad *et al.* contains relatively many developing countries in their analysis so, if there are important differences in the effects of banking crises between rich and poor countries, there results may be less relevant for the current situation in the Netherlands. Oulton and Sebastiá-Barriel perform regressions for different subsamples of countries. When they focus on developed countries only, banking crises no longer have a statistically significant effect on labour productivity or capital per worker, although they still find a statistically significant effect on GDP per capita, albeit lower than for the whole sample. Oulton and Sebastiá-Barriel caution

against concluding that developed countries can expect less damage from a banking crisis because, they argue, most banking crises in developed countries have been relatively mild or have been set against a relatively benign international environment, something that is not the case for the Great Recession.

Given that output falls persistently after a financial crisis it follows that at least some of the components of GDP also fall. A banking crisis is typified by disruptions in credit intermediation, hence it seems natural to expect that investment, the component of GDP most heavily reliant on external finance, would be sensitive to a banking crisis. Abiad *et al.* find that to be the case. They find that investment falls on average by about 30% relative to the pre-crisis trend in the year following the crisis and that the effect is roughly the same after seven years. Such large effects seem to be driven by countries in their sample that had experienced investment bubbles prior to their banking crises. Another study that finds a qualitatively similar result is Rioja *et al.* (2014), who find that an average banking crisis lowers the investment-GDP ratio by 1.7% for eight years following the start of the crisis - a magnitude more in line with the results of Oulton and Sebastiá-Barriel.

In summary, the empirical evidence on the effects of past banking crises on productivity is that they are, on average, associated with large, permanent declines in productivity relative to the previous trend. As with the effects on GDP, there is no evidence to suggest that banking crises have a long-run effect on the growth rate of productivity, on average.

New research into productivity declines after financial crises

In this section, we present two new pieces of analysis concerning the effects of banking crises on labour productivity. The first is a descriptive analysis looking at the Reinhart-Rogoff systemic banking crisis episodes. The second new analysis is an econometric analysis based on a panel of countries that experienced banking crises.

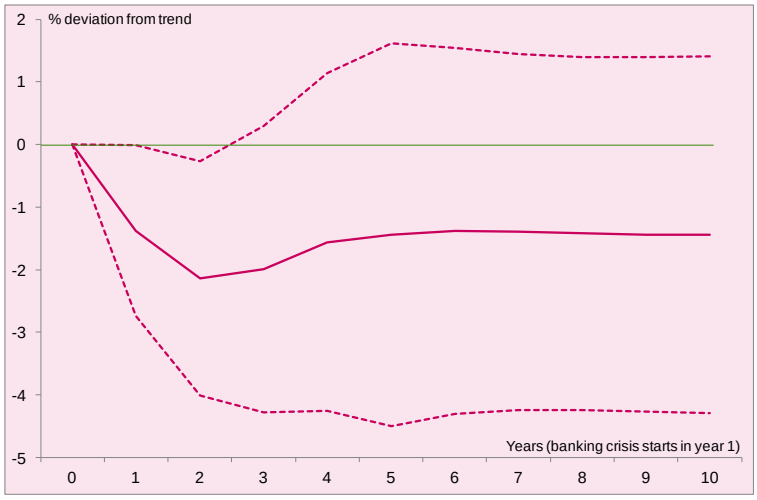
Reinhart and Rogoff (2009) identified 15 systemic financial crises and analysed the consequences they had on macroeconomic variables. They focus on the differences from peak to trough, and find that GDP per capita falls on average 9%, the unemployment rate increases by 9% points and real house prices fall 36%. We look at the same financial crises and compare labour productivity and TFP growth in the ten years before the peak to the ten years after the trough. Like Reinhart and Rogoff, peaks and troughs are based on GDP per capita. Table 4.3 shows that the average growth rate of labour productivity was 1%-point lower after the crises, for TFP the growth rate was slightly higher (based on a smaller sample). However, the variation is large; four of the eleven countries had a higher growth rate of labour productivity after the trough compared to before the peak. The average level of labour productivity is actually higher after the crisis, but this result is influenced by an increase of almost 13% in Finland. All countries (in the smaller subsample) had TFP losses. The main lesson is that the effects of financial crises on labour productivity can vary widely.

Table 4.3 Labour productivity and TFP before and after systemic financial crises

	Labour productivity per hour			TFP		
	10 years to peak	10 years after trough	peak to trough	10 years to peak	10 years after trough	peak to trough
Spain (1977)	5.9	4.0	6.6			
Japan (1992)	3.5	1.9	4.4			
Norway (1987)	2.7	3.1	0.3			
Sweden (1991)	1.0	2.6	4.2			
Hong Kong (1997)	2.8	3.3	-4.6	1.0	2.5	-7.4
Colombia (1998)	0.4	0.8	-2.1	-0.8	-0.1	-4.9
South Korea (1997)	5.4	4.7	4.2	2.0	2.6	-2.6
Malaysia (1997)	4.5	3.3	-7.3	1.1	2.2	-11.8
Finland (1991)	3.1	2.6	12.6			
Thailand (1997)	7.4	2.7	-7.6	1.1	1.9	-14.4
Argentina (1998)	2.1	-2.3	-2.4	2.6	-0.5	-13.1
Average	3.5	2.4	0.7	1.2	1.4	-9.0

Source: Total economy database (The Conference Board). This database has no data on Norway (1899), United States (1929), Indonesia (1997) and Philippines (1997).
Peaks and troughs are based on GDP per capita.

Figure 4.6 Average effect of a banking crisis on labour productivity per hour



Note: Dashed lines indicate 90% bootstrapped confidence interval.

Using the method of Cerra and Saxena (2008),[35] we have estimated the effect of a banking crisis on labour productivity per hour using data from the Conference Board. The results, based on a panel of 58 countries and the same banking crisis dummy as in Cerra and Saxena, are shown in Figure 4.6. As with the Cerra and Saxena results for GDP, our estimates suggest that banking crises may have permanent effects on labour productivity, although due to the

[35] Specifically, we estimate equation (1) from Cerra and Saxena (2008): $g_{it} = a_i + \sum_{j=1}^{4} \beta_j g_{i,t-j} + \sum_{s=0}^{4} S_j D_{i,t-s} + e_{it}$. In our specification we simply replace the growth rate of real GDP in country i, g_i, by labour productivity. The remaining variables remain the same and are: a_i, fixed effect for average growth in labour productivity in country i, β_j, coefficients on lagged growth in labour productivity, S_j, coefficients on current and lagged banking crisis dummy, $D_{i,t}$, banking crisis dummy and e_{it}, an error term. We also keep the same lag structure since the coefficients of higher lags are insignificant.

smaller sample size the confidence bands are wide and the estimated effects are not statistically significantly different from zero. Qualitatively these results are consistent with those of Abiad *et al.* (2013) and Oulton and Sebastiá-Barriel (2013) described above — on average there is a level shift but no long-run effect on the growth rate of labour productivity.

Comparing the Netherlands to empirical averages

So how do the experiences in the Netherlands since the start of the Great Recession compare to the averages in tables 4.2 and 4.3? Unfortunately, making such a comparison is not straightforward. For starters, as this book makes clear, the crisis in the Netherlands is not yet over, which makes it difficult to estimate the long-run effects. Furthermore, the averages in Table 4.2 are relative to different trend measures, which means we would also have to take a stand on the relevant trend concept for the Netherlands. For the Netherlands this is complicated because some of the pre-crisis period coincided with, for example, increasing female labour force participation, which inflated GDP growth in the pre-crisis years. Using the average pre-crisis growth rate would therefore mean using an unreasonably high benchmark.

What we can do, is to compare peak-to-trough measures in a similar vein to the analysis of Reinhart and Rogoff (2014) and Table 4.3. In the Great Recession the peak-to-trough fall in GDP per capita in the Netherlands was 5.3%, which is less than the average reported by Reinhart and Rogoff (2009). The comparable number for labour productivity is 1.9%, whilst for TFP it is 4.7%. The experiences of the Netherlands since the Great Recession are, therefore, not unusual, since IMF (2009) and Table 4.3 make clear that the variation in experiences after banking crises is large.

4.4 Theoretical explanations for productivity losses in financial crises

As shown in the previous section, the level of productivity declines on average following a financial crisis, and this has recently been the case in the Netherlands since the Great Recession. To some extent the effects of a financial crisis on the level of productivity will be temporary and to some extent they will be permanent. The temporary effects may be related to labour hoarding and consolidation. Other mechanisms produce longer-lasting effects. Lower investment in physical or human capital or in research and development may decrease long-run productivity. Other mechanisms decrease the level of organisational capital through disruptions to supply chains and the existence of zombie firms.

In this section, we discuss these economic mechanisms and the extent to which these declines will tend to be temporary or permanent. We start by briefly discussing the mechanisms behind temporary changes before turning our attention to those mechanisms which result in longer-run, persistent changes in productivity levels.

There are a number of reasons why a decline in labour productivity may be temporary. Employers may not reduce their labour force when faced with falling demand for their products if, for example, they expect the downturn to be short-lived or they are concerned about being able to hire appropriately skilled workers when the recovery starts. They may also retain idle workers if it is costly to lay off workers due to contractual severance pay or labour market regulations. This decision to retain idle workers is called labour hoarding and is examined in more detail in Chapter 5. At the start of the crisis in the Netherlands, labour hoarding played a role in limiting the increase in unemployment. These workers were not solely committed to producing output, which implies that the effective labour force was smaller than that measured by the number of people employed. As a result measured labour productivity fell, simply because we did not measure the effective labour force well. However, firms cannot hoard labour indefinitely, since it clearly isn't profitable to do so. Hence, labour hoarding will only cause temporary declines in labour productivity. Labour hoarding is one of a number of reasons why it is hard to measure labour productivity accurately, see the box "It is difficult to measure productivity" for more details on measurement issues.

Consolidation may be another reason to expect temporary effects on labour productivity. There is a large literature concerning the effects of changes in government spending, which comes to widely differing conclusions (see Lukkezen (2013) for an overview). One thing they do typically agree on, however, is that changes in government expenditure only have temporary effects. Government cut-backs will not have long-term effects on TFP or the factors of production, and so will not affect the economy's long-run production capacity.[36] Unlike cut-backs to government spending, higher tax rates could well have long-run effects on the level of output because they distort economic decisions about, for example, how much labour to supply. However, there is little evidence that higher tax rates lower the long-run growth rate: countries with widely differing tax regimes all grow at rates following the growth of global technology. That developed countries can have different levels of output and productivity but have the same growth rates can be seen in Figure 4.2.

Whilst some of the effects of the crisis will only be temporary, the empirical literature consistently finds evidence that banking crises have permanent effects on the levels of GDP. There is also some evidence of permanent effects on labour productivity. Permanent effects can arise from permanent changes to any of the three production factors: the quality or quantity of labour employed, the quantity of capital employed or the level of TFP.

The effect of long lasting periods of high unemployment, which tend to follow a financial crisis, is straightforward: it lowers the level of labour productivity because unemployed workers miss out on work experience that would otherwise have increased their level of human capital. Ultimately this effect disappears once the affected workers leave the labour force, but could be long-lasting because youth unemployment often rises more during periods of deep economic downturn. Chapter 5 investigates the likely consequences of the crisis for long-run labour supply in more detail.

[36] The literature does not typically examine the effects of cut-backs in the middle of deep recessions, however.

The capital stock falls following a financial crisis due to lower levels of investment. These declines in investment can occur for a number of reasons. The price of risk tends to increase dramatically during a financial crisis, as does the level of uncertainty. On the other hand, expectations of future output tend to fall. These three factors reduce the incentive to invest in the capital stock. In their study Abiad *et al.* (2013) also cite a number of other factors from the literature which can adversely affect investment by firms. These include tighter lending standards, lower firm profit rates, and lower asset prices that weaken corporate balance sheets and reduce the value of firms' collateral. These mechanisms apply to investments in physical capital, in-firm training and research and development.

There are other factors that can adversely affect technology in times of crisis. The general argument is that the amount of innovation during economic downturns is reduced, see Corrado *et al.* (2009) and Marrano *et al.* (2009) for a more detailed discussion. Changes in the rate of firm entry and exit in times of crisis might be expected to improve efficiency via the process of creative destruction first discussed by Schumpeter (1942). Millard and Nicolae (2012) however discuss studies indicating that the opposite may be the case: in times of crisis less innovative so-called zombie firms may be propped up by bank forbearance, while new firms using new technology or business methods and creating new products may not be able to obtain the credit they need to get started. Ohanian (2001) also cites a number of studies arguing that increased firm bankruptcies involve breakdowns in relationships between suppliers and between firms and their customers. This may force managers to shift time away from production and into search activities. Increased numbers of firm bankruptcies during a crisis also results in the loss of productive capital as factories are permanently closed.

Financial crises can have temporary and permanent effects on labour productivity. Temporary effects may be related to labour hoarding and consolidation. Other mechanisms have permanent effects. Lower investment in physical or human capital or in research and development may decrease long-run productivity. Other mechanisms decrease the level of organisational capital through disruptions of supply chains and the existence of zombie firms.

Clearly there are a considerable number of theoretical mechanisms that can influence the path of productivity during financial crises. However, it is difficult to quantify the effects of these mechanisms. Ohanian (2001) studied the decline in TFP during the Great Depression and concludes that of the decline of 18%, only 5% can be accounted for. This is an illustration that economists still do not fully understand the causes of productivity declines during financial crises.

4.5 Have the long-run growth possibilities declined?

So far, we have discussed the typical effects of financial crises on the level of productivity relative to trend: the average financial crisis has a negative effect on the level of labour productivity, with little or no catching-up to the pre-crisis trend. However, the trend growth of labour productivity may have also decreased, irrespective of the crisis. If there is indeed a productivity slowdown, this will have important consequences for living standards in the decades to come.

The literature mentions a number of reasons why there might be a productivity slowdown. The first reason is a lower contribution from innovation. Robert Gordon (2014) sees the post-1974 productivity slowdown as the best available evidence that the third industrial revolution (mainly digital, post-1972) was a mere shadow of the second industrial revolution (multi-dimensional, 1875-1972). Others, like Brynjolfsson and McAfee (2014), are more optimistic and expect an inflection point because of computers. "The key building blocks are already in place for digital technologies to be as important and transformational to society and the economy as the steam engine."

Secondly, increases in educational attainment will slow and eventually stop. Therefore the contribution of labour composition on productivity will decrease. Byrne, Oliner and Sichel (2013) write that this contribution might decline by 0.27%-points. OECD (2014) assume that the annual contribution of human capital to productivity growth in the United States remains 0.1%-point until 2030. For the euro area they expect a decline from 0.5%-point in 2000-2007 to 0.3%-point in the period 2014-2030. For the Netherlands, they expect a contribution of 0.3%-point until 2030, and 0.2%-point afterwards. On top of that, Fernald and Jones (2014) expect that the growth of R&D intensity and population in the developed economies will slow. In a semi-endogenous growth model, this will decrease the rate of future productivity growth. They see the rapid growth in the number of researchers worldwide, which has been driven by the rise of China and India, as a counterbalancing factor.

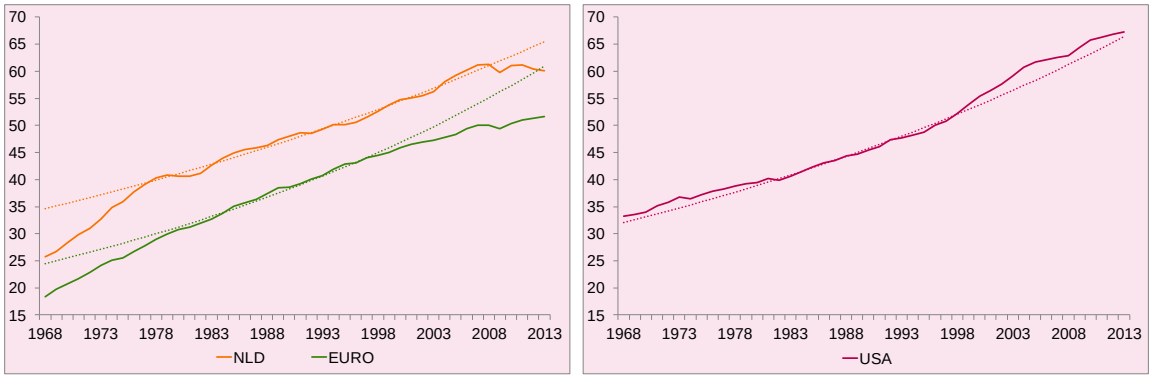
What do the data tell us about a possible productivity slowdown? Table 4.4 shows growth rates of labour productivity since 1968. In the euro area, average productivity growth was higher than in the United States until the mid 1990s. However, in each decade the growth rate was lower than in the previous period. In contrast, this was not true for the economies of the Netherlands and the United States, where productivity growth increased in the last decade before the crisis.

Table 4.4 Labour productivity growth 1968-2007

	Netherlands	Euro area	United States
Labour productivity growth			
1968-1977	4.8	4.9	1.7
1978-1987	1.6	2.7	1.3
1988-1997	1.2	1.9	1.6
1998-2007	1.7	1.3	2.1

The thick lines in Figure 4.7 are the productivity trends based on the period 1980-2000. The average growth in the euro area was 2.0% per year in that period. The figure shows that the euro area has not kept up with that trend. This is despite the fact that the level of productivity in the euro area was still well below that in the United States, as Figure 4.7 shows. From 2000 onwards, Dutch labour productivity growth has been slightly above the 1980-2000 trend, which has 1.4% growth. For the United States, labour productivity growth was on average 1.6% in 1980-2000, it accelerated afterwards until the start of the Great Recession.

Figure 4.7 Labour productivity per hour since 1968, compared to trend 1980-2000, the Netherlands and euro area (left) and United States (right)



Will there be a productivity slowdown? The growth rate slowed in the euro area in the decade before the crisis. However, this did not occur in the Netherlands and the United States. Also, the cause of the slower growth rate in the euro area is uncertain. The contribution of future innovations from the digital revolution to productivity growth is hard to assess. Though the future contribution of educational attainment to productivity growth may decline, this is unlikely to have a large influence on productivity growth in the next decade. In summary, there is no consensus in the literature about the direction of future productivity growth. There are upward and downward risks, irrespective of the aftermath of the crisis.

4.6 Productivity after the Great Recession

This chapter has described the substantial effects of banking crises on productivity and highlighted some of the mechanisms that may be at work. This chapter has also looked at the key uncertainties surrounding labour productivity in the coming ten years. In the Netherlands since the onset of the Great Recession, there have been substantial declines in productivity relative to the pre-crisis trend. These declines have been broadly based across most of the major sectors of the Dutch economy. The key empirical result from past banking crises is that, on average, they have large effects on the level of productivity, but that there is no evidence that a typical banking crisis changes the long-run growth rate of productivity.

Applying those lessons to the Netherlands suggests that the deviations from the pre-crisis trend might be largely permanent. For the Netherlands the average productivity growth in the twenty years preceding the start of the Great Recession was 1.4%, there is no hard evidence that productivity growth in the Netherlands will be lower in the long-run, although there is some debate about possible lower long-run productivity growth worldwide. Furthermore, there is uncertainty about dating the end of the banking crisis and when the normal growth of productivity will resume.

In the next decade, productivity growth may be higher or lower than the long-run average; in the scenarios in Chapter 8 we consider a range between 1% and 1¾% per year. It can be higher if part of the current loss with respect to the pre-crisis trend turns out to be temporary. This can be the case if the losses are the result of labour hoarding or consolidation. If the Dutch economy manages to adopt technologies of the technological frontier and catch-up with the productivity level of the United States, productivity growth will turn out to be higher as well. The Netherlands has followed the productivity level of the United States for years, but recently the productivity gap has widened and it is uncertain if the Netherlands can catch-up again.

There are also downside risks to the development of productivity. Chapter 2 has highlighted the uncertainties concerning the health of banks in the Netherlands and the rest of the euro area, which clearly pose a risk to future productivity growth, by either limiting funding for R&D or for new investment. Slower technological advances or a decreasing contribution from educational attainment, as discussed in Section 5.4, are additional downward risks.

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5 Labour market responses to the Great Recession

Marloes de Graaf-Zijl, Hugo Erken, Debby Lanser, Wiljan van den Berge and Eric van Loon

- Dutch unemployment has shown an unusual pattern, rising slowly in the first phase of the Great Recession but quickly from 2012 onwards.
- When aggregate demand recovers, employment follows suit and the unemployment rate returns to the natural rate of about 4%.
- The Great Recession does not permanently affect labour supply, but may have affected the human capital of the long-term unemployed.

5.1 Introduction

The Dutch labour market has witnessed two distinctive phases of rising unemployment during the Great Recession. In the early phase of the crisis, the rise in unemployment was relatively mild, but after the "double dip" in 2012, unemployment accelerated rapidly to over 7%, the highest level in decades. Academics, policymakers and forecasters have been puzzled by both the pattern and timing of these developments. Specifically, one might wonder which part of the rise in unemployment is due to specific elements of the Great Recession, and which part is due to specific labour-market elements. This chapter documents and interprets what has happened in the Dutch labour market during the Great Recession, and examines the implications for the recovery from the crisis.

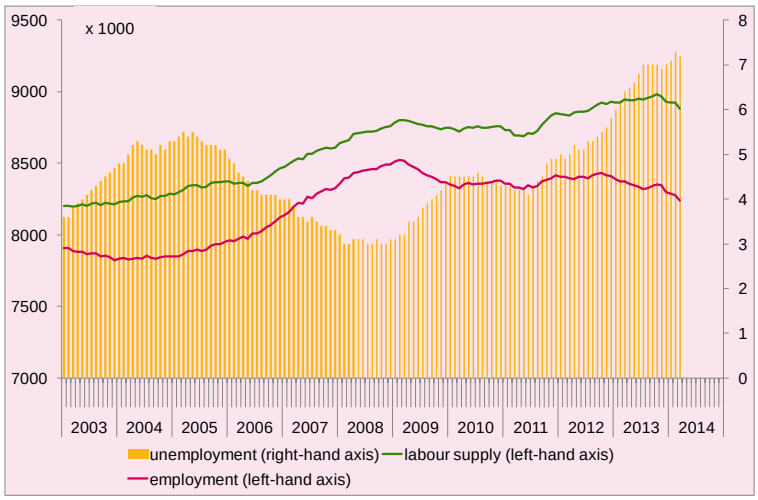
To determine what has happened, we first document the development of the rise in unemployment during the Great Recession, and show in what way this pattern differed from the usual unemployment response to a recession (Section 5.2). The two phases in the crisis, before and after the second dip, differ in terms of employment and labour supply patterns, which is elaborated upon in Section 5.3. Section 5.4 continues by exploring whether we expect long-run effects from the current losses in employment and labour supply, and whether we expect hysteresis in unemployment levels. We show that most losses are likely to be temporary, with scarring effects on the quality of human capital as one of the most likely elements to have a permanent effect on labour market outcomes. Section 5.5 discusses the factors that seem to be most important for recovery of the labour market.

5.2 What happened on the Dutch labour market?

Since the beginning of the Great Recession, Dutch unemployment has increased substantially (Figure 5.1). Within five years, the unemployment rate has more than doubled from 3.1% in 2008 to 7.2% in the first quarter of 2014. Forecasts show that it is likely that the peak in unemployment has not yet been reached (CPB, 2014a). Unemployment growth has not only been substantial; its timing has followed a remarkable pattern. In the early phase of the crisis, unemployment grew relatively slowly, especially considering the depth of the recession. After a phase of stabilisation, when the economy seemed to recover from the Great Recession, unemployment grew once more and this time more severely.

To be able to document and interpret the developments in the Dutch labour market, we investigate a number of trends. First, changes in unemployment are the result of developments in labour supply, on the one hand, and changes in employment levels, on the other. Figure 5.1 shows how labour supply, employment and unemployment developed before and during the Great Recession. The rise in unemployment in the first phase of the crisis (2009-2011) was the result of a decline in employment that surpassed the drop of labour supply. The second phase of the crisis (2011-2014) has been characterised by growing labour supply in combination with a decrease of employment. Only by the end of 2013 did labour supply start to decrease somewhat, slowing down the rapid increase of unemployment.

Figure 5.1 Moderate increase of unemployment in the first phase of the Great Recession (2008-2011) due to moderate employment response, rapid increase in unemployment in the second phase (2011-2014)



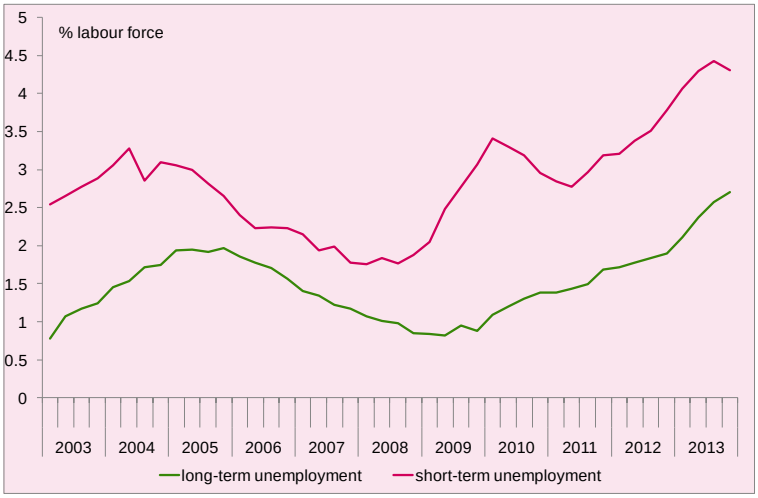
Source: Statistics Netherlands.

Second, the level of unemployment can be decomposed into long-term and short-term unemployment. During the Great Recession, long-term unemployment has increased substantially (Figure 5.2). Long-term unemployment encompasses all people who are unemployed for more than a year. The level of long-term unemployment in the Netherlands was approximately 1.0% prior to the Great Recession. During the crisis, long-term unemployment has gradually increased to 2.0% by late 2012. After that, it accelerated to 2.7% by late 2013. Short-term unemployment has developed in a more volatile way: it increased rapidly between late 2008 and mid-2010, and then decreased for a few quarters before starting to rise a second time from mid-2011 onwards.

Investigation of the composition of the group of long-term unemployed reveals that the increase in long-term unemployment is especially prominent among older workers (50 years and older) and the prime-age group (25-50 years). Between late 2009 and late 2013, long-term unemployment among workers aged 50-65 years rose from 1.3% to 3.4%. In contrast, short-term unemployment was especially prominent among young workers (15-25 years), reaching more than 9% by late 2013. In the prime-age group, both long-term and short-term unemployment show approximately the same pattern as the one depicted in Figure 5.2.

Third, it is interesting to document the flows of people between employment, unemployment and non-participation (that is, people voluntarily outside the labour force). These flows are substantial.

Figure 5.2 Especially long-term unemployment has grown substantially during the Great Recession



Source: Statistics Netherlands, data seasonally adjusted.

Figure 5.3 decomposes unemployment changes into contributions from employment and from non-participation. Unemployment growth in the period 2008-2009 seems to have been due to changes in employment (green bars): more people lost their job than unemployed people found work. After mid-2011, unemployment started to rise again. This time, the increase was mainly driven by flows from non-participation into unemployment (red bars). This suggests that there was a relatively large flow of unsuccessful entrants into the labour

force (e.g. students), which outpaced the discouraged unemployed leaving the labour market. The increase in unemployment was aggravated by a second wave of layoffs towards the end of 2012, which can be observed from the green bars in Figure 5.3.

Figure 5.3 Unemployment developments decomposed into flows from/to employment and flows from/to non-participation

Source: Statistics Netherlands, data seasonally adjusted.

Finally, the rise in unemployment should be accompanied by falling wages in a perfectly flexible labour market. When demand for labour falls, both quantities and prices are under pressure. In that sense, there seems to be a trade-off between wage adjustments and employment losses: unemployment rises more slowly if wages are adjusted downward (Bakker and Zeng, 2014). In the Dutch case, nominal wage growth slowed down after 2009, and real wage growth was negative and kept up with the decline in labour productivity (CPB, 2014a, pp. 51). Such adjustments help firms to also adapt to demand shocks via wages, not only through dismissing workers.

Figure 5.4 Growth in total real labour costs and labour productivity growth have moved in par during the Great Recession (1990=100)

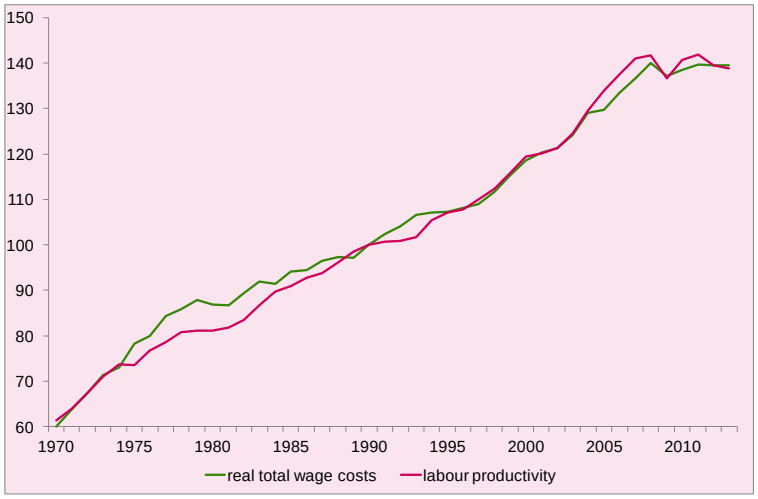
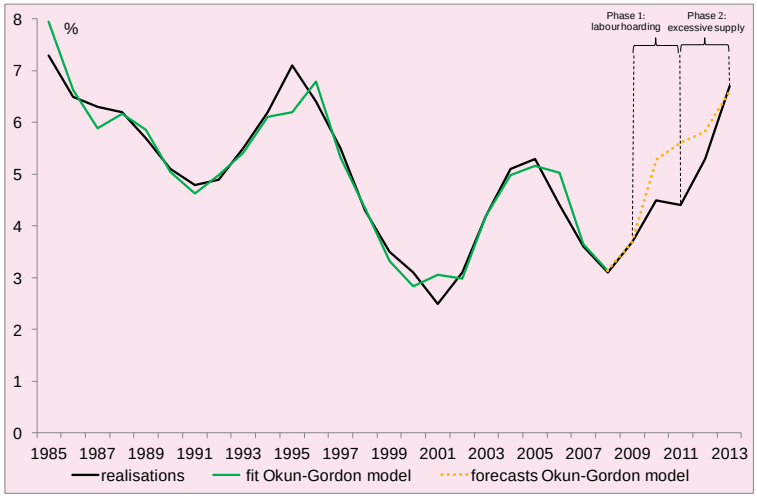


Figure 5.4 illustrates real wage costs and labour productivity developments in the Netherlands from the early 1970s onwards. Focussing on the period since 2008, we observe that real wages and labour productivity have moved in tandem. The slowdown of the rise in real wage costs does not seem to exceed the slowdown in labour productivity. This suggests that, for the Dutch economy as a whole, the downward pressure as a result of rising unemployment and deteriorating possibilities of finding work (for new entrants and those who had to find work again after being dismissed), was not fully absorbed in the wage costs. Most of the labour-market absorption of the crisis seems to have occurred in terms of quantities, not in prices.

5.3 Two distinct periods of rising unemployment

The unemployment response during the Great Recession seems to have deviated from the typical way unemployment reacts to growth slowdowns. In general, there exists a negative correlation between GDP growth and unemployment, which is commonly known as "Okun's Law" (Okun, 1962). Gordon (2010) transformed Okun's Law into a model that can be tested empirically, while taking into account the long-term steady state of the labour market. We follow Erken *et al.* (2014) who estimated this model for the Netherlands (see Figure 5.5). The results of this analysis show that the model fit during the period 1985-2008 captures the actual pattern accurately. The Dutch unemployment development during the Great Recession deviated from the model forecasts, however, which suggests that this time is different.

Figure 5.5 Unemployment developments deviated in the two phases of the crisis from expectations based on Okun's Law: unemployment growth below expectations in first phase (2008-2011), and above expectations in second phase (2011-2014)

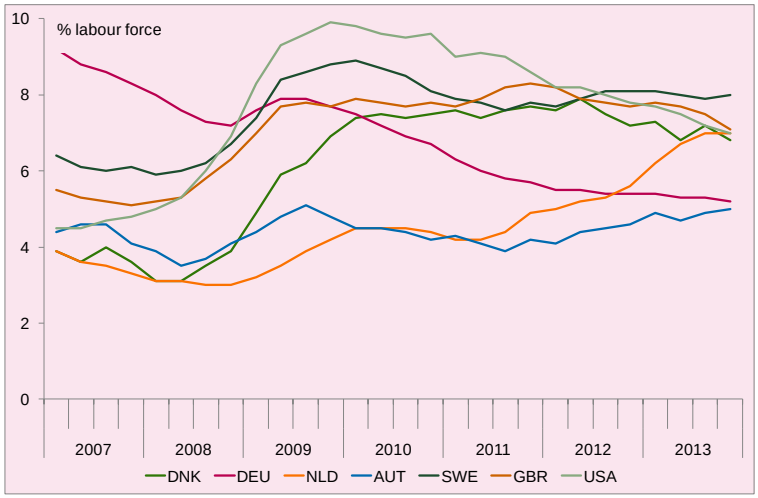


Source: Statistics Netherlands and own calculations (Van den Berge *et al.*, 2014).

As the numbers in the previous section suggest, there seem to be two phases of unemployment during the period after 2008. In the early phase of the crisis, the upward slope of unemployment was much smaller than was predicted by the Okun-Gordon model. In the second phase, the slope was much steeper than expected. We are now at the level predicted by the Okun-Gordon model, but the transition to this level seems to have been different and not in line with the usual way unemployment develops during a recession.

The Dutch unemployment pattern is atypical compared to other countries as well. Figure 5.6 shows the development of the Dutch unemployment rate vis-à-vis the US and some of its Northern-European peers, such as the UK, Denmark, Austria and Germany. These countries are identified as peers since they all have a low level of structural unemployment in combination with a high level of labour productivity.[37] Before the crisis, the Netherlands had one of the lowest unemployment levels. In the first phase of the crisis, Dutch unemployment remained below that of most of its peers. This changed considerably in the second phase of the crisis. In most of the peer countries, unemployment stabilized or even declined, while in the Netherlands unemployment grew rapidly after 2011. This is partly due to the fact that the Netherlands went through a second dip, which many of the peer countries did not. As a result, the level is now on-par with or even above that of its peers. In addition, expectations are that unemployment will continue to rise up until the fourth quarter of 2014, while it is already decreasing in many other countries.

Figure 5.6 Dutch unemployment was lowest in comparison with some peer countries before the Great Recession, but the Netherlands is worst performer in 2014



Source: Eurostat.

[37] The structural unemployment is measured by the Non-Accelerating Inflation Rate of Unemployment (NAIRU) of the OECD. The threshold value is set at the OECD average of 7.1%, based on observations for 2013. The level of labour productivity is based on the Total Economy Database of the Conference Board, with a threshold value of $50 per hour in 2013. Iceland, Luxembourg and Norway are left out of the comparison, to simplify the benchmark analysis.

5.3.1 The first phase: unemployment declined slower than expected

To understand the pattern of rising unemployment, we must understand what happened to employment and labour supply. The slow rise in unemployment in the first phase of the crisis (2008-2011) seems to have been the result of a mild employment drop, relative to the decline in GDP, while labour supply showed no strong or unanticipated movements. Most of the slow decline in employment is likely to be due to labour hoarding among firms that were financially able to do so, and a relatively high absorption capacity among the self-employed, who seem to have cut back on hours worked and hourly fees. Labour supply behaved as expected by declining somewhat, partly due to school leavers who postponed labour-market entrance and continued studying to enhance their labour market opportunities (Bouma *et al.*, 2011).

Labour hoarding

Labour hoarding plays an important role in the response to an economic downturn. It implies that firms refrain from lay-offs of redundant workers during a recession. Even though it is impossible to observe labour hoarding directly at the macroeconomic level, there seem to be clear indications that it was adopted by many Dutch firms, especially during the first phase of the crisis. Surveys among employers illustrate that almost 75% of those firms that did experience a drop in demand in 2009 did not lay off workers proportionally (Intomart, 2010; Van der Ende *et al.*, 2010a, b). Another indicator of labour hoarding is the decline of Dutch labour productivity, as documented in Figure 5.4 and the topic of Chapter 4. Labour hoarding was not specifically a Dutch phenomenon; several European countries witnessed a sharp drop in productivity during the beginning of the crisis.

Labour hoarding by firms in the early phase of the crisis can be explained from the pre-crisis situation of low corporate debt levels in combination with the tight labour market just before the crisis (De Jong, 2011; Van der Ende *et al.*, 2010a,b; Josten, 2011). In contrast to many other countries, Dutch firms did not finance their growth in the pre-crisis years with extensive debts (Bakker and Zeng, 2014). It was this high indebtedness and the ensuing need to deleverage that caused firms in other countries to cut employment. The fact that Dutch firms had many financial resources when the crisis started allowed firms to hoard labour.

The motivation of employers to hoard labour was to hold on to redundant workers with firm-specific human capital that were scarce just before the crisis hit the global economy (Van der Ende *et al.*, 2010). Many firms, anticipating what they expected to be a shortly-lived crisis, sought ways to be able to reallocate their personnel as quickly as possible when the crisis was over. This was reinforced by the fact that employers struggled to find appropriate personnel prior to the crisis. Indeed, the vacancy-to-unemployment ratio was very high in 2008 (Figure 5.7, left-hand panel). During this time, unemployed workers quickly returned to the labour market and students were picked from school to enter the labour market even before they graduated.

Figure 5.7 Vacancy/unemployment ratio boomed prior to the Great Recession (left) and high inflow into unemployment of persons with temporary contracts (right)

Source: Statistics Netherlands (left) and own calculations on the Labour Force Survey (right); moving average of four quarters.

Strict employment protection legislation (EPL) might be a reason for labour hoarding as well. It prevents firms from immediately changing their demand for labour in response to changes in product demand.[38] However, there does not seem to be strong empirical evidence that employers were holding on to redundant workers due to the strict EPL regime. Although EPL for permanent contracts in the Netherlands is above the OECD average, as it has been for a long time, employers hardly mentioned EPL as a motive to hold on to redundant workers (Josten, 2011 and Van der Ende *et al.*, 2010a,b). The high share of temporary contracts in employment (17.5% in 2008) probably cushioned regular workers. Such contracts provide flexibility to employers. Indeed, nearly 60 percent of all inflow into unemployment came from temporary employment (Figure 5.7 right).

In other countries (e.g. Germany and Italy), short- working-time schemes also seem to have contributed significantly to preserving jobs during the crisis (Hijzen and Venn, 2011; Hijzen and Martin, 2013; Boeri and Bruecker, 2011). In the Netherlands, two short-working-time schemes sequentially were put in place between late 2008 and mid-2011. Evidence is weak, however, that these schemes have contributed to the mild unemployment response during this period of crisis (Hijzen and Venn, 2011; De Jong, 2011; De Groot *et al.*, 2012).

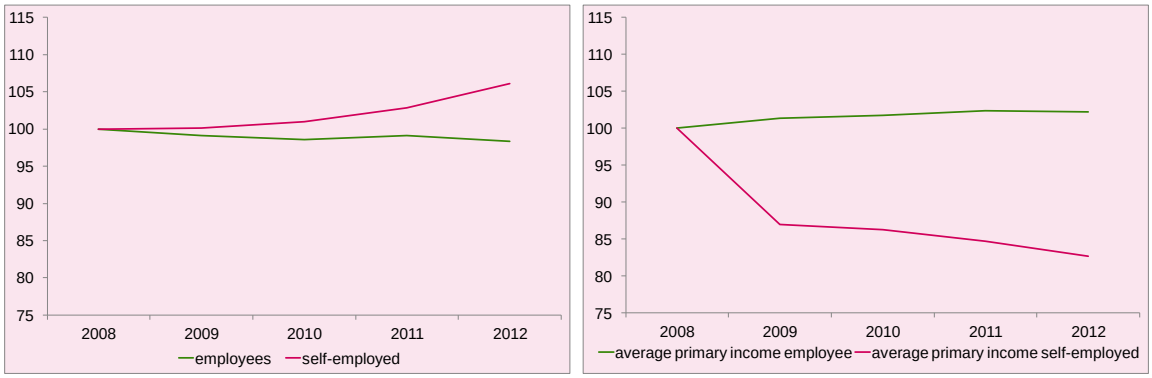
Self-employment

Another factor that cushioned the effect of a declining GDP on employment is the high share of self-employment in the Netherlands. In contrast to most other countries, the share of self-employed in Dutch employment has grown steadily over time (Figure 5.8, left-hand panel). In 2013, more than 15% of all people at work were self-employed. In economic downturns, self-employed workers cushion the effect of the slowdown in activity by means of lower income rather than being registered as unemployed (OECD, 2012; CPB, 2014a). Figure 5.8 illustrates this phenomenon. The number of self-employed grew, while the number of employees declined.[39] For average incomes, the opposite occurred. So while employees seem to have absorbed the shock in term of volumes, the self-employed seem to have absorbed it

[38] See e.g. Nickell (1978); Bentolila and Bertola (1990); Blanchard and Wolfers (2000) and Bassanini (2012).
[39] The increasing number of self-employed may partly be caused by the crisis itself, since self-employment is now a more attractive outside option for unemployed job seekers. But it is not the only reason behind the growth in the number of self-employed (Van Es and Van Vuuren, 2010).

in terms of their income. Average real income per self-employed person dropped considerably by 13% in 2009.

Figure 5.8 The number of self-employed grew, while number of employees declined (left), and the average real income of self-employed declined while that of employees remained constant (right), indices (2008 = 100)



Source: CPB, 2014a (p.46).

5.3.2 The second phase: unemployment grew faster than expected

Part of the explanation for the deviant Dutch unemployment pattern seems to be the fact that the Great Recession in the Netherlands is characterised by a double dip, with two subsequent periods of negative growth. Most other Northern European countries did not experience such a double dip, and seem to have been witnessing a stabilisation of their labour market in recent years. But the Dutch double dip cannot explain the entire difference with our peer countries. In the second phase of the crisis, unemployment grew faster than expected on the basis of the decline in GDP (Figure 5.5).

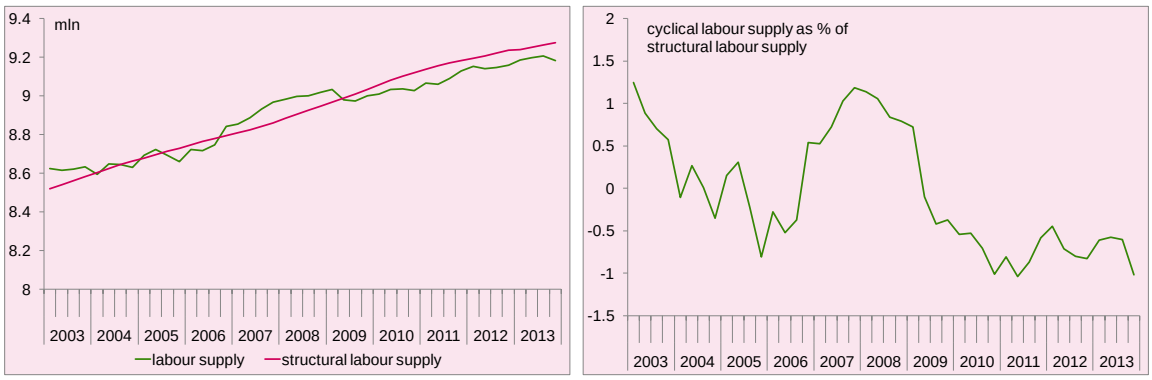
Figure 5.9 Displacements and bankruptcies increased especially in the second phase

Source: Statistics Netherlands.

It would be a matter of common sense to attribute the strong rise in unemployment in this second phase (2011-2013) to a catching-up process of delayed lay-offs from the first phase of the recession. When employers that hoarded labour in the first phase of the crisis were faced with a prolonged length and depth of the crisis, their financial buffers might have vanished, leading them to consequently opt for massive lay-offs in the second phase. Indeed, displacement increased substantially (Figure 5.9), and the income of self-employed declined at a much slower pace in the second phase (Figure 5.8). But this stronger employment response cannot fully explain the substantial upward shock in unemployment. There is an additional effect that comes from the labour supply side (the red bars in Figure 5.3 are substantial).

Labour-supply developments seem to be responsible for most of the aberrant movement in the Dutch unemployment figures in the second phase (CPB, 2011 pp. 13; CPB, 2013 pp. 47). Actual labour supply always deviates from its structural growth path due to business cycle fluctuations. The cycle influences both the necessity and the attractiveness of (looking for) work. The net effect of the cycle on labour-force participation is not clear theoretically, because two opposing effects are at play: the added-worker and discouraged-worker effects. The added-worker effect implies that household members outside the labour force will look for a job when faced with a reduction in household income (e.g., when their partner loses his/her job) in order to avoid a severe drop in income. The discouraged-worker effect implies that job seekers are discouraged when they are confronted with poor job-finding opportunities, and as a result leave the labour market.

Figure 5.10 Actual labour supply moved below its trend during the Great Recession in the early phase, hardly any further decline in the second phase (left). Cyclical labour supply is now about -1% (right)



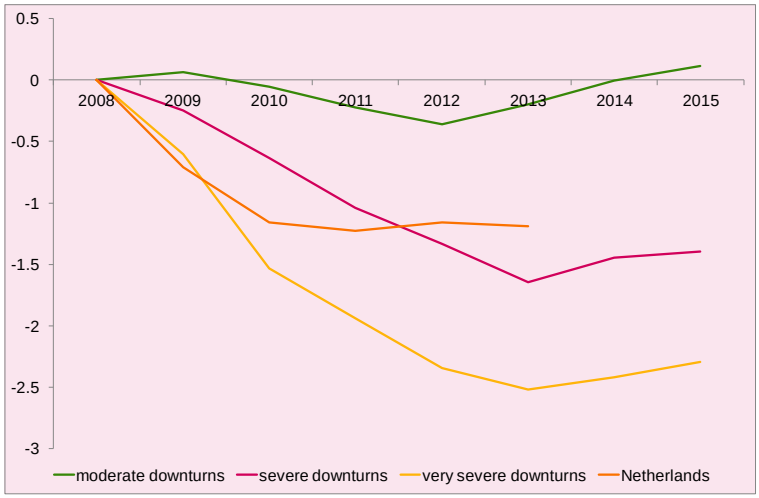
Source: Statistics Netherlands. Structural labour supply is based on CPB calculations in which structural participation rates are calculated by applying an HP-filter on the realised participation rates by age and gender, 1987-2013. An extensive explanation of the applied methodology can be found in Van den Berge *et al.* (2014).

As in most recessions, the discouraged-worker effect has dominated over the added-worker effect during the Dutch Great Recession (Figure 5.10 left). Many studies find that labour-force participation declines during downturns and increases during upswings (Van den Berge *et al.*, 2014). Figure 5.10 (left) illustrates that actual labour supply has moved below the structural trend during the Great Recession. As a result, labour supply is now about 1% below its structural trend (Figure 5.10, right). What is most striking is that cyclical labour

supply did not decrease further in the period mid-2011 to 2013. This is the period in which the aberrant labour-supply behaviour seems to have been most eminent.

The decline in cyclical labour-force participation was small given the severity of the economic downturn (Figure 5.11). Cyclical labour supply effects can be categorized depending on the severity of a downturn. According to the definition of Duval *et al.* (2011), the Great Recession in the Netherlands can be characterised somewhere in between a 'severe' downturn and a 'very severe' downturn.[40] Hence, the predicted path of cyclical participation loss for the Netherlands based on their estimates would lie somewhere between the red and green line in Figure 5.11, with an aggregate maximum decline of about 2 percentage points in 2013.

Figure 5.11 Dutch cyclical labour supply did not react as it normally does in a severe downturn (cumulative effects in %-points)



Source: own calculations based on estimates by Duval *et al.* (2011) and on CPB calculations of trend growth in Dutch participation rate. The estimates of Duval *et al.* are based on downturns in a group of 30 countries, in the period 1960-2008. Please note that the numbers for the Netherlands in this figure are not comparable to those in Figure 5.10 above. In figure 5.11, the cyclical labour supply is expressed a percentage of the potential labour force, whereas in Figure 5.10, it is expressed as a percentage of structural labour supply.

Indeed, during the first phase of the crisis up till 2011, the decline in cyclical labour participation in the Netherlands followed that of a very severe downturn. However, whereas a further decline would be the expected pattern according to the estimates by Duval *et al.* (2011), the cyclical part of labour participation has changed little from 2011 onwards. In 2013, it was above the severe downturn path and far above the very severe path. This means that fewer people withdrew from the labour market than expected, and, as a result, unemployment rose faster than expected (also see Erken *et al.*, 2014)

Both the high number of labour-market entrants in the period mid-2011 to mid-2013 and the lower levels of early retirement are consistent with the observation that the participation loss is relatively mild. The high number of labour-market entrants could be due to

[40] The severity of a crisis is defined by Duval *et al.* (2011) as the output gap difference between peak and trough. A moderate crisis is defined as a gap between 3 and 6 %-points; a severe crisis between 6 and 9 %-points and a very severe crisis more than 9 %-points. In the Netherlands, the output gap loss was roughly around 8¼ %-points.

individuals entering the labour market in order to absorb income shocks that result from the partner's job loss, or wealth shocks that result from the drop in housing prices. Even though such shocks may in principle be small in terms of lifetime income, people might not perceive the shocks as transitory, and may instead act upon them (see also the section on precautionary savings in Chapter 6) especially in case of low wealth, strong credit restrictions, long perceived duration of the income shock and limited access to benefits (Bryan and Longhi, 2013). Most, but not all, of these elements seem to be present in the Dutch Great Recession, with its financial character (in which deleveraging banks imposed credit constraints upon consumers), the loss of housing wealth and its long duration (which caused long-term unemployment). In addition, Dutch pensioners suffered major losses in real pensions, which made clear that a stable pension is not a guarantee. The rising uncertainty might have induced older workers to remain longer in the labour force (Erken *et al.*, 2014), although the increase in the participation rate of older workers is to a large extent structural, as a result of changing institutions (Van Erp *et al.*, 2014).

To understand the labour-supply response to the Great Recession, Van Loon *et al.* (2014) studied labour-market flows from non-employment to employment and unemployment in the Netherlands. Their data seem to point to evidence in favour of substantial increases in the number of labour-market entrants in the period from mid-2011 to mid-2013 (see Figure 5.3). The vast majority of entrants was unsuccessful, in the sense that they entered into unemployment and did not find work shortly afterwards. It is hard to label this as an added-worker effect (in the strict sense, due to partners' job loss), since many of these new workers were either single or had a working partner. Those added workers might react upon the higher uncertainty regarding the income of partner or parent or upon the lower (in many cases, even negative) housing wealth (Henley, 2004).

5.4 Long-run effects of the crisis

There are two contrasting views about labour-market prospects after the Great Recession. The first view is that the Great Recession has wrought permanent damage to the labour market; the second view is that the damage is only temporary. The permanency of the labour-market effects is important for the interpretation of how the Dutch labour market will recover from the Great Recession. In this section, we analyse the strength of the evidence suggesting long-run effects. In addition, we identify what we think are the key elements that should help determine the speed of recovery. We examine the possibility of hysteresis in unemployment, scarring effects and long-run labour-supply effects, and explore whether or not there is evidence pointing to long-run damage.

5.4.1 Unemployment: hysteresis versus natural rate hypothesis

The hysteresis hypothesis

According to the hysteresis hypothesis (Blanchard and Summers, 1986), cyclical unemployment affects structural unemployment. The term "hysteresis" (borrowed by economists from studies examining electromagnetism) encompasses the idea that transitory

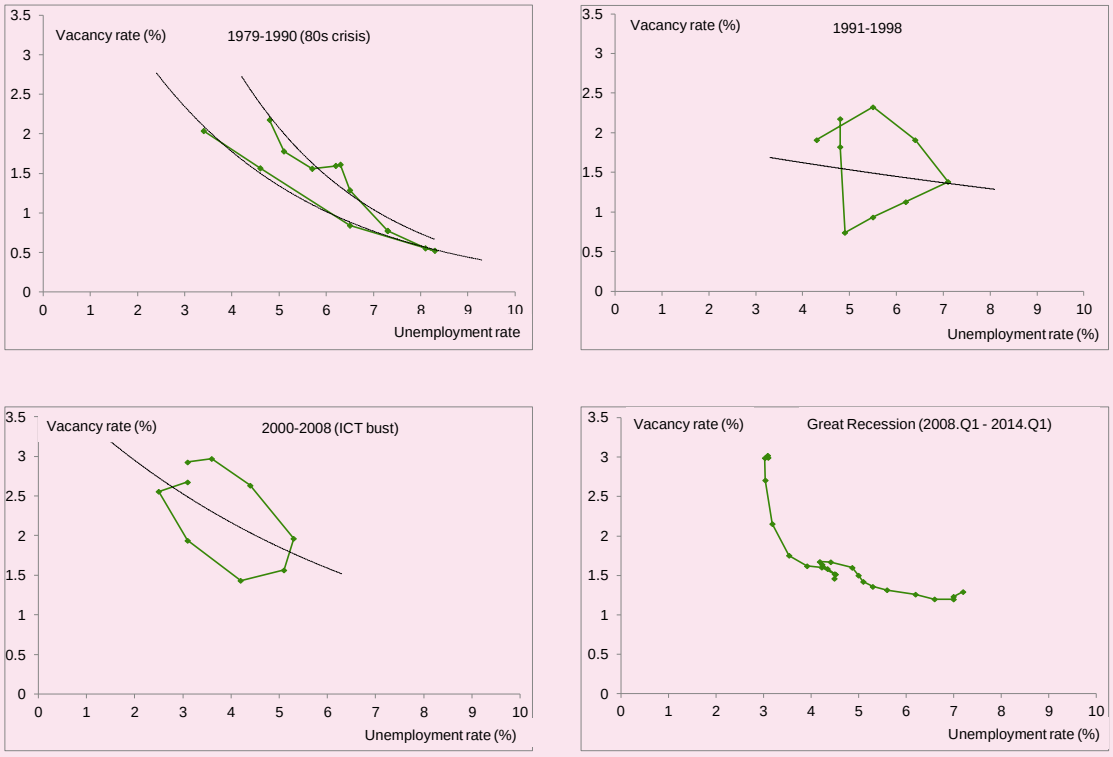
causes may have permanent effects. In theory, hysteresis could be the result of wage bargaining processes or human capital depreciation.

The Beveridge curve

Hysteresis might be visible in terms of a higher number of vacancies per unemployed job seeker, especially if it is the result of qualitative mismatching between labour demand and labour supply. The relation between vacancies and unemployment is commonly described by the Beveridge curve. Figure 5.12 shows this curve during four economic downturns. In each economic cycle the curve starts one year *after* the peak in GDP growth and ends one year after the next peak. During the crisis, the number of vacancies decreases, while unemployment grows. When the economy recovers, the opposite occurs. But the path is not symmetrical, since vacancies react more quickly than unemployment.

The recession in the 1990s and the ICT crisis in the early 2000s show the expected counter-clockwise adjustment pattern. The movement along the curve, with almost identical values at the beginning and end of the cycle, indicates that the deterioration on the Dutch labour market was primarily cyclical in nature, rather than structural. But the recession of the 1980s is different. After the 1980 recession we witnessed an outward shift of the Beveridge curve from the origin. Besides a lack of appropriate training and skills, the OECD (1993) attributes the outward shift of the Beveridge curve in the Netherlands to supply-side problems related to incentive and motivation. There were difficulties in filling low-skilled jobs, while unemployment among the low-skilled was high as well. Replacement rates in the Netherlands were among the highest of the OECD in this period (OECD, 1993). Evidence of an outward shift in the Beveridge curve after the recession in the 1980s due to high long-term unemployment is also reported by Driehuis (1990).

Figure 5.12 **The Beveridge curve followed the regular counter-clockwise pattern during the Dutch recessions in the 1990s and early 2000s, but witnessed a structural shift in the 1980s**



The Beveridge curve (continued)

Figure 5.12 illustrates the development of the Beveridge curve in the Netherlands during and after the Great Recession. Unknown as yet is whether the vacancy-to-unemployment rate will recover by its usual counter-clockwise pattern, or whether the long-term unemployed will have lost so much human capital that the pattern of the 1980s will be repeated. The replacement rates are no longer the problem; this time, the length and depth of the recession might be the problem, since this led to a high rate of long-term unemployment (see Figure 5.2). The first quarter of 2014 shows a slight upward jump in vacancies, without a decline in unemployment. It is too early to tell whether this is the start of a counter-clockwise adjustment pattern or of a shifting Beveridge curve. The same happened at the end of the ICT-crisis, and back then it was the start of a regular return.

In the 1980s, hysteresis as a result of wage rigidity seemed relevant for continental Europe but not for the US (Blanchard and Summers, 1986). Back then, the labour income shares were quite high in the Netherlands, which led to the wage moderation agreement (the Wassenaar agreement) in 1982. Currently, there are no signs that the labour income share is too high, and real wage costs have increased only moderately during the Great Recession (CPB, 2014a, pp. 51). Labour-market institutions have changed considerably since that time. Replacement rates are much lower and policies provide strong incentives to continue working and to minimize periods of unemployment and inactivity. Regarding the second explanation for hysteresis, some evidence suggests loss of human capital during downturns (see discussion below in Section 5.4.2, and the Beveridge Curve argument in the box above). Hobijn and Şahin (2012) and Bonthuis *et al.* (2012) show that mismatches are more prominent in countries (such as Spain, Portugal, the UK and the US) that witnessed housing market busts and disproportionate job losses in the construction sector. In that respect, the Dutch economy seems to run some risks.

Most empirical studies do not seem to find evidence pointing to hysteresis (See Van den Berge *et al.* (2014) for an extensive overview of the literature). In particular, Van Ours (2009) shows that the Dutch unemployment gap that resulted from the recession in the 1980s closed over time, which makes long-term hysteresis in unemployment unlikely, even in the aftermath of the 1980s recession. There is some evidence of a hysteresis effect in the medium run, but not in the long run. Hence, even if a crisis leads to an upwards shift in structural unemployment, it is unlikely to last.

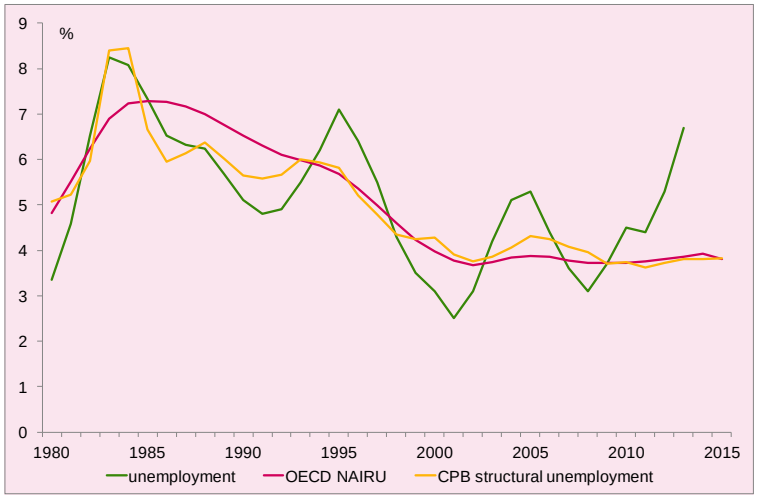
The natural rate hypothesis

The natural rate hypothesis argues that, in the long run, unemployment returns to its natural rate. In this view, the natural rate is solely determined by labour-market frictions arising from labour-market institutions (Friedman, 1968; Stiglitz, 1997). This implies that structural unemployment is unaffected by changes in aggregate demand.

For the Netherlands, the natural rate hypothesis appears to be more likely than the hysteresis hypothesis. Both the structural unemployment indicator calculated by CPB and the NAIRU from the OECD are unaffected by the Great Recession (Figure 5.13).[41,42] Neither CPB nor OECD have thus far seen any indications for a revision of the Dutch NAIRU. The OECD has not revised the estimates for the Dutch NAIRU because they estimated the risk of hysteresis for our country small. They did revise their NAIRU estimates for other countries, such as Portugal, Spain, Italy, Greece and Slovenia, because it is believed that hysteresis is a potential risk in those countries.

The Dutch NAIRU will likely remain at a relatively low level compared to other countries, and compared to the previous period. The level has declined substantially since the 1980s. Policies were undertaken in the past 20 years to reduce benefit dependency (Vendrik and Cörvers, 2009): replacement rates have been brought down and unemployment benefit durations have been shortened; active labour-market programmes have been implemented for all benefit schemes; and the tax system has been reformed in order to make work pay for all, with special incentives for specific groups.

Figure 5.13 The estimated NAIRU did not increase during the Great Recession, according to both OECD and CPB



[41] The CPB and OECD indicators are computed in a different way. CPB uses solely structural factors in order to determine structural unemployment. Key factors behind the equilibrium rate of unemployment are the tax wedge, the replacement rate and capital costs (see Broer *et al.*, 1999). The tax wedge measures the difference between real labour costs for firms and the net wage of workers. The replacement rate represents the fallback position in income of workers that lose their job. Capital costs capture the substitution possibilities between capital and labour. The OECD uses a Kalman filter technique (see Guichard and Rusticelli, 2010), but do not re-estimate if they see no important reason to do so.

[42] The European Commission (EC) has its own estimates of the NAWRU, the Non Accelerating Wage inflation Rate of Unemployment, which shows many similarities with the OECD methodology. The main difference is the Phillips curve framework. Motivated by previous evidence on the fact that the traditional Keynesian Phillips curve that was used in the EC estimates provides excessively pro-cyclical NAWRUs in times of heightened volatility, the EC has recently modified its estimation approach; the new estimates of structural unemployment are now closer to those of the OECD.

5.4.2 Scarring

There is also a possibility of scarring. Scarring implies that long spells of unemployment negatively affect an individual's future earnings potential. There are three reasons why scarring might be the result of a period of unemployment. First, people might lose some of their skills or knowledge due to inactivity. Second, employers may use past unemployment as a signal of a lower productivity level (signalling effect). Third, long unemployment spells could result in lower reservation wages among the unemployed, inducing them to accept lower-paid jobs from which they are unable to climb the job ladder, or do so at a slower pace.

The empirical literature shows that scarring effects are likely to be significant and persistent especially when the local labour market and the industry from which people were displaced are in turmoil (Carrington, 1993; Hijzen *et al.*, 2010; Huttunen *et al.*, 2011; Deelen *et al.*, 2014). Not only displaced workers suffer from adverse labour-market conditions; also the young who enter the labour market in bad times suffer. Youth unemployment is important in this respect. Gregg and Tominey (2005) examine the impact of youth unemployment on wages twenty years later. They find that early unemployment causes a wage penalty of 10-21%. Kahn (2010) examines the effect of weak labour-market entrances on wages in the US, during the 1980s. Although the negative impact on wages declines over time, the effect is still significant 15 years after graduation.

Dutch studies examining scarring effects in general find long-term effects for individuals who entered the labour market in bad times, or who suffered displacements during such periods. Erpelinck and Van Sonsbeek (2012) find evidence that higher-educated workers who entered the labour market between 1990 and 1994 still have to cope with wage penalties in 2006 which are on average more than 5%. Research by Mooi-Reçi (2008) finds similar results. Wages of unemployed men are 8% below the wages of men that did not experience unemployment; for women, the wage penalty was 13%. For displaced workers, Deelen *et al.* (2014) find a wage penalty of 10% up to six years after displacement. These effects are weaker in industries that are not in structural decline than in industries that suffered structurally.

These empirical findings suggest that it is important to know the extent to which displaced workers were able to find work in their old occupations and sectors. If their type of work has been declining structurally, then the probability of scarring seems to be higher. This will be an important element in understanding the recovery of the labour market from the Great Recession. If there is indeed labour-market restructuring (see Section 5.5.2), then mismatch between labour supply and labour demand may be the result, leading to an outward shift in the Beveridge curve (see the box above) and a higher level of unemployment. At this point, it is unclear what the size of this effect is.

That sectoral restructuring is a real possibility seems to be clear from the labour-market experiences observed in Spain and Ireland. In these countries the crisis caused the collapse of some industries, especially the construction and financial sectors, which are not expected to return to their previous levels. Similar to Spain and Ireland, but perhaps not to a comparable degree, the Netherlands has witnessed a collapse in housing prices, which led to

employment declines in the construction sector. The financial sector has suffered severe losses as well. It is impossible to pinpoint exactly the extent to which the losses in Netherlands will have the same permanent restructuring effect, but the size of employment could be well under pre-crisis levels in some sectors or occupations.

5.4.3 Long-run labour-supply effects

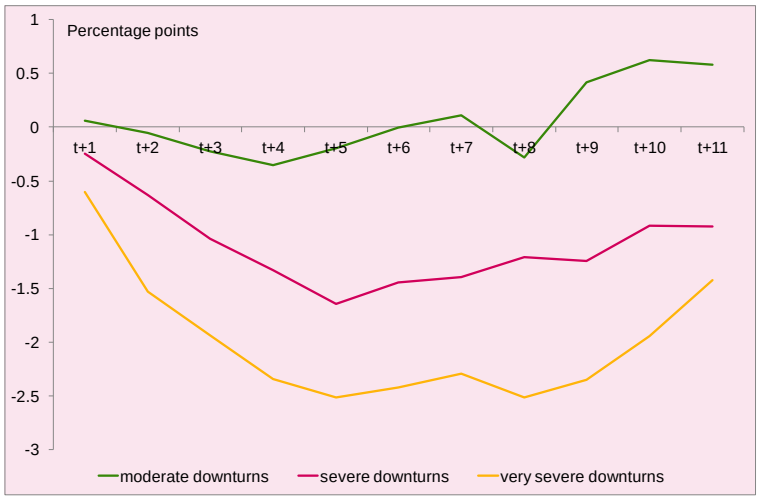
Labour supply may have been affected structurally by the Great Recession. This is the case if discouraged workers remain outside the labour market for good, or if added workers remain on the labour market. Alternatively, social norms regarding participation may have shifted, due to high numbers of discouraged or added workers, which may lead to processes on the macro level. A high number of long-term unemployed and discouraged workers may lead to a higher acceptance of benefit dependency, for example; in that case, labour supply will be structurally lower. Alternatively, if early retirement has become more socially acceptable, the same result is achieved. Both of these examples resemble the labour-supply reaction in the aftermath of the 1980s recession, but seem unlikely now.

In general, both added-worker and discouraged-worker effects appear to be rather persistent on the individual level (See Van den Berge *et al.* (2014) for an extensive overview of the literature). But persistence on the individual level does not automatically imply persistence on the macro level. On the aggregate level, the number of discouraged workers does show a drop when the economic tide improves. This decrease is mostly due to a lower inflow into discouragement (see also Kodrzycki, 2000) in combination with the retirement of the older discouraged workers. So even if discouragement is persistent at the individual level, on the level of the economy this is not the case.

At the macro level, Duval *et al.* (2011) find that severe downturns have long-term effects (see Figure 5.14). At the same time, IMF (2009) finds that financial crises usually lead to an increase in labour-force participation up to seven years after the start of the crisis. This difference between the studies by Duval *et al.* and the IMF could be due to the inclusion of a few less-developed countries in IMF sample, which causes the added-worker effect to dominate: long-term discouragement is simply no option in these countries.

As mentioned before, the Dutch labour-supply reaction during the Great Recession has been relatively mild (see Figure 5.11). This makes the likelihood of long-run negative labour-supply effects small. In addition, Duval *et al.* (2011) show that the persistence of labour-supply effects depends on institutional and policy settings, as well as the age structure of the group of discouraged workers. All of these reduce the likelihood of persistent discouragement in the Netherlands. Early retirement incentives embedded in old-age pension schemes and other social transfer programmes are found to amplify the responsiveness of older workers' participation to economic conditions (Duval *et al.*, 2011); these incentives have been abolished in the Netherlands in the past decade. Also the age structure of the discouraged workers gives no indication that the Netherlands runs a high risk of a persistent negative labour-supply effect from the Great Recession— since nearly two-thirds of all discouraged workers is over 45, and half of those are 55 or older. Only a minor share of discouraged workers is young.

Figure 5.14 Long-term cyclical participation effects of previous downturns vary with the severity of the recession (cumulative effects in %-points in years after the start of a recession)



Source: Duval *et al.* (2011). Estimates based on various downturn in 30 countries in the period 1960-2008.

5.5 Factors that affect the recovery

5.5.1 Permanent damage?

At this point there seems to be only limited evidence for structural labour-market effects of the Great Recession in terms of higher structural unemployment in the Netherlands. The analysis above seems to point towards more support for the natural rate hypothesis than for the hysteresis hypothesis. The possibility of hysteresis seems to be unlikely because the labour share in production has not risen dramatically and real wage costs seem to have developed in line with productivity shocks (but not below productivity levels; see Figure 5.4), replacement rates are relatively low and labour-market institutions are activating.

Empirical evidence does show, however, that scarring effects could occur and become persistent, which makes a case for permanent loss of human capital. If skill mismatches between labour supply and labour demand have increased due to long unemployment spells or structural shifts in labour demand, this could harm the Dutch labour market.

The relatively limited downward labour-supply effect during the Great Recession so far, in combination with reforms of labour-market institutions and the high age of discouraged workers, make structural labour-supply damage unlikely. Expectations are that labour supply will remain below its structural trend for the first few years after the crisis, but will return to its structural path, once discouraged workers retire from the labour market and are replaced by younger cohorts with fewer discouraged workers. A large share of added workers is likely to remain on the labour market, which could even— in the most optimistic scenario— lead to positive labour-supply-side effects of the crisis.

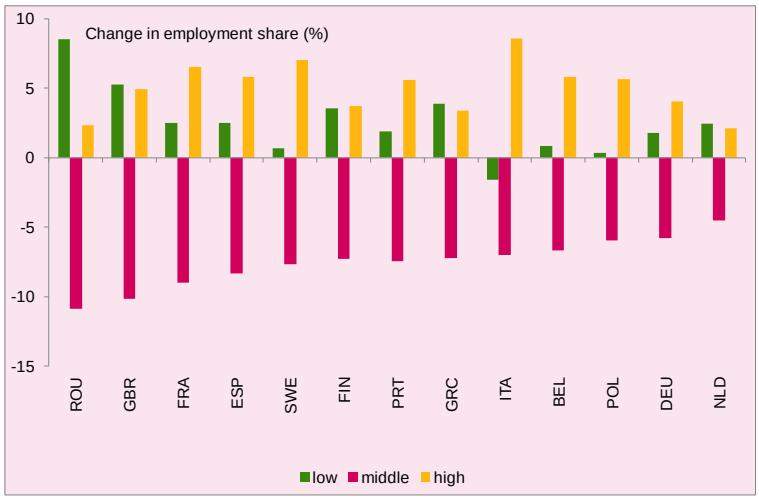
5.5.2 Secular trends

Apart from the effects brought about by the Great Recession itself, several secular trends also determine future labour-market developments. Below, we pinpoint as the most important secular trends possible job polarisation, demographics and structural labour supply of women and older workers.

Job polarisation

There are signs of changes in the structure of employment. Job polarization refers to the decline in employment in occupations in the middle of the skill distribution. In the past, technological development favoured high- and medium-skilled workers at the expense of the low-skilled. Currently, technological progress leads to contracting opportunities in the middle of the skill distribution. This phenomenon has been demonstrated clearly for the US labour market.[43] For the Netherlands, evidence in this respect is presented by Akçomak *et al.* (2011) and Ter Weel (2012). But evidence by Goos *et al.* (2012) shows that the rate at which it has occurred is limited— at least so far— compared to other countries (Figure 5.15).

Figure 5.15 Job polarization in the Netherlands is relatively limited, compared to other countries (%-point change in shares of hours worked in different occupations in Europe 1998 - 2010).



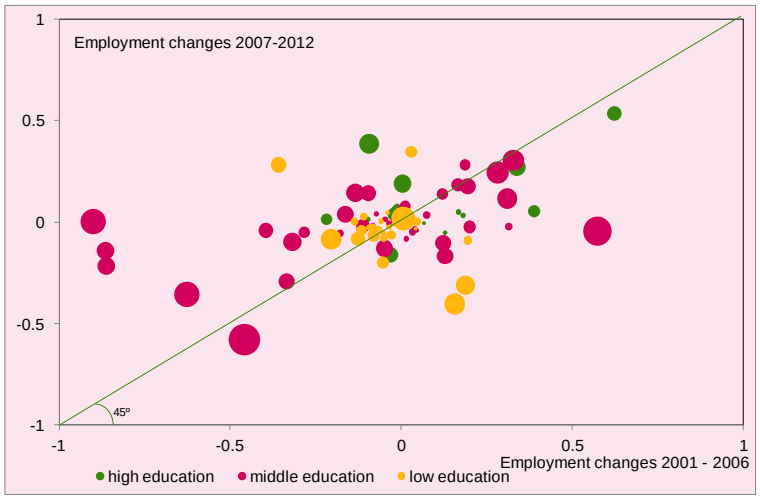
Source: Goos, Manning and Salomons (2012).
Countries are sorted by the change in the employment share of the medium-skilled occupations.

Some argue that the Great Recession has increased the speed of job polarisation (Goos *et al.*, 2013), and therefore may have contributed to the large employment losses in some countries. In the Netherlands, changes in employment shares of high- and low-skill occupations during the crisis are mostly in line with changes before the crisis: in Figure 5.16 most occupations are not far off the 45-degree line. There are a few middle-skill occupations where employment declined both before and after the crisis (Figure 5.16). Declining occupations include general managers, clerks and secretaries. Those occupations will not likely return to their old levels, and the same might happen to some other occupations for

[43] See e.g. Autor, Katz and Kearney (2006), Autor (2011) and Autor and Dorn (2013).

which we do not see the pattern in the data so far. In that sense, there are some important uncertainties for future labour-market development.

Figure 5.16 Employment loss highest in medium-skilled occupations, both before and during the crisis (%-point changes in employment in persons, 2001-2012) [44]



Source: Statistics Netherlands (Labour Force Survey) and own calculations. Size of the dot represents the share in total employment in 2001.

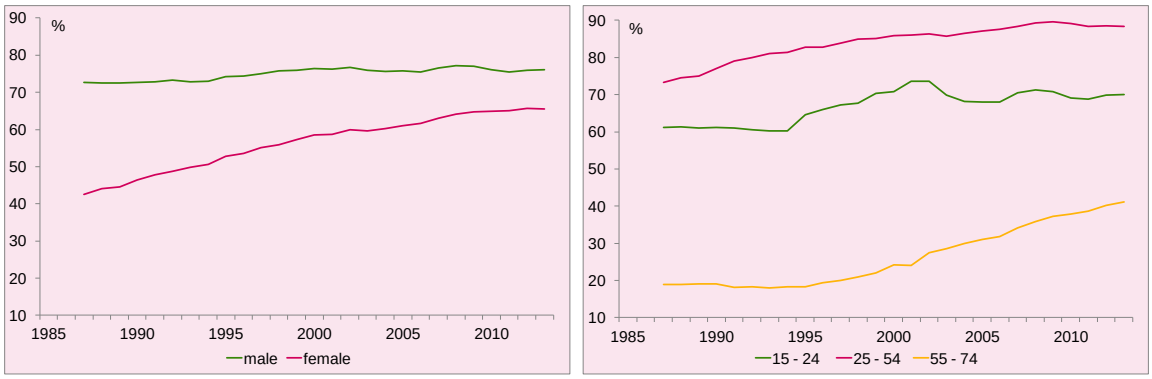
Secular trends in structural labour supply

Both demographic factors and structural shifts in participation rates are important for the development of structural labour supply. Structural labour supply has been growing, due to a combination of a growing potential labour force (demographics) and the trends in female and older worker participation rates (Figure 5.17). But since 2013, demographics exert downward pressure on labour supply due to population ageing. Until 2023 these downward demographic effects will be dominated by the upward effect of rising participation rates of women and older workers. The year 2023 will probably be close to the turning point, after which the negative demographic effect will start to dominate the positive participation-rate effect (CPB, 2014b).

The upward trend in female labour supply that we witnessed in the past decades is due to younger cohorts working more than the older retiring cohorts. The cohort born before 1950 found it more and more acceptable to work. But the generations born in the 1970s or 1980s have approximately the same work values as the women born in 1950 (Portegijs *et al.*, 2006). In the period 2015-2020 the women born in 1950-1955 will reach the statutory retirement age. So in 2020 the replacement of the older birth cohort (with its low participation rate) by younger cohorts (with higher participation rates) will likely be finished (Euwals *et al.*, 2011). From that moment, the participation rate of women is likely to continue to increase only slightly, mostly due to higher educational levels.

[44] Low educated occupations are defined as those occupations where more than 50% of the employees have a VMBO, MBO1 or AVO diploma in 2001. High educated occupations are defined as those occupations where more than 50% of the employees have either HBO or WO education in 2001. Middle occupations are all other occupations.

Figure 5.17 Increasing labour-force participation rates of women and older workers are important secular trends for labour-supply developments



Source: own calculations based on Dutch LFS-data.

The upward trend in participation among older workers is to a large extent due to policy changes. The financial incentives to retire early have been abandoned, which brought about substantial labour-supply reactions (Euwals *et al.*, 2009). The increase in the labour-force participation of older workers has surpassed even the reaction based on financial incentives solely. Social norms and reference ages have added to it (Van Erp *et al.*, 2014). Since the statutory pension age will rise stepwise from now on, we expect a further increase in the labour-participation rate of older workers in the future.

5.5.3 Speed of recovery

Unemployment is the result of two opposing forces of labour demand and labour supply, so unemployment will recover slowly in the aftermath of the Great Recession if employment is slow to recover, or if labour supply recovers quickly. Below we discuss these and present the uncertainties regarding the factors involved.

The speed of recovery of labour demand

The speed of recovery of labour demand will depend first and foremost on the recovery of aggregate product demand via exports and consumption. If these factors recover, then labour demand will most likely follow with some lag time. Employment growth usually lags behind GDP growth by approximately half a year, since firms do not immediately open new vacancies if demand increases. Even if firms open new vacancies immediately, it takes a while to hire workers (CPB, 2010, p. 34).

In addition to the usual lag between GDP recovery and employment recovery, we cannot exclude the possibility of a longer period of jobless recovery. There are several reasons why this might occur. First, wages may not have declined enough to accommodate both the decline in productivity and the high unemployment rate. Second, firms may still have some redundant employees in their workforce (some labour hoarding may thus still be present). Third, the number of jobs might be low in the transition phase of structural shifts between occupations or sectors (see above). Fourth, firms might not be confident that the recovery of the economy will be strong. In all cases, labour-market adjustments will likely take more time and employment will probably lag further behind GDP recovery.

Wage developments during the crisis affect the pace of recovery of employment. Dutch real wages have developed in tandem with labour productivity (section 5.2), but do not seem to have absorbed the high unemployment rates. As long as wages are high, firms will only slowly increase labour demand. This increases the probability that a period of jobless recovery will be observed in the aftermath of the Great Recession. The current situation is, however, not as severe as it was in the 1980s, when real wages had not even absorbed the productivity slowdown, let alone the pressure that came from the high unemployment rate (see Figure 5.4).

Continued labour hoarding during a recession is associated with an initial period of jobless growth following a recession (OECD, 2010, p. 76). It therefore matters for the speed of employment recovery whether the current low productivity level is due to labour hoarding or to other factors. If there is still labour hoarding at the end of the recession, then employment will recover only slowly because firms have backlogs of workers who can become more productive— in terms of both in doing more productive work and in increasing their number of hours (OECD, 2012, p. 104). The problem is that there is hardly any substantial source of information about the reason for the current low productivity, see Chapter 4. It might be a remainder of labour hoarding, but we cannot be sure. This is an important uncertainty for the speed of employment recovery.

The speed of recovery of labour supply

Labour-market institutions are important for the speed of recovery of labour supply. We have emphasized that Dutch labour-market institutions are currently stimulating participation. Replacement rates are not high compared to other countries; maximum durations of unemployment benefits have been shortened, policy reforms have been adopted to stimulate disabled people to go back to work, early retirement schemes have been abolished, income taxes provide incentives to work and active labour-market policies are actively used to get people into a job. So structurally, institutional settings are stimulating labour supply. What remains to be seen is the extent to which this will stimulate discouraged workers returning to the labour market.

On the other end, the reaction of added workers will be important as well. Labour supply might be pushed further upwards by the financial aspects of the crisis (declining housing wealth, credit constraints, deleveraging by households).

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6 Consumers in distress: Consumption, income and wealth

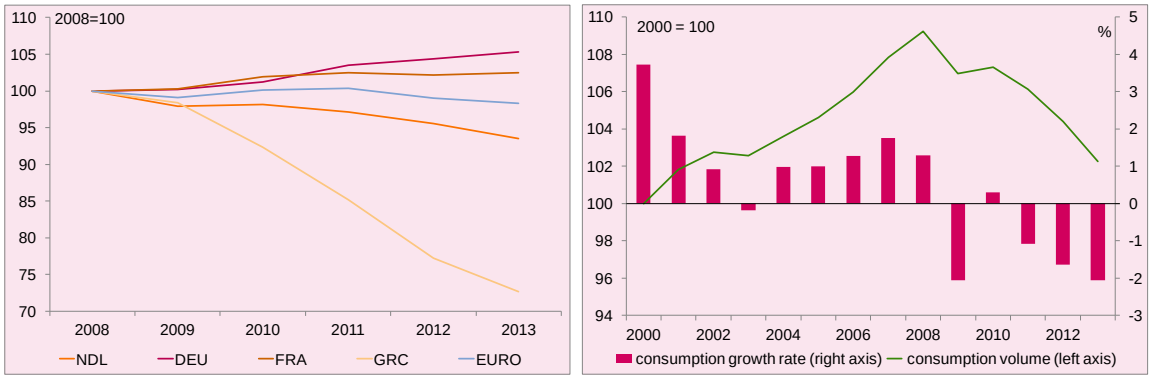
Frank van Es, Jan Bonenkamp, Debby Lanser and Ona Ciocyte

- Since the beginning of the Great Recession, household consumption in the Netherlands has decreased by an exceptional amount.
- Key factors for recovery of consumption are productivity growth, lower unemployment, higher housing prices and improved funding rates of pension funds.
- Deleveraging and precautionary savings yield downward risks.

6.1 The story so far: consumption during the crisis

Since the beginning of the Great Recession, consumption of Dutch households has been decreasing. This reduction is exceptional, particular in comparison with developments in the 1970s, 1980s and 1990s, when consumption grew steadily. The left-hand panel of figure 6.1 shows consumption volume and growth rates between 2000 and 2013. Consumption increased 9% from 2000 until its peak in 2008. Between 2008 and 2013, consumption dropped by more than 6%. In comparison with the situation in other northern European countries and the US, consumption of Dutch households has been hit relatively hard (figure 6.1, right-hand panel).

Figure 6.1 Private consumption declines in the Netherlands (left) more than in other EU-countries (right)

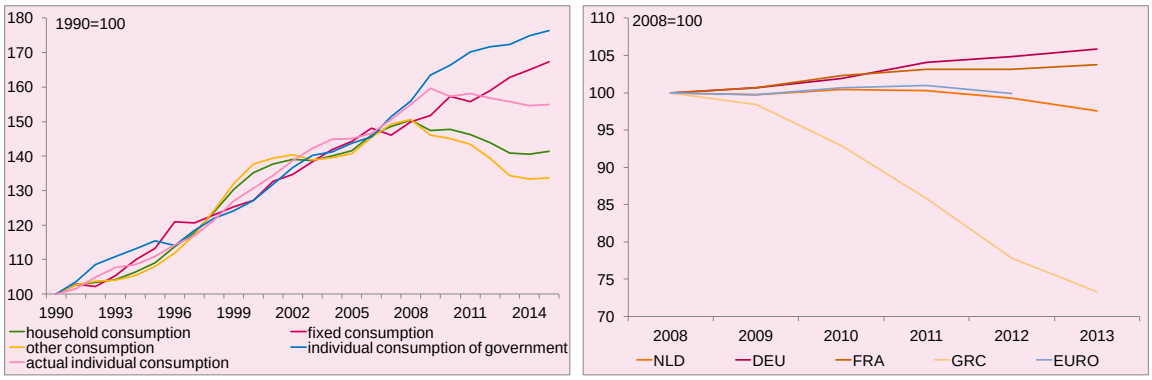


Source: Statistics Netherlands (left) and Eurostat (right). Figures for the Netherlands are corrected for the introduction of the new health-care system in 2006.

Since the beginning of the crisis, consumption has declined at the same pace as in periphery countries such as Spain and Italy. Only Greece is performing worse. The right-hand side of figure 6.2, depicting actual individual consumption, confirms this picture although the difference between Dutch actual individual consumption and the EU average is smaller. Actual individual consumption is private consumption increased with "individual" spending of the government on individual-related items such as education and health care. These expenditures increased during the crisis.

The left-hand panel of figure 6.2 shows actual individual consumption and its components (i.e. fixed consumption, individual consumption of government and other consumption).[45] Fixed consumption includes spending on housing, energy and non-insurable health care. It grew steadily during the Great Recession, leaving consumption of other goods and services (expenses on luxury goods, food and so forth) to fully absorb the unanticipated wealth and income shock. The figure shows indeed a large decline of this consumption category, which makes up about 75% of total household consumption. Apparently, this type of consumption could be adjusted most quickly to the unanticipated wealth and income shocks in the short run.

Figure 6.2 Actual individual consumption in the Netherlands (left) and compared with other countries (right)



Source: Statistics Netherlands and CPB (2014).

The question is, will consumption recover and at what pace? What can we learn from consumption patterns and the way that the underlying components of consumption have developed during the Great Recession? And, looking ahead, which risks and opportunities are in store that might accelerate or hamper this recovery?

This chapter covers these questions in four parts. Section 6.2 provides a short introduction to consumer theory. Which components drive the consumption decision of individuals in normal times, and to what extent can they explain the consumption decline of the crisis? Section 6.3 illustrates recent developments in these drivers, while Section 6.4 provides a look into the future. First we describe what can be expected of income, interest rate and

[45] Regular household consumption is sometimes criticized for not including government spending on personal items, such as expenditures on health care and education. For example, health care expenditures in the Netherlands are, to a relatively great extent, taken up by the government and thus absent from household consumption. Individual spending of the government may differ by country; the corrected measure should avoid that type of criticism.

wealth developments. Additionally, the crisis has brought about some other risks, which might hamper future consumption. We also discuss these crisis-specific factors in detail. Section 6.5 sums up our main findings.

6.2 Basic principles determining consumption

The theory of consumer choice has evolved along different lines. The traditional Keynesian consumption function states that consumption is solely determined by current disposable income. As the implications of Keynes' theory did not fully match with empirical evidence, economists developed different theories. Inspired by Fisher's intertemporal choice theory, Modigliani and Brumberg (1954) developed the Life Cycle Hypothesis, and Friedman (1957) the Permanent Income Hypothesis, which are at the basis of modern intertemporal consumption models. These models assume that consumption decisions are determined not only by current income but also by (expectations) about future income and wealth.

6.2.1 Intertemporal consumption models

The basic principle of intertemporal consumption models is that individuals are rational and forward-looking, choosing optimal levels of current and future consumption in order to maximise lifetime utility. Individuals prefer to smooth consumption over their lifetime, given their intertemporal budget constraint. Consumption is therefore a function of lifetime resources consisting of current financial wealth, current labour income and the entire stream of potential future labour income, which is driven mainly by labour market experience and human capital.

Unanticipated wealth shocks will consequently affect consumption over all remaining periods in life. When confronted with a negative wealth shock, households will increase their savings, which serves to guarantee a smooth consumption pattern over their lifetime. Unanticipated income shocks will lead to a similar response, depending on whether the shock is expected to be permanent or temporary. Suppose that households are confronted with a temporary negative income shock. Consumption will decline, but not as much as current income declines. The difference will be absorbed by a decrease of private savings over the remaining years. If this shock is permanent, however, the drop in lifetime income will be much higher and consumption will fall at the same pace as income. Smoothing consumption via a decrease in savings is no longer feasible.

Savings in intertemporal consumption models signify nothing more than future consumption, and represent a way to transfer resources from periods of high income to periods of low income. Savings can be used for consumption later on in the life cycle (for example, during the retirement phase) or bequeathed to children for their consumption. But as long as an individual does not value saving itself, the division of income between consumption and saving will be driven by preferences between present and future consumption and by the relative price of current and future consumption.

The real interest rate provides a measure for the price of current consumption compared to future consumption. If the real interest rate increases (for example, because of lower inflation), then the price of current consumption increases relative to that of future consumption and individuals may choose to increase savings (substitution effect). On the other hand, if these individuals have positive net wealth, then a higher real interest rate makes them wealthier, leading to higher consumption and hence less saving (income effect). The overall effect of real interest rate changes on consumption and savings is therefore ambiguous.

6.2.2 Beyond the intertemporal consumption models

An important implication of the intertemporal consumption model is that only unanticipated changes in income will affect consumption. A change in income that was anticipated has already been factored into (expected) lifetime resources, so it will not change current and future consumption. However, a great deal of empirical evidence shows that this prediction of the model is incorrect and that changes in consumption can be related to predictable changes in income (see, e.g., Campbell and Mankiw, 1989; Shea, 1995).

A possible explanation for these discrepancies between theory and empirics is that individuals are sometimes limited in their possibilities to smooth consumption. Intertemporal consumption models assume that people can borrow against future income and wealth. Financial markets do not function this way, however. Some people lack or have no access at all to capital markets. For instance, when they have little financial wealth, they easily face credit constraints. If, for example, households are unable to borrow against their human capital leading to future income increases, then their consumption is determined by their current income. In these cases, predictable changes in income produce predictable changes in consumption.

Apart from liquidity constraints, other reasons may explain why individuals appear to depart systematically from the predictions of the intertemporal consumption model. The idea of consumption smoothing is based on costless utility maximization and rational expectations, which in practice may involve complex calculations. So instead of attempting to be completely optimising, individuals may follow rules of thumb in determining their consumption pattern. An example can be seen in 'hand-to-mouth' consumers, following the rule of thumb of spending current income and hardly saving at all. In most estimated macro models the percentage of liquidity-constrained and hand-to-mouth consumers appears to be quite high (about 80%).[46]

6.3 Explaining past consumption

This section analyses the aforementioned determinants of macro consumption from both a historical and an international perspective. We aim to relate the observed drop in consumption to the actual developments in household income, wealth and the interest rate,

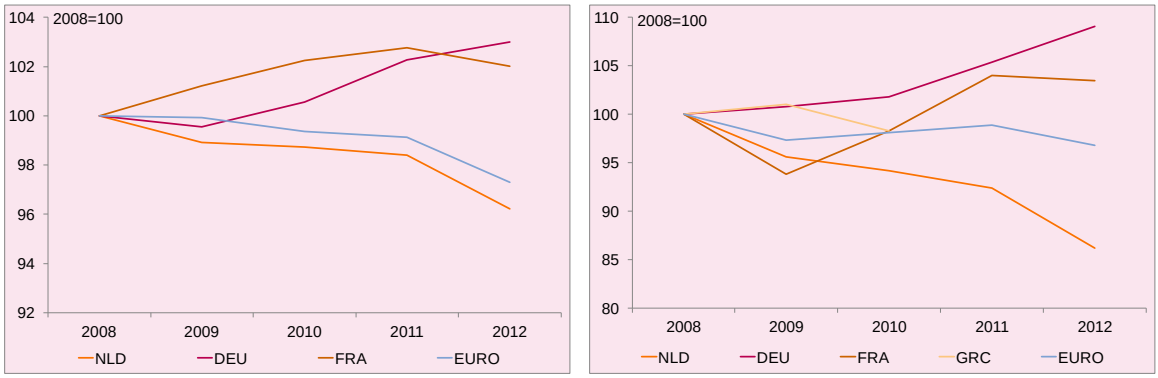
[46] See for example CPB (2010).

based on the theoretical mechanisms described in the previous section. These components have changed significantly over the last few years. Both income and wealth have experienced a substantial drop, directly reducing consumption opportunities. Income has mainly been hit by growing unemployment (see Chapter 5), a negative real wage development and by tax increases and cuts on income transfers by the government. Wealth on the other side has mainly deteriorated because of decreasing house prices (see Chapter 3). On top of these real developments, consumer confidence has been very weak and consumers may have become more risk averse because of negative economic expectations.

Income and wealth

During the Great Recession, consumption declined at a rate similar to that of real disposable income, suggesting that household consumption was fully driven by received resources. Real disposable income declined by 4% since the peak in 2008 (see figure 6.3, left-hand side). As income decreased during the crisis, consumption fell accordingly. Compared to the developments in core European countries, the decline in real disposable income in the Netherlands was substantial. On average, real disposable income in the euro area has grown by over 10% since 2000, while growth in the Netherlands was only 1.5%, which is comparable to that of Italy.

Figure 6.3 Development of real disposable income (left-hand panel) and house prices (right-hand panel) in the Netherlands worse than in other countries



Source: Eurostat.

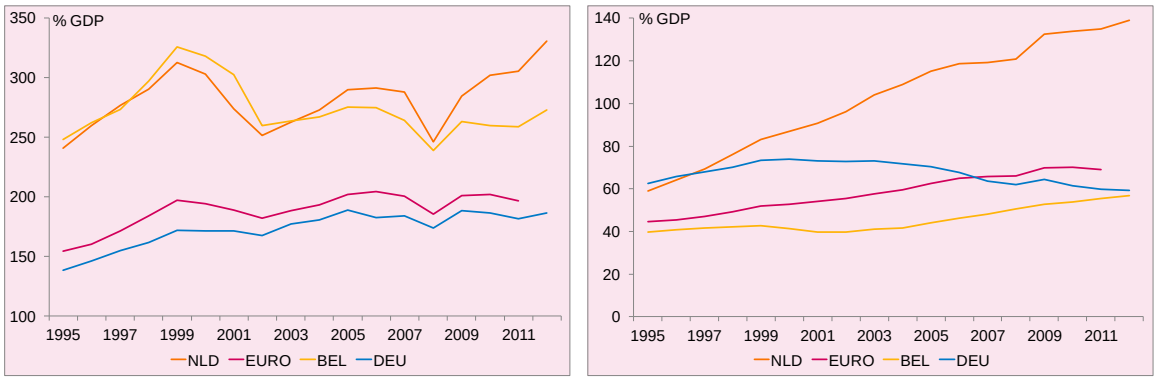
Apart from disposable income, households experienced a severe drop in their wealth, mainly consisting of dwellings. Nominal house prices dropped by almost 15% until 2012; in 2013, this number increased even further to 20%. The right-hand panel of figure 6.3 shows house price developments for some European countries. The drop in the Netherlands was relatively large.[47] The euro area average was slightly above 3%. Furthermore, since 2011 and 2012, house prices in most European countries showed signs of cautious recovery. The Netherlands again lags behind.

When other assets are included, the wealth position of Dutch households looks more promising. The left-hand panel of figure 6.4 shows the total wealth position (excluding housing wealth) of Dutch households compared to other European households. Dutch

[47] No data are available for Greece for 2011 and 2012.

households have more assets than most European countries, mainly driven by pension wealth. The left-hand panel of figure 6.5 shows the decomposition of the assets of Dutch households, now including housing wealth. Total assets grew during the crisis, despite the drop in housing wealth. The decrease in housing wealth is offset by a larger increase in pension wealth. However, pension liabilities have also increased in recent years, even stronger than the increase in wealth, more on this in the next section.

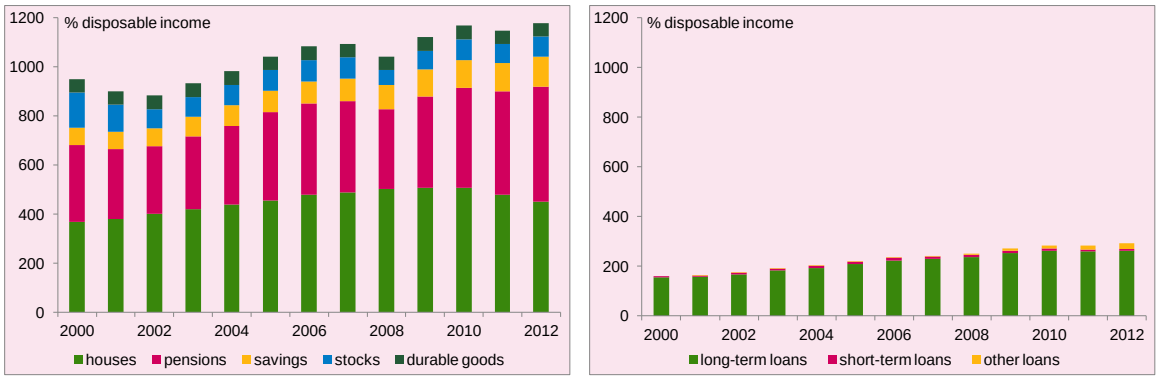
Figure 6.4 Assets (left) and liabilities (right) in international perspective



Source: Eurostat. Housing wealth is not included in the asset figures, because of problems with international comparability.

On average, the level of assets fluctuates more over time in the Netherlands than it does in the euro area. This volatility can be related to the large share of pension savings in household wealth, which depends on relatively volatile stock prices. Apart from this volatility, the level of assets of Dutch households developed differently than in other European countries. Mainly driven by favourable fiscal measures for homeownership, dwellings form a relatively large part of households' assets.

Figure 6.5 Decomposition of assets (left) and liabilities (right) of Dutch households



Source: Statistics Netherlands.

Not only do Dutch households have more assets; they also have more debt than households in most other European countries (see right-hand panel of figure 6.4). Almost all debt of Dutch households consists of long-term loans, which are mainly mortgages on houses. Since 1995, the liabilities of Dutch households have more than doubled as a percentage of GDP. Because of new types of mortgages featuring low or no repayments, the level of mortgage debt grew steadily in the nineties and in the first decade of this century. This increase was

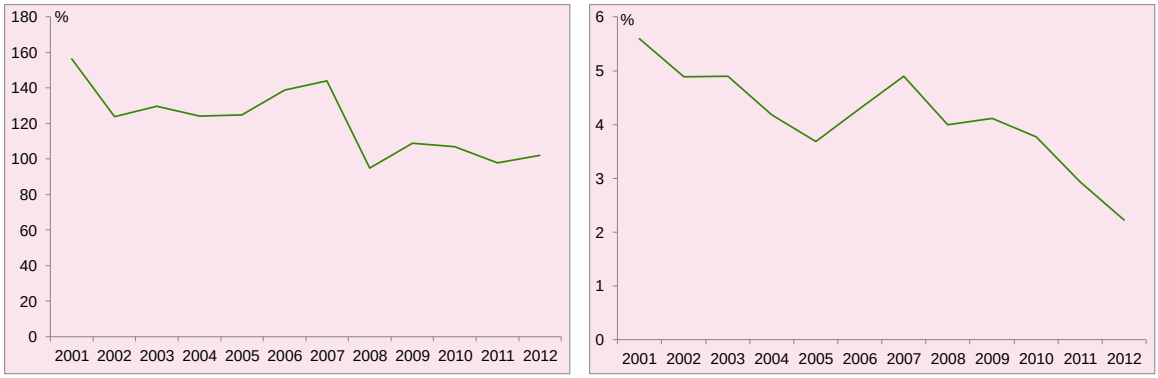
halted in 2011, because of stricter rules on repayment of mortgages related to cutting fiscal benefits.

If we confront aggregate assets of Dutch households to aggregate debts, two points stand out (see figure 6.5). First, over the entire time period between 2000 and 2012, total assets are much higher than total liabilities, even without pension wealth, which means that Dutch households have a *positive* net wealth position. Second, this positive net wealth position has been *improved*, even during the crisis period. Actually, total assets increased by more than 225%-points of disposable income between 2000 and 2012, from 950% to 1175%, while total debt increased by 130%-points during that period, from 160% to 290%. Hence, net wealth as a fraction of disposable income has increased by 95%. From that point of view, when including all assets (including pension wealth), one could conclude that wealth developments do not fully explain consumption falling that much behind. However, it is questionable whether one might expect that the rise in pension wealth contributes to consumption growth.

The role of pensions

Although pension wealth increased during the crisis, the Dutch occupational pension system was hit hard, resulting in an additional decline of disposable income and thus consumption. The Dutch occupational pension system is based on the provision of nominal guarantees. The relevant determinant for household consumption is not so much the amount of available assets but the amount of accrued (nominal) pension entitlements. In the long run, the system's solvency is guaranteed by matching these entitlements to the assets. Over the last decade, the increase in pension wealth has been much lower than the increase in pension entitlements. The ratio between assets and entitlements (that is, the funding ratio) has decreased sharply. Between 2001 and 2012 the funding ratio fell by 55%-points, from 157% to 102% (see the left-hand panel of figure 6.6). This decline was mainly caused by a fall in the nominal interest rate, which is used by pension funds to discount their nominal liabilities. The nominal interest rate is depicted in the right-hand panel of figure 6.6. A lower discount rate implies that the current value of future pension outlays increases, which is a key factor behind the declining funding ratio.

Figure 6.6 Pension funding ratio (left) and long-term nominal interest rate (right)



Source: Dutch Central Bank. The long-term interest rate is the 15-year nominal swap rate.

Compared to the pension systems in other countries, the Dutch pension pillar is large, which makes Dutch wealth more vulnerable to shocks in nominal interest rates. Lower interest rates make future consumption more expensive. In response to this, Dutch pension funds have two possibilities. They can either stick to the original ambition level by increasing the contributions or they can decrease the ambition level by providing lower benefits or indexation cuts. In practice, most pension funds have applied a combination of both measures. Irrespective of which instrument is used, both have an impact on income of workers or retirees and may have contributed to the decline in disposable income and consumption over the last years.

Distribution of wealth in the Netherlands

When individuals respond differently to wealth changes, a modest shift in aggregate wealth can still be accompanied by a large shift in aggregate consumption. Indeed, the evidence suggests that the marginal propensity to consume is inversely related to people's wealth (e.g. Mian *et al.*, 2013; Disney *et al.*, 2010).

Table 6.1 Division of wealth in the Netherlands 2006-2012

	% Of total wealth in decile				Average wealth per household	
Wealth decile	Per decile		Cumulative		x1000 euro	
	2006	2012	2006	2012	2006	2012
1	-3.9	-3.8	-3.9	-3.8	-61	-58
2	0.0	0.0	-3.9	-3.8	0	0
3	0.2	0.1	-3.7	-3.7	3	1
4	0.6	0.4	-3.1	-3.3	9	6
5	1.6	1.1	-1.5	-2.2	25	18
6	4.0	3.1	2.5	0.9	63	47
7	7.9	6.9	10.4	7.8	125	106
8	12.5	12.0	22.9	19.8	197	186
9	19.4	19.5	42.2	39.3	306	301
10	57.8	60.7	100.0	100.0	911	937

Source: Statistics Netherlands. Figures do not include wealth in pension funds.

What happened to the distribution of wealth in the Netherlands during the crisis? Table 6.1 shows the division of wealth, excluding wealth in pension funds. Per wealth decile, the percentage of total wealth of Dutch households owned by that decile is presented.[48] The next two columns present the cumulated percentages.

Notice first that wealth is unequally distributed across households.[49] The 10% least wealthy households (i.e., the first decile) have negative wealth, with an average of around 60,000 euros per household. On the other side of the distribution, the 10% most wealthy households own around 60% of total wealth. On average, their wealth is about 1 million euros. A large group (deciles 2-5) has almost no wealth.

[48] Please note that the composition of the deciles changes over time. Households that are in a particular decile in 2006 could be in another decile in 2012.
[49] The gini-coefficient for wealth is around 0.8; for income it is around 0.3.

The most striking result from table 6.1 is that the wealth distribution hardly changed during the crisis. Only the 10% richest people have become wealthier, most likely because of a smaller fraction of housing wealth in their total wealth. This assumption is supported by the fact that until 2009 the share of the 10th decile decreased compared to 2006, and in that period the house prices still increased (not in table). The 6th to 8th decile of households, with assets between about 50,000 and 200,000 euros, have been confronted with the largest drop in wealth. These households in particular might have responded by a decline in consumption.

Figure 6.7 Households with net debt (left) and fraction with negative debt by age category (a) (right)

Source: Statistics Netherlands. (a) Age category determined by age of head of the household.

Households with a negative net wealth are mainly those troubled by a mortgage value larger than the value of their house. These households are assumed to respond more strongly to wealth shocks, as supported by evidence in Mian *et al.* (2013) and Disney *et al.* (2010), for instance. To be precise, they show that people with high loan-to-value (LTV) ratios, including those with negative wealth, respond more strongly to wealth shocks than people with low LTV ratios. The left-hand panel of figure 6.7 shows the number of Dutch households with negative net wealth. This number more than doubled from around 400,000 at the end of 2006 to 850,000 at the end of 2012. This is more than 10% of Dutch households. When we distinguish between age categories[50] (right-hand panel of figure 6.7), we see that the problem is especially large for young people: almost 25% of households between age 25 and 45 have a negative net wealth at the end of 2012.

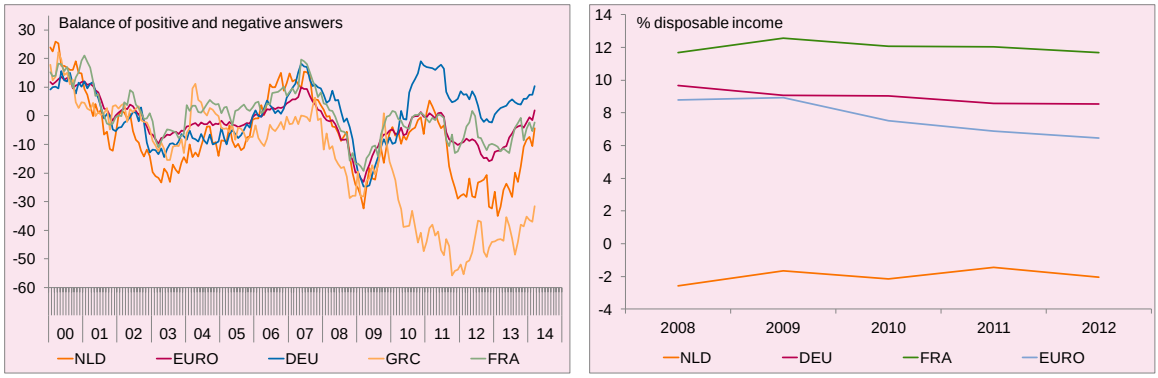
Relevance of confidence effects

Apart from changes in more fundamental determinants such as income, wealth (distribution) and interest rates, changes in consumption can also be driven by confidence effects. The consumer confidence indicator points at underperformance of consumption as well. The left-hand side of figure 6.8 shows that since the beginning of the crisis only in Greece consumer confidence dropped more, compared to the long-year average. The largest drop was measured in the second half of 2011, at a point that negative income and wealth developments and the pessimistic outlooks for these determinants dominated this indicator. Fortunately, Dutch consumer confidence improved rapidly over the second half of 2013, which can be attributed to improved expectations about general economic outcomes.

[50] Categories are based on the age of the main breadwinner of the household.

Whether low consumer confidence indeed led to lower household consumption is doubtful. Since 2000, the individual saving rate of households (excluding occupational pension savings) has remained almost stable, just as it did in most other European countries (right-hand panel of figure 6.8).

Figure 6.8 Consumer confidence relative to long-year average and the individual saving rate



Source: Eurostat.

To conclude, the recent large decline in private consumption in the Netherlands can to a great extent be attributed to a reduction in disposable income. Consumption and income developed more or less at the same pace, and the individual saving rate did not increase substantially. On the other hand, it seems highly unlikely that the severe decline in housing wealth has not affected consumption. What might have caused these observations?
One possible explanation is that most households behaved more or less like hand-to-mouth consumers, implying that wealth has indeed played a modest role so far. Alternatively, the consumption effects of a decline in income might have been counteracted by the effects of a wealth decrease according to the principles of the intertemporal model. If households perceived the decline in income at least to some extent as temporary, then the decline in income led to a decrease in total savings, and as only part of the current income reduction will lead to a reduction in consumption. On the other hand, a negative wealth shock leads to an increase in savings, leaving total savings unaffected.

6.4 Exploring future consumption

6.4.1 Regular responses

This section explores the extent to which the insights from the intertemporal consumption models may be useful in predicting consumption behaviour in the coming years. We explore here the expectations for the main determinants of consumption behaviour: income and wealth.

The speed of recovery of income is strongly related to what will happen to productivity and employment (see Chapters 4 and 5). As discussed in Chapter 4, there is not much evidence that a financial crisis has a long-term effect on productivity growth. If this is the case, then

catch-up productivity growth will have a positive effect on real wages and therefore on disposable income, stimulating household consumption.

When labour supply recovers and actual unemployment is reduced, consumption will benefit as well. Household income will increase again, stimulating consumption. There is little evidence for structural labour market effects of the recent crisis in terms of higher structural unemployment or structurally lower labour supply (see Chapter 5). Labour supply might remain below its structural trend for a while after the crisis, but will return once the discouraged workers retire from the labour market and are replaced by younger cohorts. Similarly, unemployment will return to its equilibrium rate.

The development of the wealth of households will mainly depend on what happens to asset prices, inflation and the interest rate. As discussed in Chapter 3, the housing market still imposes several downward risks, like stagnation of economic growth, further tightening of lending standards and additional reductions of the fiscal subsidy for owner-occupants. On the other hand, there are also a number of factors that can stimulate the recovery of the Dutch housing market. Prices will increase when confidence in the housing market is restored in the wake of renewed financial and economic stability. More importantly, the low levels of construction during the crisis have limited the supply of new dwellings. In times of normal demand and supply behaviour, a tight housing market would result in an incline of house prices. Furthermore, an increase of the interest rate would benefit funding ratios, diminishing downward risks stemming from pension funds.

6.4.2 Crisis-specific factors

This paragraph covers unanticipated consumption shocks stemming from the crisis. Which risks are in store that might induce an additional downfall in consumption? Unfortunately, given the character of the crisis (that is, a significant loss in aggregate demand), unanticipated opportunities seem absent. We distinguish two risks that dominate the debate on consumption recovery. First, households might shorten their balances. Assets with low returns (such as private savings) are used to reduce debt and subsequently interest payments. High mortgage debt confines flexibility on the housing market for either voluntary moves or required moves (with high debt serving to limit job searches in a wide labour market). Second, concern for high unemployment may lead to precautionary savings, as households seek to protect themselves from a possible income loss in the future.

Overall, the aforementioned risks could severely hamper future consumption. This section explores their impact and their likelihood.

Under water

After the sharp decline in house prices and the subsequent fall in housing wealth, high debt levels invoked a great deal of discussion on the sustainability of debt. In both the Netherlands and other European countries, households accumulated high debt levels during the recent credit boom. Would households shorten their balances and/or increase savings to pay off their debt? And to what level would households tend to lower their debt levels?

Dealing with household debt in the Netherlands is mainly dealing with housing debt: 95% of all loans are related to housing mortgages (Van Beers and Bijlsma, 2013). Since the peak in 2008, nominal house prices have declined by 20% until 2013. As a result, many homeowners have seen a decline in the market value of their houses, dropping even below the value of their mortgage: they are 'under water'.

The underwater problem has increased sharply over the last few years (Van Es and Kranendonk, 2014). In 2013, the houses of 1.4 million households were under water, which represents one-third of all homeowners (CBS, 2014). At the beginning of 2008, this percentage of underwater households was 13%. Also the average amount of undervaluation has increased: in 2013, the average undervaluation was 61,000 euro, compared to 52,000 euro in 2012. The underwater problem is mainly a problem of younger households (see Figure 3.4). More than two-thirds of the people with an undervalued house are under 45 years old. Younger households have mostly bought their houses at the onset of the crisis, when house prices peaked at unprecedented levels. Among the older households the underwater issue is hardly a problem. At the beginning of 2013, almost 45% of the people over 65 with a house did not have a mortgage loan at all, and only 3% of them were under water.[51]

In the coming years it is reasonable to assume that households will respond to the underwater problem by repaying debt. We assume that households who are under water cover the negative equity in order to increase their mobility on the housing market. Underwater mortgages keep households from moving. When people sell their houses, the difference between their mortgage and the value of their house will be added to current debt levels. In addition, banks are reluctant to refinance undervaluation of housing with new loans, due to a lack of collateral. The underwater problem is mainly related to households consisting of relatively young homeowners who bought a house over the last decade. These households are short of other assets to absorb an increase in their debt level.[52]

Deleveraging

The literature takes different approaches to settle the deleveraging challenge of households. Several papers (for example, Cuerpo *et al.*, 2013) consider the pre-boom debt level in 2000 as a sustainable level, and the difference between the current debt level and the 2000 debt level as a deleveraging need. However, whether debt has to fall all the way to its 2000 level also depends on the value of assets and collateral. Other approaches focus on net or gross wealth, but have their shortcomings too. Deleveraging based on the decline in wealth would mainly be related to the fall in equity before the crisis (that is, the bursting of the dotcom bubble). Strong deleveraging on that account is unlikely, as it mainly affected wealthy people who benefited from the rise in equity prices before 2000 and who could take a setback.

[51] DNB (2014) reports that 30% of all mortgages are under water when corrected for household savings related to home ownership. The amount of overhang for these mortgages is not given. As we need this amount in our calculations on deleveraging we confine ourselves to the CBS definition of under water mortgages.

[52] Note that deleveraging is not in accordance with the intertemporal consumption models. In that case, regarding the decline in housing wealth as a permanent shock, households would decrease current consumption (and increase savings), thereby affecting lifetime consumption.

Resumption of net housing wealth and net housing debt using 2000 as deleveraging target may be challenged, as well. Housing wealth loss due to the recent decrease in the housing prices is unevenly distributed among households. Households that bought homes before the price boom in 2003-2008 benefited significantly. Others that bought homes at the peak of the housing market only endured a big loss. It is reasonable to think that households in the first group will not deleverage. To reduce debt, they will either simply continue their monthly instalment or decide to shorten their balance by using accumulated wealth to pay back their mortgage completely— something that indeed is happening in the Netherlands.

To what extent do we already observe a deleveraging process happening in the Dutch economy? The answer to the question depends on the definition of deleveraging. There is empirical evidence that homeowners in the Netherlands use existing savings balances to reduce their housing debt.[53] This process certainly leads to a balance-sheet reduction, but it does not necessarily improve the net wealth position of households. For the latter, we need to observe an increase in the saving rate. Looking at the actual saving rate (right-hand panel of figure 6.8), we observe that this rate is more or less constant in recent years, which may suggest that deleveraging has not started yet.

From a macroeconomic point of view, it is not immediately clear that individual deleveraging will reduce aggregate consumption, because one person's debt is another's asset. However, since the Netherlands is a small open economy there is a high probability that debt repayments float abroad. But even if lender and borrower would live in the same country, there could be an effect on consumption if both groups have a different marginal propensity to consume. There is evidence that the marginal propensity to consume is larger for people with relatively less wealth (i.e., the people that are under water). In this case, debt reduction leads to a decline in aggregate consumption. Aggregate consumption can further be affected if the household sector is not the only sector that wants to restore their balance position. If the government and firms also aim to reduce their debt levels, this can produce a vicious circle of disappointing income, higher debt levels and even stronger contractions in consumption.

The impact of deleveraging on private consumption: a numerical illustration

Can something be said about the potential impact of deleveraging on private consumption in the Netherlands? This is a difficult question to answer because one has to make an assessment of uncertain household behaviour and an uncertain future. Notwithstanding this, we can make a back-of-the-envelope calculation, not with the pretension of providing an accurate estimate but just to give an idea about the order of magnitude and the impact of alternative assumptions.

[53] See https://economie.rabobank.com/publicaties/2014/maart/nederlandse-hypotheekschuld-fors-gedaald-in-2013/.

We estimate the households' deleveraging effects on consumption, making the following set of assumptions:

- We define deleveraging savings as the amount of money that agents repay to eliminate the underwater problem net of mortgage interest payments. These mortgage interest payments should be paid anyway.
- People have an idea about the future development of the house price, and take that into account in the decision on how much to repay. So if house prices are recovering, people take that into account and save less.
- We consider three alternative scenarios for the housing market in the next decade. In the first scenario, nominal prices fall by 0.5% yearly. In the second scenario, nominal house prices increase by 3% yearly in the coming ten years. In the third scenario, nominal prices increase by 4% yearly. We consider two scenarios for the possible deleveraging horizon: eight and ten years. We assume that households will fully repay the debt part that is above the house price value.
- We assume that agents have no private wealth, or at least do not use it, to repay their mortgage up to the level of the house value.
- We assume that deleveraging starts in 2016. The reason to start not immediately but to wait for another two years is that household income is still going to be relatively low in the next two years, and unemployment remains high (CPB, 2014) so that the underwater households postpone deleveraging until their income situation improves.

Table 6.2 Deleveraging effects on consumption (% change in consumption level)

Projected annual change in house prices	Projected deleveraging horizon	
	Eight years	Ten years
-0.5%	-4.9%	-3.9%
3.0%	-0.7%	0.0%
4.0%	0.0%	0.0%

Table 6.2 summarises the deleveraging effects, which are one-time effects on the consumption growth rate when we assume repayments to be equally distributed over the deleveraging period (i.e. a negative effect when the deleveraging starts and a positive effect when the deleveraging ends).

As shown in table 6.2, the deleveraging effect on consumption is extremely sensitive to future development of the house price and the projected deleveraging period. In the worst case of annual nominal change in house prices of -0.5% and a recovery period of eight years, consumption will be almost 5% lower during the deleveraging period. In the most optimistic scenario in which nominal house prices increase by 4% annually and people have a ten-year horizon, there is no deleveraging needed. In the moderate recovery scenario, households will only deleverage for the eight-year period.

There are different reasons to believe that our numbers provide an upper bound rather than a lower bound. First, households can reduce the underwater debts using money from

existing saving accounts or from bequests (balance sheet reduction). However, as stressed before, there is some evidence that the people who actually use savings to reduce their housing debt do not have an underwater problem. Second, the actual underwater problem can be lower than the data above suggest because many mortgage contracts also include a housing-related saving account. However, the underwater problem is mainly concentrated among the young, who probably did not have time to build up a sufficient amount of capital. Third, some of the households could take loans up to 105% of the value of their house so that not the whole difference between the mortgage sum and the current house value can be considered as a loss. Fourth, apart from lower consumption, debt reduction can also be financed by supplying more labour. Finally, it could be the case that disposable income of households is not sufficient to make additional mortgage repayments. Then the speed and magnitude of the deleveraging process will be hampered, due to liquidity constraints.

Precautionary savings

Apart from a deleveraging motive, another crisis-specific reason to save more (and consume less) is the increased uncertainty about future income. Even in a simple intertemporal consumption model it can be shown that an individual operating in an uncertain environment builds up a stock of precautionary savings to insure against some bad state of the economy in the future. They anticipate that if this bad state is realised, they will earn lower income. To avoid future large income fluctuations and retain a stable consumption level, they set aside a precautionary buffer, by consuming less in the current period. With a currently high unemployment rate, relatively unfavourable career opportunities and an increasing reliance on temporary labour contracts, precautionary savings could be a relevant factor for the Dutch economy in hampering consumption growth.

Although economic theory suggests a response of savings to increased uncertainty, the empirical relevance of precautionary savings is unclear. Empirical studies, which have attempted to assess the relevance of the precautionary saving motive, have delivered results that are far apart from each other (see the literature survey by Kennickell and Lusardi, 2004). Some studies conclude that savings for precautionary reasons make up only approximately 2% of all savings (Guiso *et al.*, 1992); other studies come to much larger percentages of about 20-40% (Lusardi, 1997; Ventura and Eisenhauer, 2006).

As pointed out by Mastrogiacomo and Alessie (2013), these contradictory results may be either the result of institutional differences between countries or suggestive of methodological shortcomings. They note that the effect of increased uncertainty on savings depends on how this uncertainty is measured. With subjective (self-reported) measures for uncertainty, the effect of increased uncertainty on savings is small, while this effect becomes larger when using more objective uncertainty measures (based on income data).

The literature is, if anything, explicit about the level of precautionary savings in normal times. Unfortunately, we are unaware of empirical literature that investigates whether a financial crisis increased precautionary savings and to what extent.

6.5 Conclusion

Summarising, this chapter has shown that household consumption declined significantly during the crisis as the result of a sharp decline in housing wealth and the reduction of disposable income. Compared to the situation in other Northern European countries and the US, this decline was substantial. Households tried to cut back their expenses mainly by reducing consumption.

When the economy recovers, consumption likely follows. For instance, Chapter 4 points to catch-up productivity growth, and Chapter 5 suggests that unemployment will diminish, thereby increasing real wages, disposable income and thus consumption. Recovery in the housing market also benefits consumption. When house prices increase again, wealth increase and loan-to-value ratios avert the debt sustainability problem. Chapter 8 explores two scenarios in which consumption, in concordance with economic growth may recover.

On the other hand, several downward risks are in store, which might hold back consumption for a longer time period, see the *Delayed Recovery* scenario in Chapter 8. As mentioned before, it is questionable whether the large household debt levels will be sustainable. In particular, households with an underwater mortgage are less mobile and have a larger marginal propensity to consume. In a few years they might deleverage on their house, regaining their flexibility on the housing market. Furthermore, actual unemployment is substantial. Recovery might take some time; depending on the state of the economy, full recovery might stretch beyond 2023. Credit constraints might remain, if the financial crisis does not recover sufficiently. Stricter credit conditions and limited supply could limit consumption as well. Finally, as we were unable to determine the effect of a financial crisis on precautionary savings, we exclude any assumptions on their future development, and let it suffice to state that persistent unemployment and the insurance for other risks may affect savings into the next decade.

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7 Europe: challenges and risks

George Gelauff, Paul Veenendaal, Debby Lanser, Kasia Grabska and Ona Ciocyte

- Europe faces the challenges of redeploying its unused labour potential and tapping further growth potential out of structural reforms.
- The need for households, firms and governments to deleverage may hamper growth.
- Low inflation in Europe intensifies the setbacks from deleveraging.

7.1 Introduction

The crisis has struck hard in Europe. Prospects are improved, but for some countries the way to full recovery may be long. In the spring of 2014, outlooks for 2014 and 2015 indicate that growth is taking off in Europe (see, for instance, OECD, 2014). The European Commission expects the euro area to grow by 1.2% in 2014 and 1.7% in 2015. Germany remains an engine of growth in Europe. Growth is picking up in some of the countries that were hit hardest (Greece, Spain, Italy and Ireland). Growth in Italy and Portugal remains weak.

Although it may be said that prospects are improved, both imbalances and risks remain present. Across nearly all of Europe unemployment rates are high, as are private and public debts (see Chapter 1). Productivity growth is a major cause for concern in some countries in the south. In addition, it is uncertain whether the Banking Union will fully resolve the suffocating embrace of sovereigns and banks (see Chapter 2). Worries are rising, moreover, concerning deflation.

Recovery in Europe is essential, primarily for the southern countries that face high social and economic consequences of the crisis. But also the Netherlands is strongly influenced by the performance of the European economy. The open Dutch economy depends heavily on trade within Europe, with 80% of Dutch exports going to other European countries and 25% to Germany. Despite the turmoil in Europe, during the crisis foreign demand remained an important pillar that positively contributed to economic growth in the Netherlands. Of course, Germany is one of the cornerstones of the strong foreign demand for both Dutch products and for transit trade.

This chapter reviews various factors that affect growth and inflation in Europe.[54] From a supply-side perspective, structural reform stands centre stage. Reform of product-market regulations supports growth. The reform challenge applies to various goods and services markets in countries in southern Europe and to the internal market for services in all of Europe. Structural reform of labour markets, in particular, applies to countries with high rates of equilibrium unemployment. On the demand side, deleveraging by households, firms

[54] Chapter 2 analyses financial markets and the Banking Union.

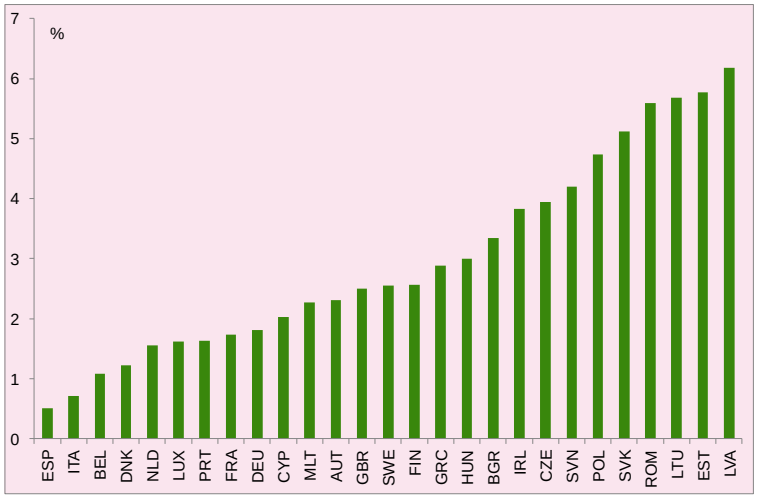
and governments in Europe may affect growth. The rate of inflation feeds back into the need for deleveraging. Moreover, low inflation may slow down the adjustment of real labour costs in southern countries and thus impair their growth prospects.

7.2 Structural reform: product markets

In general, pre-crisis growth returns after a financial crisis. Although empirical research shows that a financial crisis does result in a substantial one-time loss of production capacity (see Chapter 4), structural productivity growth rates often return (although this is measured with considerable uncertainty) to the values they had before the crisis. Hence, in an analysis of growth prospects for Europe, a reasonable starting point for the growth rate of labour productivity may be the value it had before the crisis.

When productivity growth rates return to their pre-crisis values they will display substantial differences between European countries. Figure 7.1 shows that over 1995-2007, labour productivity growth equalled 1.8% in Germany and 3.8% in Ireland. In contrast, labour productivity growth in Italy and Spain was much less.

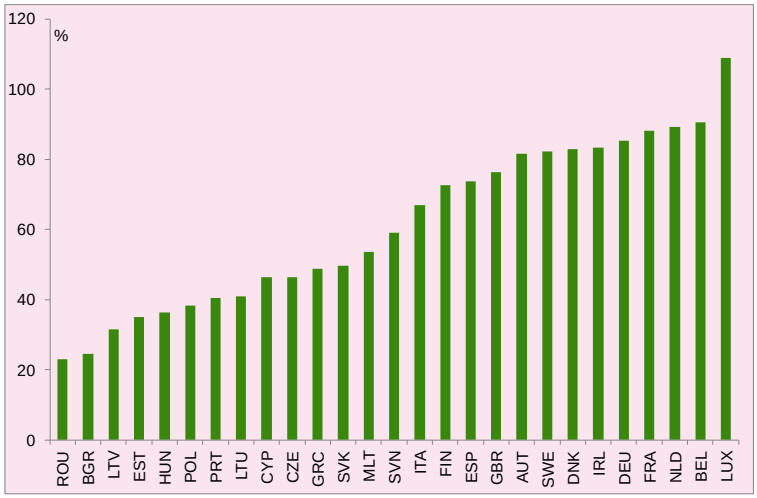
Figure 7.1 Back to the pre-crisis trend of labour productivity growth yields a mixed picture (GDP per hour worked, average 1995-2007, The Conference Board)



Differences in productivity levels relate to differences in productivity growth rates. Over time, each country's productivity growth cumulates into its productivity level. At the same time, the distance of a country's productivity level from the technological frontier, the US, delineates a certain catching-up potential. Countries with a large distance to the frontier have in principle substantial potential for productivity growth. Indeed, the high productivity growth rates of eastern European countries such as Poland clearly illustrate this (compare Figures 7.1 and 7.2). In contrast, productivity growth is much lower in countries close to the frontier, such as Belgium, the Netherlands, France and Germany.

Still, many European countries have great growth potential as they substantially lag behind the technological frontier. Even in the most productive EU countries, productivity lies some 10 %-points below the US level. Although the challenge of catching up with the US might be unrealistic for some countries, the catching-up potential within Europe is already considerable. Italy has a 21 %-point productivity gap with Germany. Portugal and Greece have a gap of 53 and 43 %-points, respectively.

Figure 7.2 Substantial gaps in labour productivity levels with the frontier (GDP per hour worked, US =100, 2013, The Conference Board)



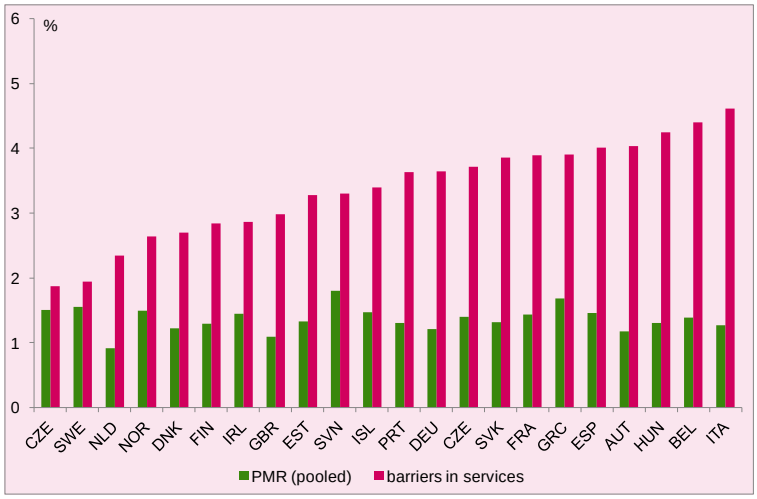
The catching-up potential of a country is in itself not sufficient to get productivity growing. Countries need a well-educated labour force, a culture and institutions that encourage innovation, competitive markets, and so forth. Many productivity drivers concern structural factors that do not change quickly. For instance, educational improvements take quite some time to fully materialize. When better-educated youngsters leave school, the quality of the labour force rises only within their one-year cohort. It takes another 40 to 60 years for educational improvements to raise the quality of all workers.

On a ten-year horizon, structural reform in product markets is one of the factors that may effectively enhance productivity growth. The OECD Product Market Regulation (PMR) indicators 'measure the degree to which policies promote or inhibit competition in areas of the product market where competition is viable' (OECD PMR database definition). The pooled indicator (PMR in Figure 7.3) weighs together a range of sub-indicators in the fields of state control, barriers to entrepreneurship and barriers to trade and investment. On a scale of zero to 6, the pooled indicator ranges from 0.9 in the Netherlands to 1.8 in Slovenia. The Netherlands has the lowest score of the OECD, below the US and the UK.

Of all of the sub-indicators, the indicator on barriers in services sectors is substantially higher (see Figure 7.3). The indicator ranges from 1.9 in Switzerland to 4.6 in Italy. Although it covers only a part of services regulation (that is, barriers for start-ups), this indicator shows that services markets are in general more regulated than goods markets. This regulation may in part be useful: regulations that increase transparency in financial markets,

for instance, protect financially illiterate consumers. Yet, differences in the value of this indicator between countries suggest that further deregulation may be an option for several countries. Figure 7.3 shows that barriers in services sectors are high not only in a number of southern European countries, such as Italy, Spain, Greece and Portugal, but also in France and Germany. In line with the pooled indicator, the services market in the Netherlands is one of the least regulated in all of Europe.

Figure 7.3 High barriers in services may restrict productivity (OECD Product market regulation indicator, 2013)



Indeed, country reports (such as the OECD Economic Surveys) often emphasize the lack of product-market reforms, particularly in services sectors. Although product-market reforms increase competition, strengthen productivity and increase employment, they may be hard to implement, because of the power of vested interests. Such reforms often impose costs on small and usually well-organized groups in society, whereas the long-term gains benefit society at large.

In the IMF Jobs and Growth study, Anderson *et al.* (2014) analyse the growth impact of product-market reform in Europe. Reforms close about half of the gap between the countries' current regulatory burden and a frontier measure. In the periphery (Greece, Ireland, Italy, Portugal and Spain), reforms increase GDP by 10% in the long run, with 3.8% originating in the tradables sector and 6.2% in the non-tradables sector. In the core (the remainder of the euro area), the long-run effect on GDP is 5.7%, with 2.6% tradables and 3.1% non-tradables. After ten years, about 60% of the long-run effect has materialised.

A study carried out by the European Commission yields comparable results. Varga *et al.* (2013) analyse product-market reforms in the South (Greece, Italy, Portugal and Spain) and assess the long-run increase of GDP to be 12.5%. The high gains in the periphery illustrate the considerable reform potential in these countries, and the high share of non-tradables corresponds to the substantial reform challenge in services.

The EU Services Directive covers a part of the reform options in services markets (for a comprehensive overview, see Mustilli and Pelkmans, 2012). Monteagudo *et al.* (2012) assess the benefits of the Services Directive (as implemented end 2009) at 0.8% of GDP at least. A more ambitious implementation could yield extra benefits of 1.6% of GDP. The Services Directive pertains mainly to intra-EU cross-border services. It reduces direct barriers to trade in services and concomitant domestic barriers in services markets that obstruct trade. A considerable part of services are non-traded. This explains why the total impact of reform, as computed by Anderson *et al.* (2014) and Varga *et al.* (2013), exceeds the impact of the Services Directive.

Analogously, the Transatlantic Trade and Investment Partnership (TTIP) is set in motion to remove trade barriers in a wide range of economic sectors between the European Union and the US. It aims at cutting tariffs and at removing non-tariff barriers ("behind-the-border") barriers, e.g. differences in technical regulations or standards. When successfully negotiate and implemented, the proposed reforms can have significant effects on growth. Francois *et al.* (2013) show that as much as 80% of TTIP's potential gains of 1% of GDP would come from cutting costs imposed by bureaucracy and regulations, as well as from liberalising trade in services and public procurement. Clearly, these effects overlap with those of the Services Directive.

7.3 Structural reform: labour markets

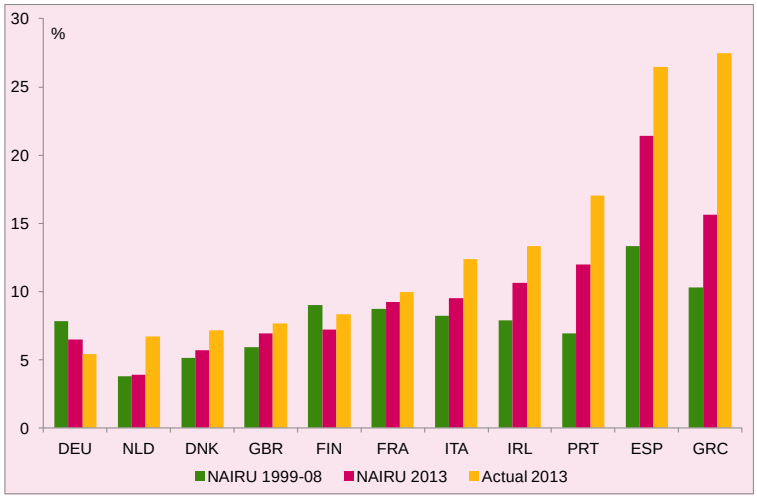
Across Europe, many people lost their jobs during the crisis and unemployment soared (see Chapter 5). Only a few countries, including Germany, Austria, Norway and Switzerland, experienced a limited increase in unemployment. In several southern countries unemployment reached extremely high levels. Greece and Spain have particularly suffered: in 2013, more than a quarter of the labour force in these countries was unemployed. In addition, high unemployment in Portugal, Spain, Greece and Italy lead to a sharp increase of emigration of young and highly-educated people, who decided to explore their labour-market opportunities elsewhere.

Figure 7.4 reports the actual harmonized unemployment rate and the NAIRU (the Non-accelerating inflation rate of unemployment) for several European countries. When unemployment lies below the NAIRU, the tight labour market generates wage inflation, which pulls down employment until unemployment equals the NAIRU. In contrast, when unemployment rises above the NAIRU, this creates a downward pressure on wages, which stimulates job creation. Hence, when countries start recovering from the crisis, the unemployment rate is expected to move towards the NAIRU.

The NAIRU interacts with the so-called equilibrium rate of unemployment. A "thought experiment" may illustrate how this operates. The magnitude of the NAIRU relates to effective search behaviour of unemployed people, the outside options for workers and the labour-market institutions. When the economy is in equilibrium, institutions such as the tax

wedge (the ratio between gross and net wages) and the replacement rate (the ratio between benefits and wages) determine the equilibrium rate of unemployment. As long as institutions do not change, equilibrium unemployment remains the same. When a negative shock, such as the Great Recession, hits the economy, people lose their jobs and unemployment rises. In a severe crisis, a large number of unemployed people find it hard to return to the labour market. After several fruitless attempts finding a job, people become disappointed and reduce their effort for reapplication. They remain unemployed but no longer compete for a job (hysteresis). In that case, the NAIRU rises to a level somewhere between the equilibrium and actual rate of unemployment. In the short- to medium term, actual unemployment is bounded from below by the NAIRU. Only when there are clear signs that the economy is recovering and prospects have improved will people again start looking for a job. The NAIRU starts to fall, and when the economy reaches a new equilibrium the NAIRU and the actual rate of unemployment gradually move towards the equilibrium rate of unemployment.

Figure 7.4 Unemployment may remain high after the crisis (NAIRU average 1999-2008 and 2013, harmonised unemployment rate 2013, OECD)



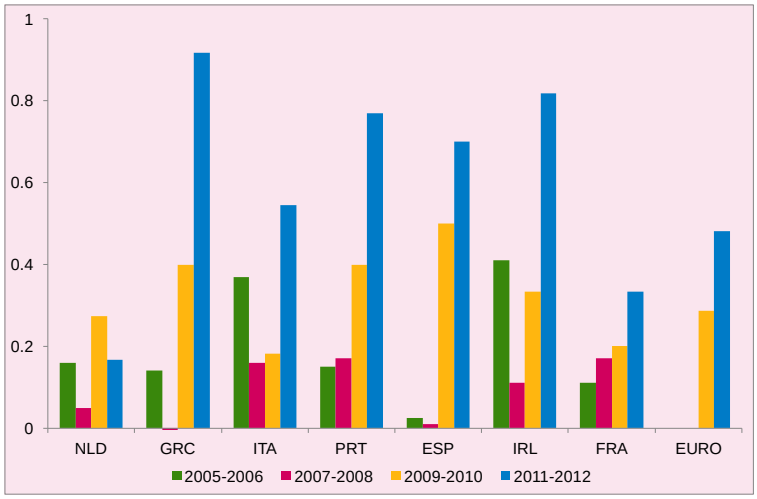
The increase in the NAIRU after the crisis indicates that in several countries a substantial part of unemployment has become structural on the short to medium term. In these countries unemployment would remain high in the early years of a recovery. In France and Italy the NAIRU is almost 10%, in Portugal 12%, in Greece almost 16% and in Spain even above 21% (see Figure 7.4). A comparison of the 2013 level of the NAIRU with the average before the crisis indicates that in some of these countries also institutions may prevent a substantial decline of unemployment after the crisis. Before the Great Recession the NAIRU was close to or above 10% in Greece, Spain, Italy, France and Finland. This calls for structural reform of institutions that affect the performance of the labour market. In other countries such as the Netherlands the NAIRU did not change during the Great Recession (see also Chapter 5).

Dealing with the consequences of the crisis, several countries have already taken considerable steps toward reform, particularly regarding labour-market institutions. The OECD depicts the reform effort of countries in a composite indicator known as the reform

responsiveness indicator. The indicator measures the reform responsiveness in terms of fulfilling the agenda set in the OECD growth reports. Figure 7.5 presents the indicator over 2005-2012. It shows that Greece, Portugal, Ireland and Spain have been active reformers since 2009. These countries are subject to high reform pressure, which originates from the large impact of the crisis and IMF lending to Greece, Portugal and Ireland. Italy lags behind in terms of reform effort and France has adopted few reforms.

The Netherlands scores very low on reform responsiveness, i.e. the Netherlands scores very low when it comes to responding to OECD going for growth recommendations. Figure 7.5 shows that the Netherlands already has undertaken various reforms that other countries still face. Yet, according to the OECD, that is no reason for complacency. OECD (2013, p19) states: 'In contrast, less progress has been achieved in other euro area countries, in particular those with a current account surplus (e.g. Germany, Luxembourg and the Netherlands). Yet, reforms are also needed in these countries, in particular in areas that may help intra-euro area rebalancing, such as boosting competition in non-tradable sectors.'

Figure 7.5 The crisis initiates reforms, but not everywhere (OECD reforms responsiveness index, 2005-2012)



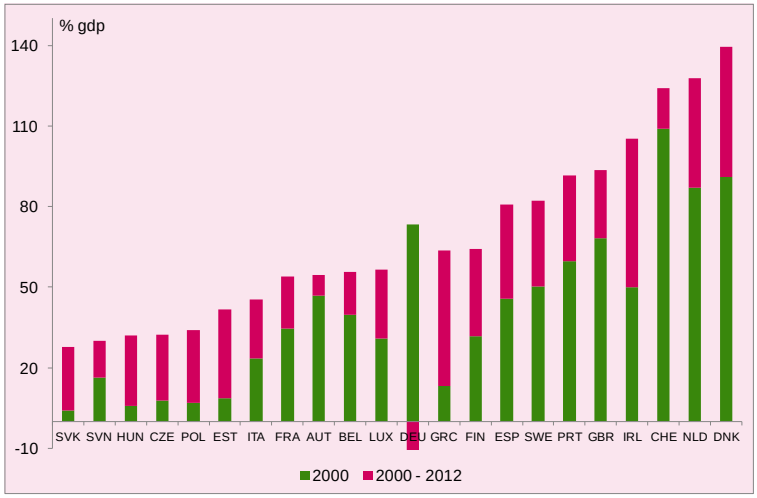
With regard to the labour market, Europe thus faces two main challenges on the way to recovery. The first is to redeploy its unused potential. When growth resumes and firms create new jobs, unemployment starts falling towards the NAIRU. Gradually, people who were hardly looking for a job will return to the labour market and the NAIRU may fall as well. The second main challenge has to do with structural reform, which will enable European countries to tap further growth potential. Despite substantial efforts in recent years, an unfinished agenda remains. Anderson *et al.* (2014) estimates that further labour-market reform would add 3.5% to GDP in the periphery countries and 2.8% in the core of Europe. Also the difference in the NAIRU with the best-performing countries illustrates that the labour-market reform potential may be substantial for some countries (Figure 7.4).

7.4 Private sector deleveraging

Deleveraging threatens countries with the prospect of stalling economic growth. Before the crisis, debts increased considerably in many countries, mainly related to rising asset prices and falling interest rates. A global savings glut, financial innovation and the perception of lower risk drove interest rates down (Bouis *et al.*, 2013; see also Chapter 1). Both households and firms saw debts soar, although in various ways for different countries depending on national institutions as well. After the crisis, falling asset prices led to a debt overhang. For households in a number of countries, collapsing house prices raised loan-to-value ratios.

The post-2000 credit boom is unprecedented, as Bornhorst and Ruiz-Arranz (2014) state. Over 2000-2012, household debt swelled by over 20 %-points of GDP in the majority of the European countries (see Figure 7.6). Only Austria witnessed a moderate increase, and only in Germany did debt fall. Over 2000-2008, assets rose in value as well, so that debt-to-asset ratios remained more or less stable (Bornhorst and Ruiz-Arranz, 2014). After 2008, falling asset prices hit households and eroded their net asset position. As a result, the level of household debt in 2013 is exceptionally large compared with historical episodes.

Figure 7.6 Households face high debts
(Household debt, % GDP 2000, 2012, OECD)



Deleveraging by households

A major question remains: to what extent do debts have to fall in order to return to sustainable values? Chapter 6 explores this question as well. From a life-cycle perspective, consumers spread a financial setback over their remaining lifetime. Yet in some cases consumers may reduce debts faster. For instance, when they want to cut back on a debt overhang in their mortgage, which restricts their perceived mobility on the housing market. Institutions may enable them to deleverage quickly as well. In the US, for example, fast

bankruptcy procedures contributed to the quick foreclosure of subprime mortgages.[55] When the crisis stuck, many households could not pay the high interest rates on these mortgages. Other households reckoned that not paying off the mortgage would be an attractive way to resolve their debt overhang. Households went bankrupt, handed over the keys to their homes at the bank and moved elsewhere. This of course shifted the burden of deleveraging to the banks. Households in most European countries do not get rid of a debt overhang that easily. All in all, theory and institutions offer little guidance about the pace of deleveraging.

Empirically, several studies (Cuerpo *et al.*, 2013; Bouis *et al.*, 2013, Bornhorst and Ruiz-Arranz, 2014) address the deleveraging challenge of households by using 2000 debt levels as benchmarks. These studies refer to Tang and Upper (2010), which analyses previous bubbles and shows that after the burst deleveraging matches the build-up of debt before the bust. Therefore, debts may be expected to return to their pre-boom values. Figure 7.6 shows that this would yield a substantial challenge for many countries. Ireland, Greece, Denmark and the Netherlands stand out in particular, with debts in 2012 exceeding debts in 2000 by some 40 to 60% of GDP.

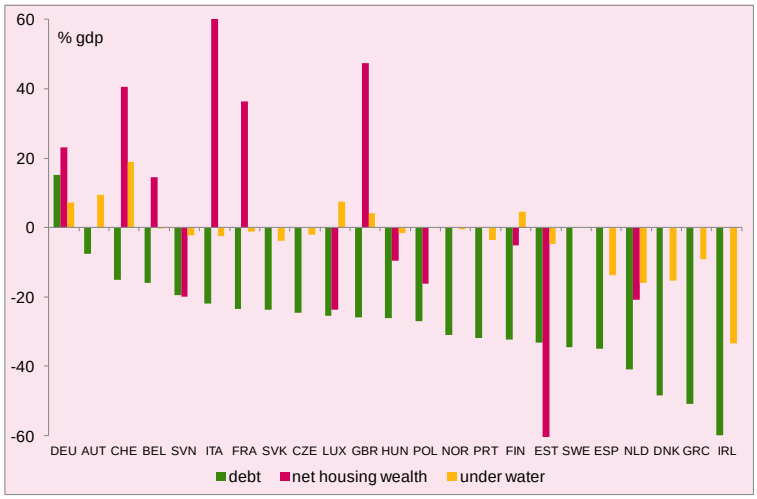
Chapter 6 argues that taking the year 2000 as a benchmark may be too rigorous, however. Whether debts have to fall all the way to their 2000 levels also depends on the value of assets and collateral. In the Netherlands, household debt has increased by 40.9% of GDP. Home prices have fallen by 20% since 2008, but that did not fully offset the increase in housing wealth over 2000-2008. Net housing wealth has fallen by 20.8% of GDP since 2000, representing about half the increase in debts. The deleveraging challenge falls to 15.9% of GDP in accordance with Chapter 6.[56] Although in a rather crude way, the latter finding may also be applied to other countries to compute an alternative deleveraging challenge.[57] In the Netherlands, 14% of total wealth from mortgages is 'underwater', i.e. the difference in euros between the value of a home and its mortgage. House prices fell by 20%; a 1 %-point fall in house prices thus implies that 0.7% of mortgage value goes under water.

Figure 7.7 presents three options for the deleveraging benchmark for households in Europe. It compares the 2012 value to the 2000 value of debt (with a minus sign added to indicate the deleveraging challenge) and does the same for net housing wealth. It estimates the value of mortgages under water as a % of GDP (also with a minus sign), using the above rule of thumb. Each percent nominal decrease in house prices since the top until 2013Q4 implies that 0.7% of loans to purchase a house go under water. Analogously to the Netherlands, in various other countries the fall in net housing wealth over 2000-2012 is considerably less than the rise in debt.[58] Sometimes net wealth even exceeds its 2000 value, despite higher debts. Italy, France and the UK are clear examples, where the net housing wealth indicator

[55] In the US, the household debt ratio rose from 68.6% of GDP in 2000 to a top of 96% of GDP in 2007. Since then, a decline set in towards 80.3% of GDP in 2012. Hence, in the US households have offset almost 60% of the increase over 2000 - 2007. Defaults may explain two-thirds of the fall in US household debt over 2008-2012 (MGI, 2012).
[56] Note that in chapter 6 debt and wealth ratios are defined in terms of a percentage of disposable income.
[57] The rule of thumb assumes constant LTV ratios in each country. These do not necessarily have to be the same as in the Netherlands, which are known to be high.
[58] Due to data limitations, the net housing wealth indicator is not available for several countries.

shows that deleveraging is not in order. Figure 7.7 also shows that the 'underwater' indicator yields a relatively moderate need for deleveraging, compared to the debt indicator.

Figure 7.7 Household deleveraging indicators ('Debt' 2000 minus 2012, OECD; 'Net housing wealth' 2012 minus 2000, OECD and 'Underwater' from rule of thumb, see text)[59]



Deleveraging by non-financial firms

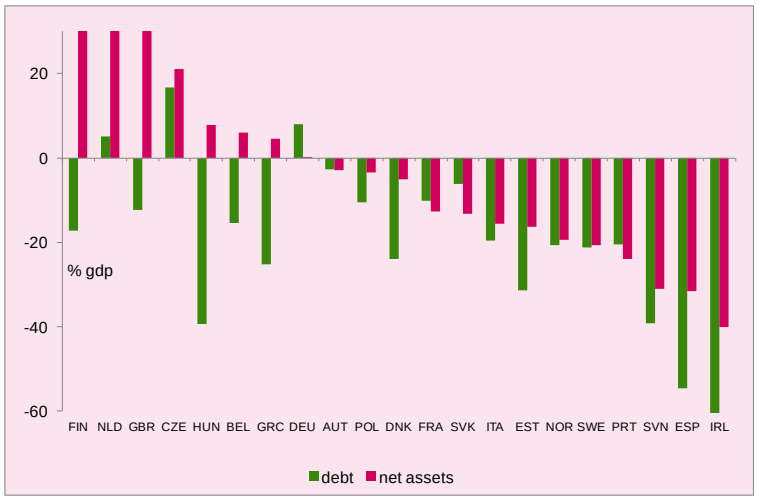
Figure 7.8 presents two indicators for deleveraging by non-financial firms. The debt indicator is comparable to that of households and is used in the literature (see, for instance, Cuerpo *et al.*, 2013). It measures the increase in debts as a percentage of GDP since the year 2000. The net asset indicator is defined analogously. It takes into account that not only debt but also assets may have increased as well. Generally, the net asset indicator implies a smaller need for deleveraging than the debt indicator.

For countries on the right-hand side of Figure 7.8, the two indicators yield by and large a comparable ranking, with net assets obviously smaller in size. Ireland and Spain stand out as countries where the financial position of non-financial firms weakened considerably. Also in Portugal and Italy net assets of non-financial firms fell by 20% of GDP or more over 2000-2012. Yet, not only in the south of Europe did firms' net assets fall substantially; this also happened in Sweden and Norway.

In contrast, net assets of firms in Finland, the Netherlands and the UK have surged since 2000. In 2000, the net asset positions of firms in these countries were highly negative. This improved substantially in the period before the crisis. This may relate to the relatively large share of multinationals in these countries. For the Netherlands, in particular, it is well known that savings by large non-financial firms account for a considerable part of the current account surplus. That doesn't mean that all Dutch firms were immune from the crisis. Chapter 2 argues that most Dutch SMEs probably suffered from financial constraints due to restrictions in bank lending.

[59] Negative values indicate the need for deleveraging; positive values have been included for comparison. Bars of net housing wealth for Italy (87.7) and Estonia (- 87.0) fall outside presentation range.

Figure 7.8 Non-financial firms deleveraging indicators (Debt 2000 minus 2012, Net assets 2012 minus 2000, OECD)[60]



Over time, the need for debt reduction depends on growth and inflation. A thought experiment: suppose current housing debt equals 110% of GDP and exceeds a benchmark by 40% of GDP. This roughly coincides with the Netherlands in Figure 7.7. In a high-growth scenario with 2% inflation, 2% growth of real GDP and zero net savings, the debt falls to 74% of GDP after ten years. Hence, inflation and growth erode almost the entire overhang. In contrast, in a scenario with 0.5% real growth and 0.5% inflation, the debt ratio still equals 100% after ten years. In this low-growth and low-inflation scenario, three-quarters of the initial debt overhang still remains after ten years.

According to Bornhorst and Ruiz-Arranz (2014), in many historical periods household deleveraging was passive. Inflation and economic growth eroded the debt ratio; households did not actively pay down debt. The thought experiment underscores that this is indeed the case in a high-growth scenario. In a scenario with low growth and the threat of deflation, however, active deleveraging may be unavoidable, which constrains demand and further hampers growth. Indeed, Bornhorst and Ruiz-Arranz (2014) state that due to weaker growth prospects and low inflation, deleveraging in the euro area will currently not benefit easily from higher nominal income and 'will have to rely more on paying down debt'.

7.5 Public sector deleveraging

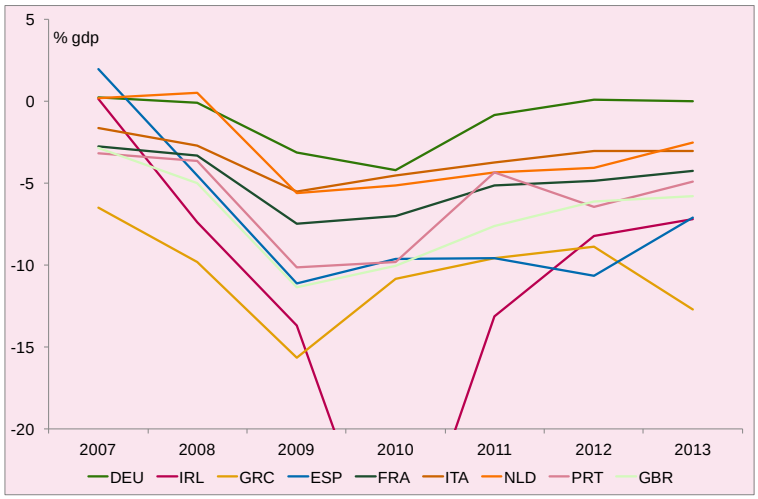
The financial crisis and subsequent euro crisis hit government finances hard in many European countries. Falling tax revenues and increasing expenditure are common consequences of a crisis. These automatic stabilizers dampen a demand shock. But this was no ordinary crisis. Figure 7.9 illustrates the impact on public balances for a number of countries. In the Netherlands, the general government financial balance fell in one year from

[60] Negative values indicate the need for deleveraging; positive values are included for comparison. Bars of net assets for Finland (163.9), the Netherlands (116.9) and the UK (40.3), and of debts for Ireland (-91.3) fall outside presentation range.

a small surplus of 0.5% of GDP in 2008 to a deficit of 5.5% of GDP in 2009. Relative to other countries this decline is moderate as compared to e.g. Spain which fell from a surplus of 2% of GDP in 2007 to a deficit of 11.1% in 2009.

High deficits over several years in a row also strongly raised public debt (Figure 7.10). Government support to banks in distress (nationalizations) caused debt to surge in a number of countries. In the Netherlands, for instance, public debt rose from 45.3% of GDP in 2007 to 58.5% of GDP in 2008 due to nationalization of Fortis/ABN AMRO and capital injections to ING, AEGON and SNS REAAL.[61]

Figure 7.9 More than automatic stabilizers (General government financial balance 2007-2013, % GDP, Eurostat)



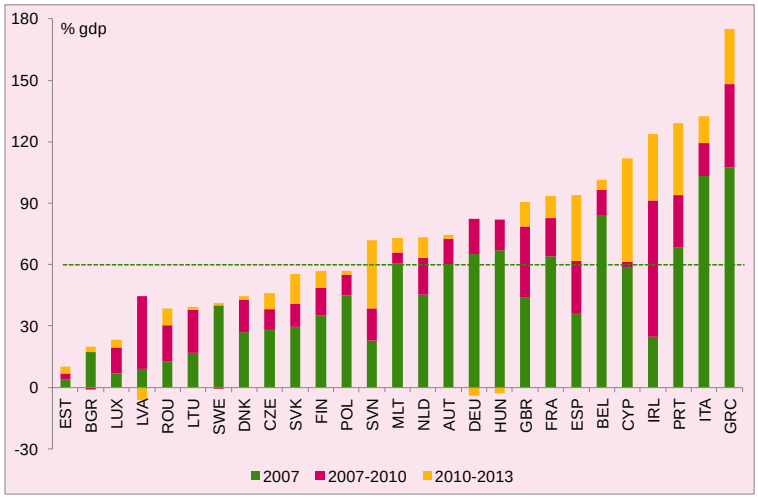
Mainly since 2011, governments in many European countries have initiated a range of consolidation measures to cut back public deficits. In countries such as Greece, Spain, Portugal and Ireland, these measures were inevitable to restore the trust of financial markets. Risk premiums on public debt accelerated rapidly and carried the risk of vicious circles in which public finances would spiral out of hand because of ever-rising interest burdens. Indeed, such a vicious circle turned the slumbering structural problems in Greece into an acute crisis. Triggered by the announcement of the Outright Monetary Transactions program of the ECB, falling risk spreads in several countries demonstrate that the unrest is receding.

Not only distressed economies engaged in consolidation. The UK government, for instance, initiated a number of consolidation measures in 2011. In deciding on consolidation measures, governments had to strike a complicated balance between the credibility of their long-term commitment to sound public finances, the negative short-run effects on demand of budget cuts or tax increases and for euro area members the institutional requirements posed by the Stability and Growth Pact and its successor treaties. This led to a heated debate on the size of the multiplier, *i.e.* the impact of consolidation measures on economic growth, and the

[61] See box 'Hoe werken interventies in de financiële sector door in de begroting?', p86, CPB (2009).

speed at which countries that were struck hard by the crisis should attain deficit and debt levels below 3 and 60%-points of GDP respectively.[62]

Figure 7.10 Public debt surged (% GDP, 2007-2013, Eurostat)



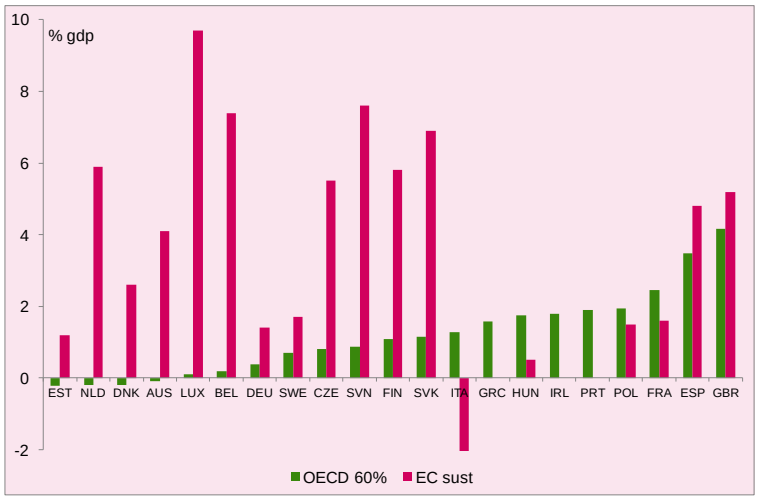
A large task still remains: to return to a public debt level below 60% of GDP requires a substantial reduction of public debt in all of the large EU countries and all of the periphery countries (Figure 7.10). Moreover, reducing the debt levels to 60% does not imply that debt is sustainable in the long run though (European Commission, 2012). Ageing may increase public expenditures when the government provides the same services to future generations as it delivers to current generations. In that case, deficits can increase substantially and with the associated interest burden accumulate into ever-increasing future debts. The sustainability challenge therefore also depends on how well a country has prepared to deal with aging. Sustainability indicators capture this by showing the adjustments to the primary balances of countries that is required for debt sustainability.

Figure 7.11 presents two indicators related to public sector deleveraging in a number of European countries. An OECD (2014) indicator calculates the change in primary balance that is needed to reduce the government debt to 60% of GDP in 2030. The indicator shows that the countries with high debts (UK, Spain, France, Portugal and Ireland) need to increase their primary balance by 2 to 4 %-points of GDP to restore debt to the EU target. The target for Greece is relatively small, because Greece already made a strong consolidation effort over 2010-2015, consisting of an 18% improvement of its primary balance in terms of GDP. The same also applies to Italy (4.5 %-points). The sustainability indicator of the EC shows that in several countries the consolidation needed to bring the deficit back to 60% is not sufficient in dealing with the challenge of ageing.[63]

[62] The Excessive Deficit Procedure in the 2011 reform of the Stability and Growth Pact starts when the deficit exceeds 3% of GDP or when public debt does not diminish sufficiently towards 60% when it exceeds 60% of GDP.

[63] Here, timing matters: the EC study was published in 2012 and does not take into account recent measures undertaken by some countries to reduce the burden of ageing, mainly by increasing the retirement age. For instance, recent measures considerably improved the Dutch sustainability balance.

Figure 7.11 Consolidation required in order to reduce government debt to 60% (OECD) of GDP or to a sustainable level (EC) (Primary balance as % GDP)



The need for debt reduction means that governments will have to face the choice in the next few years between rapid and gradual deleveraging (Abbas *et al.*, 2014). Gradual deleveraging implies that deficits and thus debts keep accumulating in the short run, which generates the need for higher primary balances in the future. Rapid deleveraging is also costly though, as the effects of consolidation are larger in the short run, while the economy is still functioning below potential. This trade-off mainly manifests itself in a low growth, low inflation environment. Analogously to private sector deleveraging, growth and inflation will 'absorb' part of public debt. According to Abbas *et al.* (2014), growth, in particular, supports reduction of public debt. Inflation mainly erodes debt in the first five years, because interest rates rise in line with inflation. After five years, a substantial part of public debt is refinanced against higher interest rates. Experiences in the past also show that accelerating growth, external demand and accommodative monetary policy supported debt reduction. Hence, in an environment of low growth, mainly fiscal consolidation will have to drive debt reduction.

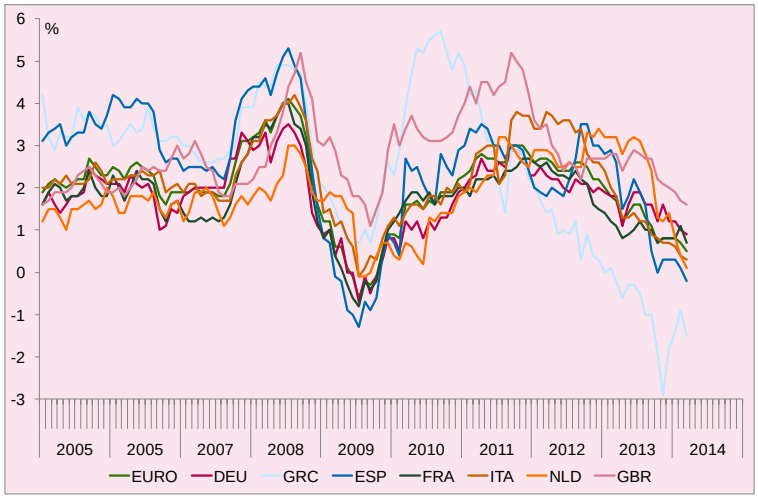
7.6 Deflation

Inflation is falling in Europe (Figure 7.12). Consumer price inflation in Spain and Italy is falling to values near zero. Greece has been facing deflation already for a full year. Even in Germany inflation is approaching 1%, and in France it already lies below 1%. In March 2014 the harmonized consumer price index of the euro area was 0.5% higher than it was in the previous year. The rate of inflation in the euro area rose to 0.7% in April and fell back to 0.5% in May.

The causes of falling inflation are mixed and not entirely clear. Prices of raw materials excluding energy fell by 5.5% in 2012 and 8.4% in 2013 (CPB, 2014). Energy prices fell by 4.6% over 2013. In addition, labour-market slack has exerted a downward influence on wages. Hence, the cost-push component of inflation is small. The same can be said of the

demand-pull component. In many European countries domestic demand is still weak and output gaps point to substantial excess capacity. Monetary policy should be able to counteract these deflationary forces to some extent. However, doubts exist about the effectiveness of monetary policy in the current circumstances. The zero lower bound on interest rates restricts the toolbox of central banks to unconventional measures, such as quantitative easing. Yet, the strong increase of asset prices over the period of quantitative easing in the US has raised the question of whether this type of monetary policy might have a stronger effect on asset prices than it does on the prices of goods and services.

Figure 7.12 On the brink of deflation? (Harmonised Indices of Consumer Prices selected countries, monthly data, annual rate of change, Eurostat)



Sustained low inflation or deflation would hinder recovery from the crisis. The adverse effects may manifest themselves in three ways. Firstly, low inflation raises the real interest rate, which incites consumers to postpone consumption. With high real interest rates, saving becomes more attractive than consumption. This effect primarily occurs when consumers expect that interest rates will remain high, or price increases low for some time in the future. In contrast, a one-time sudden drop in inflation with the expectation that it will return to its previous rate may stimulate consumption, because it raises real disposable income. High real interest rates due to low inflation also raise the real cost of capital for firms. As a consequence, firms will cancel investment projects that no longer meet required rates of return.

Second, and more importantly, low inflation or deflation raises the real burden of debt. The ratio of nominal debt to nominal income rises when prices hardly grow or fall. By consequence, debtors further increase savings to reduce their debt burden. If the marginal propensity to consume of debtors exceeds that of creditors, as is usually the case, then deflation slows down consumption. This drain on domestic demand depresses prices further. Analogously, the debt burden of firms and governments rises, which incites them to step up deleveraging. These consequences of deflation may seriously impair recovery in the economies of countries overloaded with debts.

Third, low average inflation in the euro area makes it difficult to solve the European unemployment problem, particularly in the periphery countries, where unemployment is high and productivity growth is low. Lower real unit labour costs would improve the employment outlook for these countries. When prices and productivity hardly grow, lowering nominal wages is the only way to achieve a fall in real labour costs. Nominal wage cuts are very hard to accomplish, though. IMF Blog (2014) contains a graph showing that 30% of the wage change distribution in Spain lies at the zero bound in 2011.

The risks and consequences of deflation depend largely on the growth prospects for Europe. Feedback effects matter a lot here. For high growth prospects they are positive, i.e. growth fuels inflation, which erodes debts and facilitates wage adjustment in the periphery. Falling unemployment and improving balances further stimulate growth. When positive feedbacks lead to overheating, monetary policy may intervene. In the event that inflation threatens to accelerate beyond the target of the central bank, monetary policy shifts from expansionary to contracting. Although doubts have risen about its effectiveness near the zero lower bound, monetary policy has proven rather effective in curbing high inflation.

If growth remains at its current rate, deflation is not very likely. In that case, moderate inflation may hinder growth mainly through difficult adjustment in the periphery countries. Only when growth prospects diminish, negative feedback effects emerge, i.e. growth slows down, and deleveraging kicks in. This will increase the risk of near-zero inflation over a considerable period of time, which again slows down growth.

7.7 Conclusion

Growth and inflation will shape the recovery in Europe. If European countries resume growth, unemployment will fall, as will public and private debt ratios. Virtuous circles appear. Higher employment generates income and tax revenues. Less unemployment limits social security contributions. There is less need for forced savings when the ratio of debts to GDP or income is lower. Moreover, countries will benefit from the prosperity of other countries through trade linkages. In this financial crisis, inflation has a comparable effect. If inflation accelerates, it lowers debts in real terms; it also enables countries with low productivity growth to adjust wages to productivity without having to cut nominal wages. In contrast, low growth and almost-zero inflation may generate vicious circles.

The perspective for the Dutch economy in the next decade depends significantly on the prospects for Europe. Chapter 2 shows that the outcome of the AQR and stress tests, as well as the way that weak banks restore their capital asset ratios, strongly influence the future of financial markets in Europe. This chapter shows that economic growth in Europe may benefit from the reduction of national regulatory barriers in markets for goods and services, particularly in southern European countries. Analogously, the expansion of the internal market for services throughout Europe contributes to growth. Regarding the labour market,

Europe faces the challenge of redeploying its unused potential. In addition, structural reform on the labour market will enable European countries to tap further growth potential.

Downward risks relate to the extent to which households and firms restrict consumption and investment to restore their debts to acceptable levels, and the need for governments to raise taxes or reduce expenditure to contain their debt within limits set by financial markets or EU agreements. Moreover, the future rate of inflation in Europe may intensify or diminish the deleveraging challenge.

These factors constitute building blocks for the scenarios in the next chapter. The degree to which they manifest themselves the coming years will determine whether virtuous or vicious cycles will be set into motion.

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8 Three roads to recovery

Albert van der Horst, George Gelauff, Henk Kranendonk and Paul Veenendaal

- The Dutch economy is resilient, but the recovery of aggregate demand will take time.
- Depending on strong or weak supply, over the next decade the Dutch economy may grow by 1½% (*Moderate Recovery*) to 2½% (*Accelerated Recovery*) per year.
- When substantial demand risks materialise the economy will not recover in the coming decade and government debt deteriorates (*Delayed Recovery*).

8.1 Introduction

The Great Recession has hit the economy worldwide. In Europe this has led to stagnated growth; in the Netherlands, real GDP is still below its 2007 level. Now it is time to look ahead.

The future will be shaped by past events, current imbalances and future uncertainty. Chapters two through seven of this book investigate the past, trying to understand whether the changes that have occurred, such as the loss of GDP, are likely to be permanent or temporary. We also identify imbalances, such as unemployment and negative net assets, and question whether and how they will be resolved. Finally, uncertainty about the future is inherent in any scenario study, facing us with the challenge of identifying the key uncertainties.

This chapter aims to visualise the future of economic growth in the Netherlands and abroad. We develop three scenarios around the questions of whether and how the economy will recover. In one scenario the answer to the 'whether' question is no, at least not within a period of ten years. In two other scenarios, the economy does recover from the crisis, but the speed of economic growth differs markedly. The scenarios are stories with numbers. We tell stories about how agents behave, markets function and institutions are being reformed. And we provide numbers on economic growth, unemployment, inflation and government budgets. Our aim, of course, is to present scenarios in which the stories and projections are consistent and relevant.

We present scenarios for a ten-year period, from 2014 to 2023. Given the intensity of the crisis, this period should be long enough for economic recovery to occur, at least in normal times. This period should also be short enough to abstract from long-term growth perspectives and demographic changes.[64] Our starting point is 2014, which seems to be in the latter days of the crisis. For practical purposes, we follow the March projection for 2014

[64] The Moderate Recovery scenario is input for the CPB ageing study (forthcoming in 2014), which takes a long-term intergenerational perspective. Moreover, a project is in progress on long-term demographic and economic scenarios as part of a scenario study on spatial issues, infrastructure, mobility and energy by CPB and PBL Netherlands Environmental Assessment Agency. The results of this project are expected in 2015.

and 2015, as presented in CPB (2014).[65] These are years featuring modest growth, with the imbalances in the economy as yet unsolved. From 2016 onward, we differentiate in three scenarios.[66]

8.2 Characterisation of the scenarios

There are a thousand and one ways in which the economy may recover— or not— from the Great Recession. Keenly aware of this, we limit ourselves to three stories capturing the two key uncertainties for the Dutch economy: the recovery of the production side of the economy may be either weaker or stronger, and aggregate demand may be sufficient or not to meet supply.

Figure 8.1 represents the construction of the three scenarios. Economic growth is first and foremost determined by supply, with demand adjusting. Supply may be strong or weak, depending on technological progress and structural reforms, among other things. If supply is strong, many goods and services are being produced, income is high and demand will be strong as well. The same holds true for the interaction between weak supply and weak demand.

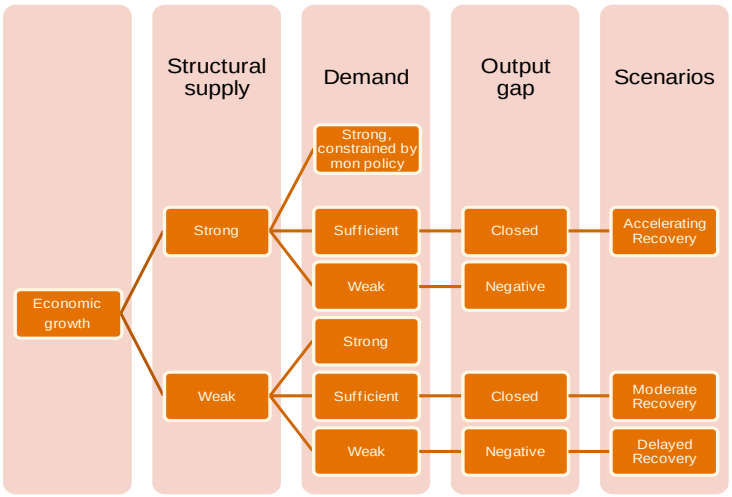
The second issue is how the economy recovers from the crisis. After about six years of weak economic growth, there is slack in the economy, mainly because workers are unemployed or discouraged. In economic terms, there is a gap between actual production and what might be produced if all available resources were used in the production process: the output gap is negative. The slack in the economy provides some room for catch-up growth or cyclical recovery, where unemployed workers are being hired and non-participants successfully enter the labour market. If supply and demand are strong, this catch-up growth is easy to achieve, which determines the *Accelerating Recovery* scenario. If demand and supply are weak, then cyclical recovery is still feasible but more fragile; this determines the *Moderate Recovery* scenario.

Lack of demand may hamper the recovery of the economy, abundant demand may induce overshooting. If households are saving rather than consuming, if firms delay investments and if governments cut expenditures or raise taxes, demand may fall short of supply and inflation remains at a low rate. Given the zero lower bound, the European Central Bank has a difficult task in realising an inflation rate of close to 2%. Given the limited economic growth, governments find it difficult to reduce the debt ratio. This *Delayed Recovery* scenario is at the heart of our investigation of the medium-term downward implications of the Great Recession. Alternatively, demand may surge, resulting in an overheated economy with low unemployment and high inflation. Given the current economic situation and the focus of our

[65] The June projection confirms the March projection for the main economic indicators.
[66] The main economic and budgetary indicators are presented either in terms of average growth (i.e. GDP and consumption) or as a particular level or ratio in 2023 (i.e. unemployment rate, budget balance).

study, we abstract from an overheating scenario. Moreover, monetary policy may effectively cope with an overshooting business cycle.

Figure 8.1 **Basic structure of the three scenarios**



The key uncertainties on the supply side of the economy include both crisis-related and 'universal' uncertainties. Related to the crisis is uncertainty about the financial sector and the question of whether or not credit supply will impose a drag on investment growth. On the labour market, where unemployment is high and many workers are discouraged, the issue is whether the labour market returns to (pre-crisis) equilibrium or whether part of the working-age population will be more or less permanently (at least in the next decade) separated from the labour market. Of a more universal nature is uncertainty about technological progress and labour force participation. Finally, uncertainty about structural reforms in Europe matters. Reforms influence the extent to which countries catch up to the technological frontier.

Demand depends on supply, but also has its own dynamics. Demand depends on supply because high productivity and employment growth raise wage income and stimulate consumption. Also, a larger stock of capital requires additional investment and stronger supply allows for additional government spending. The dynamics particular to demand were illustrated in Chapters 3 and 6 of this book. Currently, 30% of homeowners have underwater mortgages. If housing prices hardly recover and households choose to deleverage, then consumption growth will be weak and demand may fall short of supply. Similarly, governments may choose to extend the period of consolidation and improve their budget, or may choose to increase public investment, and so forth.

As shown in Chapter 4, the available evidence points to a return of the productivity growth rate to pre-crisis growth. The uncertainty around this pre-crisis trend is captured by the *Accelerating Recovery* and *Moderate Recovery* scenarios, which respectively represent above-average and below-average potential growth.

If supply is abundant (as in the *Accelerating Recovery* scenario), demand follows suit and most likely meets this high supply. Of course, demand may overshoot, which results in an overheated economy with strong inflationary pressure.

Weak supply reduces demand, but in a different way. The first difference is that the uncertainty about demand is higher if supply is weak than if supply is abundant. In particular, the extent and impact of deleveraging by households is much more uncertain with moderate income growth and limited inflation than in the *Accelerating Recovery* scenario, where deleveraging is hardly an issue. The second difference is that downward risks dominate if supply is weak. In addition to weak consumption due to deleveraging, investment may be hampered by limited credit growth. Low growth of demand may slow down inflation, which intensifies the debt burden for consumers, firms and governments. This downward uncertainty about demand conditional on weak supply is represented by the *Delayed Recovery* scenario.

Potential growth

This textbox gives the numerical elaboration of the supply side of the Dutch economy, also known as the growth potential of the economy. The starting point is the identity that economic growth (i.e. growth of gross domestic product) can be decomposed in growth of employment and labour productivity. To determine potential output growth, we have to assess the potential growth of employment and productivity (a)

Potential growth of employment first of all depends on population growth, in particular, the growth of the working-age population. Due to the ageing of the population, this growth has come to a halt. We take into account, however, that net migration is uncertain and allow it to be a bit higher in the strong-supply scenario than in the weak-supply scenarios. Secondly, the increase in labour-force participation gradually slows down, but the speed at which this happens is uncertain. The third determinant of potential employment has to do with the working hours of, in particular, part-time workers. We assume that in the *Accelerating Recovery* scenario part-time workers are triggered to work more hours. All in all, potential employment growth varies between 0% in *Delayed Recovery* and *Moderate Recovery* scenarios but amounts to ¼% in the *Accelerating Recovery* scenario.

Chapter 4 provides evidence that after a financial crisis productivity growth likely resumes its pre-crisis rate. The table shows that in the periods before the Great Recession, productivity growth amounted to 1.8% in 1990-1999 and 1.2% in 2000-2007. For the coming decade, we project productivity growth around a mean of 1.4%, with 1% in the weak-supply scenarios and 1¾% with strong supply. Potential growth therefore varies between 1% and 2%. Chapter 4 also highlights the loss of potential output of about 6% in the crisis-period. This is reflected in the low productivity growth in the period 2008-2015, where over a period of eight years, annual growth is about ¾% lower. The textbox “Output gap and actual growth” shows the implications for actual growth.

Potential growth, 1990-2023

	1990-1999	2000-2007	2008-2015	2016-2023		
				Accelerating recovery	Moderate recovery	Delayed recovery
Potential growth	3.1	2.0	1.1	2	1	1
Employment	1.3	0.8	0.6	¼	0	0
Productivity	1.8	1.2	0.5	1¾	1	1

(a) Further information about potential growth is provided in Kranendonk and Van der Horst (2014).

In the following, we present three scenarios for the development for the economy in the next decade. In the *Accelerating Recovery* scenario, labour productivity grows faster than before the crisis, labour force participation improves and both domestic and foreign demand are abundant. So, the production side recovers relatively strongly, and demand meets supply. In our second scenario, *Moderate Recovery,* demand again meets supply, but both grow moderately. Labour productivity recovers from the very poor growth rates within the crisis, but does not return to pre-crisis growth. The labour market returns to equilibrium (unemployment falls and discouraged workers return to the labour market), but does not grow structurally. The third scenario of *Delayed Recovery* explores the key uncertainties about demand, where both domestic and international demand may be too weak to meet supply. Households continue to deleverage and cut down their expenditures; governments keep struggling with a poor balance position and continue their consolidation policies. Even in ten years from now, the economy operates below potential, with deflation lurking just around the corner.

8.3 Recovery in two scenarios

Table 8.1 Main economic indicators for the Netherlands, 2000-2023

	2000/2007	2008/2015	Accelerating recovery	Moderate recovery
			2016/2023	2016/2023
	annual change, %			
Gross domestic product (GDP, economic growth)	2.2	0.1	2 1/2	1 1/2
Consumption households	1.2	-0.6	1 3/4	1
Consumption general government	3.3	0.9	1 3/4	1
Capital formation (including changes in stock)	1.2	-1.4	4	2
Exports of goods and services	5.7	2.6	5 1/2	3 3/4
Imports of goods and services	5.3	2.4	5 1/2	3 3/4
Employment (working hours)	0.6	-0.2	3/4	3/4
Labour force (persons)	1.0	0.4	1/2	1/4
Labour productivity	1.7	0.4	1 3/4	1
Contractual wages market sector	2.5	1.9	3 1/4	2 1/4
National consumer price index (CPI)	2.3	1.9	2 1/2	2
	level in final year, %			
Unemployment rate (% of the labour force)	3.6	7.1	4 1/4	4 1/4
Labour share in enterprise income	77.4	80.4	79 1/2	79 1/2
Private savings (% of disposable household income)	-1.1	-0.5	-1 1/4	0
Current-account balance (% GDP)	8.4	9.7	12 1/2	12 3/4
EMU balance (% GDP)	0.2	-2.1	0.5	-0.4
EMU debt (% GDP)	45	75	52	63

The first signs that economic growth is gaining momentum in 2014 have restored hope that the economy has turned a corner and the worst part of the crisis is over. The *Accelerating Recovery* and *Moderate Recovery* scenarios intend to explore that line of thought. In both scenarios, demand and supply move in tandem and current imbalances are being resolved. Both scenarios differ in the structural growth rate of labour productivity and employment.

Table 8.1 presents the main economic indicators for the Dutch economy in both scenarios. For practical reasons we take our starting point for the scenarios in our published projection for 2014-2015 (see CPB, 2014). The scenarios deviate from 2016 onwards.

8.3.1 Accelerating Recovery

Virtuous circles appear when growth accelerates and inflation picks up. Growth supports growth by reducing unemployment and improving private and public balances. Higher inflation solves part of the debt problem by inflating away high debts of consumers and governments, and restoring household wealth due to higher housing prices.

Accelerating Recovery features rather strong growth drivers in three dimensions: technology, financial markets and international trade. On the technological frontier (the US), new ICT applications in services and health care start raising productivity in sectors that hitherto largely lacked productivity growth. In addition, Europe partly catches up to the frontier, supported by two types of structural reform. Firstly, reforms of product-market institutions in southern European countries gain strength. In Italy, for instance, various reforms that were approved in Parliament after the crisis are implemented effectively. Reorganization of the judicial system speeds up civil action and lowers administrative barriers. These reforms enable Italy, France, Portugal, Spain and Greece to partly catch up with other European countries; see Chapter 7. Secondly, also northern European countries benefit from expansion of the internal market for services in Europe. The European Commission enacts substantial parts of the services directive, supplemented by adoption of the Transatlantic Trade and Investment Partnership (TTIP) agreement. Individual member states need to reform their services markets to comply with the TTIP treaty. Through the expansion of the internal market for services, Europe benefits from the organisational and technological improvements that enabled productivity to expand in retail and other services sectors in the US.

Financial markets in *Accelerating Recovery* turn from a drag into a stimulus on the economy. In the US, the financial sector recuperates rather quickly, due to the effective recapitalisation of banking early in the crisis and to bankruptcy rules that allow for quick settlement of obligations. Banks ease credit conditions, which stimulates investment and consumption. Risk-taking becomes something to be proud of again, and financial innovation thrives. Some people even worry whether the fast recovery may contain the seeds of a new financial crisis. In Europe, the Asset Quality Review and stress tests turn out favourably, and confidence in the financial market is restored.

As another growth driver, international trade flourishes. The conclusion of the TTIP agreement illustrates that mutual trust largely characterizes international relations. In the

major world regions, growth and trade reinforce one another. The US economy gains from technological progress and the recuperation of financial markets. This boosts imports from Asia and Europe. Also in China growth remains strong. Neither in the financial sector nor with respect to social or environmental issues do substantial tensions arise in China.

In Europe, GDP growth averages 2¼% in the *Accelerating Recovery* scenario (see Table 8.2). Labour markets benefit from the solid recovery. In the wake of accelerating demand for their products, firms expand investments and create new employment opportunities. In the course of a number of years unemployment falls in many countries to its equilibrium level, determined by national labour market institutions. Moreover, several southern European countries succeed in reforming their labour markets, which lowers equilibrium unemployment rates. Figure 7.4 shows that, according to the OECD, in 2013 equilibrium unemployment rates are very high in a number of countries. Spain, for instance, has a dual labour market, because institutions highly protect insiders at the cost of employment opportunities for outsiders, who are mainly young. Reforms of labour market institutions enable outsiders to gain access to the labour market. Similar reforms in Greece, Portugal, Spain, Italy and France reduce the equilibrium rate of unemployment, bringing these rates closer to the European average. The textbox 'Reforms, recovery and repair in Europe' in Section 8.4 illustrates the contribution of reforms in Europe to growth in the *Accelerating Recovery* scenario.

In the *Accelerating Recovery* scenario, inflationary pressure accumulates. Raw material prices surge, because growth in the main world regions raises demand for raw materials. Aggregate demand flourishes and may surpass aggregate supply. This creates inflationary pressure, with the risk of creating new bubbles. As a consequence, monetary policy gradually shifts from expansionary to slightly contractionary. Stepwise, the FED diminishes quantitative easing and raises the federal funds rate to keep inflation in check. In Europe, the ECB also raises its refinancing interest rate so as to steer inflation to a value close to 2%.

Accelerating growth and inflation generate virtuous circles. The first occurs when unemployment falls and discouraged workers return to the labour market, income increases and provides opportunities to raise consumption or reduce private debts. Less need for social security and higher revenues from taxation improve government balances in the second virtuous circle. The third circle sees inflation diminishing the private and public debt overhang. Finally, in the fourth virtuous circle, GDP growth reduces the ratio of the public debt to GDP (the so-called denominator effect).

All in all, the European economy turns out rather healthy in the *Accelerating Recovery* scenario. GDP growth averages 2¼% over the next decade and relevant world trade picks up to 6¾% annually. Unemployment falls, debt ratios are on a steady downward trajectory and deflation is far away.

Table 8.2 Key statistics for the world economy in three scenarios, 2016-2023

	Accelerating Recovery	Moderate Recovery	Delayed Recovery
Gross domestic product, euro area	2¼	1½	1
Gross domestic product, United States	3¼	3	3
World trade, weighted	6¾	5	3
Inflation, euro area (ultimo)	2¼	1¾	1
Interest rate, euro area (ultimo)	4¾	4	2¼

Source: Own calculations with NIGEM, see Veenendaal (2014).

The Netherlands

The Dutch economy is highly integrated in global supply chains and benefits from the worldwide recovery. Productivity growth not only returns to pre-crisis growth rates, but firms exploit new investment opportunities, benefit from ICT applications and are able to catch up to the productivity frontier. Firms expand their production capacity by investing intensively and demanding more labour. New graduates, unemployed workers (including the elderly and long-term unemployed) and even foreign employees find their way to the Dutch labour market. Demand flourishes, both internationally and from domestic households and firms. This facilitates the return of the unemployment rate to the equilibrium rate and stimulates discouraged workers to re-enter the labour market. With a productivity growth of 1¾% and employment growth of ¾%, GDP grows at 2½% in the coming decade, similar to growth rates of the late eighties and the nineties of the twentieth century and similar to growth in the euro area. Relative to the core economies the Netherlands benefit more from catch-up growth, but the southern economies have higher underlying growth in this scenario reaping the fruits of structural reforms.

Employment and productivity growth increase households' disposable income and allow for a surge of private consumption. In recent years, negative wealth effects put a drag on consumption, but deleveraging comes to an end in the *Accelerating Recovery* scenario. A key element in the limited need for deleveraging is the house price growth of 4% annually (see Chapter 3), which improves housing wealth and significantly reduces the number of underwater mortgages.

Investment, public expenditure and exports also contribute to total demand. Following the worldwide boost in productivity growth and the catch-up growth in the European Union, total factor productivity growth improves in the Netherlands as well. The implementation of new technologies requires the development of new capital stock, and replacement of the existing capital stock. In addition, the recovery of the housing market not only raises housing prices but also stimulates residential investment. Health care expenditures increase both in line with economic growth and due to population ageing. All other public expenditures keep pace with potential GDP growth. Finally, exports benefit from both worldwide demand and improved domestic production capacity.

The surplus on the current account further expands as a result of two counteracting effects. On the one hand, economic growth is high, both in the Netherlands and abroad. This

stimulates both exports and imports and multiplies the existing current account surplus. On the other hand, non-financial firms identify potential opportunities, expand production capacity and reduce their savings surplus. The option value of delaying investment and retaining earnings declines as attractive investment opportunities come along. Moreover, domestic households and firms raise their expenditures, not only domestically but also abroad, which reduces the trade surplus. Finally, Southern European countries regain some of their lost competitiveness, because they effectively implement reforms. Of course, the Netherlands remains a highly competitive and fiscally attractive country for business savings. This implies that the current account surplus remains high in the next ten years. On the other hand, the *Accelerating Recovery* scenario heralds in abundant opportunities for firms, due to technological progress and strong economic growth, to expand their capital stock.

Following economic growth, the labour market quickly recovers from the crisis (see textbox on 'output gap and economic growth'). Firms expand production and search for workers. Unemployment returns to the equilibrium rate of about 4¼%, but does not overshoot. After years of moderate wage inflation, firms are willing to raise wages and sign permanent contracts in the competition for scarce labour. Discouraged workers are triggered to re-enter the labour market and temporary workers are asked to work more hours. Despite the ageing of the population, employment increases by ¾% annually.

Inflation returns to pre-crisis rates, both internationally and domestically. Currently, the output gap is negative, the economy produces below potential and firms expand their production rather than raising prices. After a few years of strong demand and a declining unemployment rate, firms start raising prices and workers and labour unions demand higher wages. In the *Accelerating Recovery* scenario, we assume that monetary policy is able to control wage and price inflation, with inflation close to 2% in the EU on average and with real wage growth in line with productivity growth.

Overheating is the key risk in the *Accelerating Recovery* scenario. In the upward dynamics of asset and housing prices, bubbles may develop. The optimism about consumption and investment opportunities may lead to overheating, and the reduction in government deficits may trigger pro-cyclical public expenditures. These risks can be tackled by restrictive monetary policy and countercyclical budgetary policy.

8.3.2 Moderate Recovery

Where virtuous cycles accelerate recovery, weak opportunities and sluggish responses lead to moderate recovery in Europe and the Netherlands. Weak opportunities include sluggish technological progress and a stagnating internal market. In response, both exports and consumption lack the stimulus needed to return to pre-crisis growth rates, and labour markets recover only gradually. Lack of structural reforms, particularly in Southern European countries, aggravates existing imbalances in the European Union.

Productivity growth slows down compared to the *Accelerating Recovery* scenario for several reasons in this scenario (see also Chapter 4). TFP growth is weak, mainly because ICT loses

momentum as driver of technology growth. Investments are weak, due to high uncertainty and moderate expectations of future output growth; disruptions of the supply chain in recent years force the remaining producing firms to invest in the establishment of a productive relationship with new firms, which limits the development of new applications. In sum, the underlying technology growth is sluggish, with a structural productivity growth of 1% annually (see textbox on potential growth).

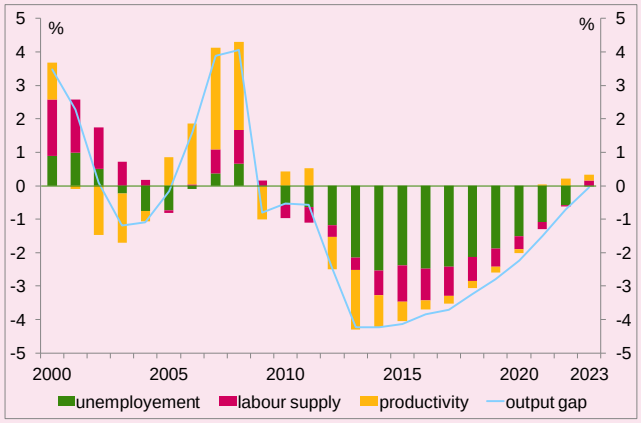
Output gap and actual growth

There is slack in the economy, which may in the coming years be employed in the production process and boost economic growth. The figure below shows the evolution of the output gap in recent years. It highlights that we started from a positive gap in 2008 of about 4%, which has turned into a negative gap of similar size in 2013-2015.

The figure decomposes the gap in contributions from labour and productivity. Currently, the productivity gap is limited, at least if the recovery in 2014 of labour productivity as projected in CPB (2014) will be realised. The slack in the economy is concentrated on the labour market; see chapter 5. The actual unemployment rate of 7¼% is 3%-points higher than the equilibrium rate of 4¼%-points in 2023 and labour supply is 1% below its structural level; see chapter 5. Once economic growth picks up and aggregate demand increases, firms expand their labour force, unemployed workers more easily find a job and people who have temporarily left the labour market or have postponed entry may become employed.

The output gap closes in the period 2015-2023 in the *Accelerating* and *Moderate Recovery* scenarios. In both scenarios, this allows for nearly ½% annual growth, in addition to potential growth. However, capacity remains underutilised if the recovery is delayed due to lack of demand.

Output gap in *Moderate Recovery*, % GDP, 2000-2023



Slow technological progress manifests itself on a global scale, but growth differs markedly with the US and Asia doing relatively well and Europe staying behind. Currently recovery in the US already has progressed faster than in Europe. For instance, households in the US have offset almost 60% of the increase of their debts that took place over 2000-2007 (see Chapter 7). In the first part of the scenario period the US largely completes its recovery and in the second part it benefits from an economy that operates at full capacity. Analogously to the *Accelerating Recovery* scenario Asia remains strong. China manages to steer away from social and financial obstacles and successfully continues its transition towards performance of higher skilled tasks. Hence, although constrained by weak productivity growth, the US and Chinese economies benefit from recovery and transition. As a consequence of the relatively

strong growth in the US and China the centre of gravity of world trade shifts further towards the Pacific.

In Europe, the development of the internal market stagnates and does not contribute to growth in this scenario. The Services Directive of 2009 will not be replaced by more ambitious plans (see Chapter 7). With a shift in trade orientation towards the Pacific, interests of the US in the Trans-Atlantic Trade and Investment Pact (TTIP) dwindle. Lengthy negotiations finally lead to a weak version of TTIP, with limited impact on economic growth. As a third example, the banking union will be implemented in Europe but the AQR and stress test and their implications are not boldly dealt with. This only marginally restores confidence in the financial sector and therefore doesn't contribute to growth either.

The North-South divide in Europe will be sustained by weak economic growth in southern member states and export-led growth in Germany and the Netherlands. An important reason for weak growth in southern member states is the lack of structural reforms in reducing regulatory barriers in markets for goods and services; see Chapter 7. In contrast, German exports to the US and Asia flourish. Relatively strong growth fuels demand for German high-quality machinery and cars. In its wake, exports from the Netherlands to Germany thrive. On the labour market, Europe will be able to redeploy its unused potential, but differences in structural unemployment rates between north and south persist in the absence of structural labour-market reforms.

Netherlands

Also in the Netherlands do weak opportunities and sluggish responses lead to moderate recovery. The weak opportunities include moderate technological progress and world trade and sustained negative debt positions. In response, firms invest moderately and hire workers temporarily, households continue to deleverage and governments limit expenditures in line with moderate economic growth. Dutch trade benefits from exports to Germany, the US and China, but trade opportunities with other European countries are meagre. As a result, the economy does recover from the crisis and unemployment returns to equilibrium, but at a rather slow rate.

Consumption by households depends on their disposable income and wealth, and of course on the decisions they make in spending these resources. Real disposable income keeps pace with economic growth, which allows for positive consumption growth at a moderate rate. A key determinant of households' wealth is the value of their house; see Chapter 3. Currently, 1.4 mln Dutch households are under water as a result of the fall in house prices. As house prices are assumed to increase by 3% annually in this scenario, part of these households have to deleverage and cut consumption in order to improve their net wealth position; the other part automatically grow out of their negative wealth position.

Moderate Recovery is an export-led growth scenario in which domestic spending is insufficient to absorb 1½% production growth. In terms of demand contributions to growth, more than 1 %-points of economic growth can be attributed to exports, whereas private and government consumption each contribute about ¼%-points. As a consequence, the current

account surplus increases to 12¾% of GDP. This begs the question whether European economies and the rest of the world are able to absorb our exports. The easy answer is 'yes', with a world trade growth of 4% mainly originating from Germany, the US and China, Dutch firms should be able to sell their products and services in the world economy. At the same time, this export-led growth imposes a risk: what if world trade growth weakens or our competitiveness deteriorates? The next scenario explores this risk.

Government budget in three scenarios

The government budget improves from -2.9% in 2013 to -0.4% in 2023 in the *Moderate Recovery* scenario, see the table below. In the projections for the government budget in this scenario, which constitutes the starting point for the new CPB ageing study scheduled in July 2014, we make a clear divide in 2019. Up to and including 2018 we follow existing institutions and proposed policies, such as the indexation of tax brackets to price inflation, reforms and expenditure cuts in public health care and budgetary plans for government expenditures. In the period 2013-2015, these policies in combination with a recovery of economic growth imply an improvement of the government budget to -2.1%. From 2019 onwards, we apply the same rules as in the ageing studies, where tax rates are assumed to be constant, and government expenditures are indexed to wage growth or structural GDP growth. Importantly, we assume that government expenditures do not follow the catch-up growth from actual GDP to potential. We thereby take into account that the government budget has cyclical components, with pro-cyclical tax revenues, counter-cyclical transfers but relatively stable public outlays.1) Another reason behind the improvement of the government budget is structural reforms on pensions, with an increase in the pension age. On the other hand, the budget deteriorates, due to limitations on natural gas extraction.

Public expenditures and revenues, 2015, 2023, % GDP

	2015	Accelerating recovery	Moderate recovery	Delayed recovery
		2023	2023	2023
Government expenditures	50.1	46.8	48.2	51.0
Taxes and premiums	41.3	42.2	42.4	42.7
Other revenues	6.8	5.1	5.4	5.8
EMU balance	-2.1	0.5	-0.4	-2.6
EMU debt	75	52	63	83

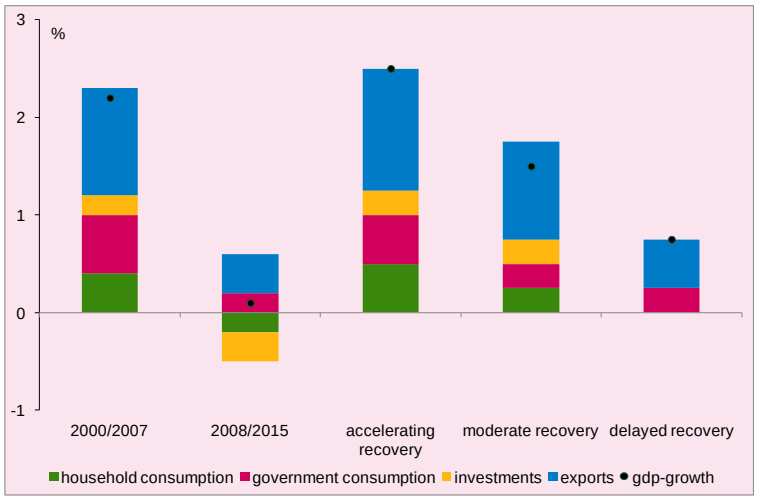
A similar approach is taken in the *Accelerating* and *Delayed Recovery* scenarios. Stronger economic growth (both actual and potential) leads to additional revenues and expenditures. In 2023, the budget balance has turned positive in the *Accelerating Recovery* scenario. The same approach implies a deterioration of the deficit and a surge of the debt ratio in the *Delayed Recovery* scenario. The reason behind this is that aggregate demand lacks aggregate supply, the output gap remains negative, and the actual budget balance lacks behind its structural value.

1) This is consistent with the calculation of the sustainability index in the ageing studies based on a cyclically adjusted measurement of the budget deficit.

The rising current account surplus is not only a risk; it can also be seen as a challenge for non-financial firms to turn their savings into profitable investments. Since the turn of the century, investments have lagged economic growth. In the coming decade, the investment-to-GDP ratio shows only a moderate recovery, despite abundant corporate savings. An important challenge in this scenario is to improve the conditions and opportunities for investment by Dutch firms. This includes, among other things, improvements in market-

based financing (see Chapter 2) and in the internal market for services (Chapter 7), as well as a reconsideration of tax policies favouring retaining earnings over remitting dividends and investing. The *Accelerating Recovery* scenario takes into account that these and/or other steps are taken, with an investment growth of 4% compared to 2% in *Moderate Recovery*.

Figure 8.2 Contribution to growth before and during the crisis and in three scenarios for 2016-2023



After seven lean years without economic and employment growth, the unemployment rate has risen beyond 7%, and about 1% of the working-age population would start searching for a job if the economic conditions are more favourable. In the *Moderate Recovery* scenario, the growth of exports and private consumption allows firms in the market sector to expand employment. Together with the expansion of the health care sector, this leads to an employment growth of ¾% annually.

Moderate Recovery implies sufficient upward pressure on inflation to stay away from deflation and at the same time hardly imposes any risk for overheating. The tightness of the labour market is low throughout the recovery period, with limited vacancies per worker, which implies that unemployment recovers only very gradually. Workers and unions refrain from strong claims, contractual wages grow at 2¼%, and real wages just keep pace with productivity growth. As a result, the labour income share is quite stable over the scenario horizon. In addition to labour costs, higher rental rates and import prices contribute to inflation, resulting in CPI inflation just below 2% in the Netherlands.

Moderate Recovery is a scenario at risk; economic growth is sensitive to negative shocks. Unemployment returns to equilibrium and inflation is just below 2%, but only if demand is able to meet supply. The Dutch economy leans greatly on exports, but what if our trading partners are not able to absorb these? Investments grow in line with GDP, both internationally and domestically, under the assumptions that firms are able to attract sufficient credit. But what if the financial sector, in order to meet restrictive regulations or to deal with the consequences of an alarming Asset Quality Review, cannot provide sufficient

credit? This fragility of the economy limits the government's manoeuvring room in balancing between consolidation and stimulating the economy.

8.4 Delayed Recovery

The contradiction in the label of this scenario is not a slip of the pen. On the question whether the economy recovers, the answer in this scenario is 'not yet', or 'if anything, a very slow start'. Downward risks in demand, combined with moderate potential growth, lead to quite limited growth, persistence in unemployment and low inflation. These demand risks include the fragility of the financial sector, the imbalances between core and periphery in the European Union, consumers and firms burdened with debts and the public debt position of member states in the euro area.

On the supply side, technological progress develops in a comparable way as in the *Moderate Recovery* scenario. All over the world productivity growth is low due to a declining contribution of ICT, weak investments in an uncertain and volatile world and the need for firms to devote resources to the repair of disrupted supply chains.

International trade also falters in the *Delayed Recovery* world. Recovery in the US progresses favourably and the US economy reaches full capacity in the second half of the next decade. However, on a global scale the US is one of the few economies that perform well. China struggles with social tensions, due to resistance against poor labour conditions, environmental degradation and a number of financial scandals. The growth of the Chinese economy falls back and drags the rest of Asia downward as well. Domestic problems make countries turn inward. Tensions rise in international relationships, which hinder trade negotiations. As a consequence, TTIP fails.

Although the financial sector played a key role in the start and extension of the Great Recession, its role in the recovery is more limited: facilitating rather than stimulating economic growth. The previous scenarios stressed that recovery has to come from the real economy with an upswing in production, investment, employment and consumption. The contribution of the financial sector is mainly supportive, although very important, in its key role of providing liquidity and loans. This calls for a healthy financial sector. However, the Asset Quality Review may reveal the weakness of the banking sector. Or it may fail to uncover the weakness of banks and thereby fail to effectively deal with banks in trouble. In combination with additional restrictions on the leverage ratio, this may induce banks to limit credit to both small- and medium-size enterprises and households. In sum, a weak financial sector may hamper recovery in this scenario.

The crisis has uncovered and aggravated the imbalances within the European Union. In the *Delayed Recovery* scenario, these imbalances will remain for the most part unresolved. Economically, inflation will be quite low on average in the European Union, which limits the possibility of peripheral countries to improve their competitiveness. Existing differences in

productivity levels persist (see figure 7.2), where countries like Germany, France, the Netherlands and Belgium are twice as productive as several Eastern and Southern European countries. Unemployment rates, both actual and structural rates, remain very high in countries such as Spain and Greece. These countries will be unable to reform their labour market institutions and reduce unemployment. Finally, as shown in Chapter 7, barriers in services sectors are high in a number of countries (including Italy, Spain, France and Germany). Reform options regarding both domestic regulation and the Services Directive are being delayed beyond the scenario horizon of 2023.

Reforms, recovery and repair in Europe

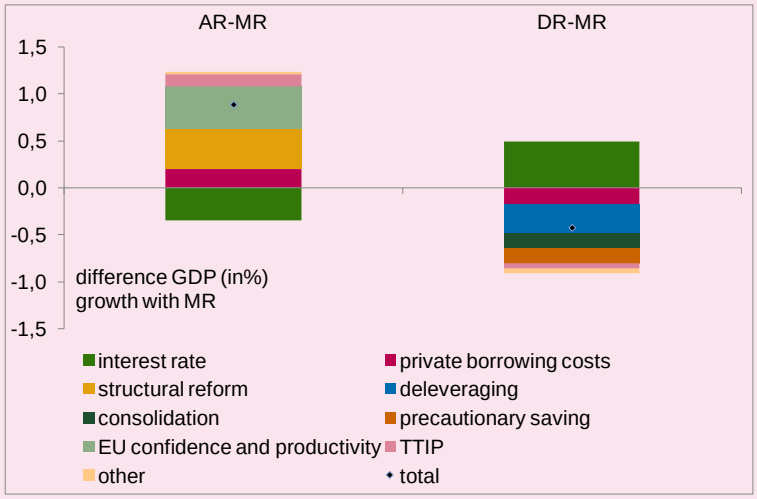
Chapter 7 highlights the development of European economies in the aftermath of the crisis. Structural reforms, new steps in the internal market and international trade agreements may all contribute to economic growth. In addition, growth depends on more exogenous factors (at least on the European scale) like technological progress. On the other hand, deleveraging by households, firms and governments may weaken the recovery of the European economy.

To get a flavour of the implications for economic growth, we have simulated these reforms, recoveries and repairs with NiGEM, see Veenendaal (2014). They span the difference between the three scenarios, as indicated by the figure below.

Economic growth in the euro area differs 1%-points between *Accelerating Recovery* and *Moderate Recovery*. Key contributions to this growth differential are structural reforms on the product and labour market and higher technological growth. In addition, TTIP and a lower risk premium stimulate trade and investment and contribute to growth in the *Accelerating Recovery* scenario. Aggregate demand is stimulated via higher income for households, a positive wealth shock which prevents the need for deleveraging by households and a boost in consumer confidence. However, these positive shocks stimulate inflation to which monetary policy respond by raising the interest rate.

The absence of recovery and the need to repair wealth losses constitute a difference between Moderate Recovery and Delayed Recovery of ½%-points. Important factors are deleveraging by households and firms and consolidation by the government. In addition, a higher risk premium reduces investments and lack of consumer confidence put a drag on private consumption. Now, the reduction of the interest rate provides the sole stimulus in the economy, but its effectiveness is smaller in the zero-lower-bound region (see chapter 7).

GDP-differentials in the euro area



Differences in annual growth in the euro area between Accelerating Recovery (AR) and Moderate Recovery (MR), and between Delayed Recovery (DR) and Moderate Recovery). Source: own calculations with NiGEM.

Public and private deleveraging in an environment of slow economic growth entails risks of low inflation for a considerable period. The need to reduce public debt means that governments in the coming years have to deal with the choice between rapid and gradual deleveraging. Currently, countries with high debts (including Spain and Belgium, but also the United Kingdom outside the euro area) need an increase of their primary balance of 2 to 4 %-points of GDP to restore debt to the EU target of 60% of GDP. From a different point of view (i.e. the sustainability of public debt), several other member states have to improve their public balance. If anything, the current scenario with weak economic growth is harmful for the government budget and might induce additional consolidation measures. Combined with weak consumption and investment growth, aggregate demand likely lags supply, see textbox 'Reforms, recovery and repair in Europe'. Inflation will be low on average, and particularly the peripheral countries may run the risk of deflation.

In sum, economic growth in the euro area is limited to ¾%, aggravating the gap with the United States. World trade shifts away from Europe, both due to the weakness of the EU economies and the worldwide stagnation of international trade. Inflation is limited to 1% in the euro area, with very limited spread between southern and northern economies.

The Netherlands

Insufficient demand is the key phrase characterising the *Delayed Recovery* scenario. Consumption is low, due to weak income growth and the need for deleveraging; investments respond to poor growth perspectives; and the world is unable to absorb our exports. Demand is insufficient for firms to produce full capacity or even expand, for graduates and unemployed workers to find a job and for discouraged workers to re-enter the labour market. Downward rigidity in wages, prices and the interest rate prevent effective recovery.

Households face a difficult decade in this scenario in which the recovery is delayed. Unemployment persists and even increases; real wage income doesn't improve, nor does the value of their houses. Even though income growth stagnates, households choose to save rather than to consume in order to improve their net asset position. In particular, households with underwater mortgages need to save in order to be able to move houses or renew their loans (see Chapters 3 and 6). As a consequence, consumption growth stagnates, and the individual savings rate increases to 2.5% of disposable income.

Long-term unemployment is an important problem in this scenario. Labour demand is very limited. If anything, firms prefer graduates rather than elderly workers with a long unemployment spell. So hysteresis, where the employment history of an unemployed worker is an important determinant of his or her job opportunities, is manifest in this scenario. Even after ten years, the unemployment rate stagnates at about 6½%. Hysteresis results from stagnant economic growth, and is not primarily due to labour market imperfections. For those whom it concerns, long-term unemployment negatively affects one's future earnings potential; see Chapter 5. Only in the very long run, when current cohorts have retired and the economy finally recovers, will these hysteresis and scarring effects fade away.

Table 8.3 Main economic indicators for the Netherlands in three scenarios, 2016-2023

	Accelerating recovery	Moderate recovery	Delayed recovery
	2016/2023	2016/2023	2016/2023
	annual change, %		
Gross domestic product (GDP, economic growth)	2 1/2	1 1/2	3/4
Consumption households	1 3/4	1	0
Consumption general government	1 3/4	1	1
Capital formation (including changes in stock)	4	2	1
Exports of goods and services	5 1/2	3 3/4	2 1/2
Imports of goods and services	5 1/2	3 3/4	2 1/4
Employment (working hours)	3/4	3/4	0
Labour force (persons)	1/2	1/4	0
Labour productivity	1 3/4	1	3/4
Contractual wages market sector	3 1/4	2 1/4	1
National consumer price index (CPI)	2 1/2	2	1 1/4
	level in final year, %		
Unemployment rate (% of the labour force)	4 1/4	4 1/4	6 1/2
Labour share in enterprise income	79 1/2	79 1/2	76 1/2
Private savings (% of disposable household income)	-1 1/4	0	2 3/4
Current-account balance (% GDP)	12 1/2	12 3/4	11 3/4
EMU balance (% GDP)	0.5	-0.4	-2.6
EMU debt (% GDP)	52	63	83

Undergraduate economics tells us that prices adjust if supply exceeds demand. Indeed, in the current scenario, wage and price inflation is much lower than in the *Moderate* let alone the *Accelerating Recovery* scenarios. Still, the adjustment in the economy is insufficient for two main reasons: zero lower bounds and weak dynamics.

First, adjustment is limited by the low rate of inflation and the risk of running into deflation. The interest rate of the ECB is near the zero lower bound after the interest rate cut in June. Stimulus requires unconventional monetary policy rules, which are hard to pass through in a euro area with a weak financial sector. Also in the peripheral countries low inflation drives wages to the zero lower bound, which prevents that competitiveness improves. In this scenario the expectation that prices will not rise for quite some time affects intertemporal choices of households. Low expected inflation means high real interest rates, which incites consumers to postpone consumption and increase savings. Also firms will reduce investments when real interest rates raise the real costs of capital. Stated differently, price adjustment is hardly effective in stimulating aggregate demand if inflation is very low.

Secondly, weak dynamics contribute to the delay in recovery. In contrast to the virtuous cycles of the *Accelerating Recovery* scenario, in which firms compete for each worker and workers hop from job to job, cycles are vicious, and everybody is waiting for the other to

move. Therefore, price incentives hardly restore equilibrium on labour and product markets. This lack of adjustment mechanisms plays a key role in the consolidation literature explaining the strong output responses of fiscal policy at the zero lower bound; see the survey by Lukkezen (2013).

The government is therefore confronted with the difficult decision of improving its balance and reducing debt at high economic cost. Cutting expenditures or raising taxes further reduce demand in this lack-of-demand scenario. In the *Delayed Recovery* scenario, we make the same assumption as in both recovery scenarios that government expenditures keep pace with potential GDP and that tax rates are left unchanged, but revenues of course decline. This leads to a deterioration of the government budget and debt.

The economy would of course benefit from policies that would stimulate the dynamics of the economy, such as further reducing employment protection and initiating and supporting additional steps in developing the internal market— if such measures were possible in this scenario. It has to be said that these reforms are not without costs. For example, raising the job-finding rate for unemployed workers by cutting employment protection also raises the separation rate for the insiders on the labour market.

Investment growth is weak for a couple of reasons. On the demand side, expectations of future output fall, limiting the need and profitability of expanding the stock of capital. Low inflation raises the real cost of capital. The level of uncertainty is high, which drives up the price of risk. And the value of firms' collateral deteriorates. Only the higher profit margin, as indicated by a lower labour income share, might support investments. On the supply side, lending standards are tightened, as banks are hit by the delayed recovery as well.

The Netherlands is a small open economy which, in normal times, is able to benefit from foreign demand. Unfortunately, our key trading partners in the European Union suffer from the same lack of demand as the Dutch economy. In normal times, Dutch firms are able to compete internationally with advanced products and services at sharp prices. However, in the aftermath of the crisis, technological progress has slowed down, tensions rise in international trade and price competition is difficult with low inflation. As a consequence, export growth keeps pace with world trade growth at 2½% annually.

The *Delayed Recovery* scenario follows if the problems originating in the Great Recession continue unresolved. It is a scenario with weak potential growth, similar to the *Moderate Recovery* scenario. More importantly, this is a scenario in which households deleverage, firms limit investment, international trade stagnates and governments do not contribute to growth. Note that we have abstracted from new shocks, on either the positive or the negative side. Imagine that, given the previous description of the European and Dutch economies, the United States flourishes, growth in Japan finally resumes and China makes a successful transition from being an export-led economy to domestic growth. That might be just the trigger that the European economy needs. Indeed, it would pull the economy out of the *Delayed* into the *Moderate Recovery* scenario. But imagine that new crises hit the European economies: the fragile financial sector is hit yet again, government solvency is hit another

time, (parts of) the internal market are threatened, and so on and so forth. We do not have to describe the implications of new negative shocks. Suffice it to say that the *Delayed Recovery* scenario is vulnerable. There are many scenarios conceivable with lower economic growth than *Delayed Recovery*.

8.5 Conclusions

The scenarios developed in this book highlight that the Dutch economy has lot of potential to recover from the Great Recession, but that this recovery is still at risk.

The Great Recession has hit the Dutch economy severely, but has not destroyed its resilience. Productivity growth has slowed down in the Great Recession, but the underlying growth potential has not been affected. Workers are temporarily unemployed or discouraged, waiting for aggregate demand to recover. There is very little evidence for hysteresis in unemployment; if anything long-term unemployed continue their career path at a lower productivity and wage rate. Financial markets have played a key role in causing the crisis; it has mainly a supportive role in the recovery. Housing markets have been under severe distress, but a significant part of the house-price reduction might be regained in the coming decade. In these recovery scenarios, wealth and income positions of households and governments recuperate without additional deleveraging and consolidation measures.

Still, the economy is at risk. Crisis-related risks are concentrated on the demand side of the economy. The risk exists of a vicious circle, where households, firms and governments save rather than spend. This puts a drag on growth and possibly pushes the European and Dutch economies into a new recession with low growth and inflation, which in turn triggers additional deleveraging and consolidation measures. The risk exists of long-lasting unemployment, not because workers have lost skills in the Great recession and are unable to re-enter the labour market, but because firms are unable to expand employment. And to mention a final risk, in response to the Asset Quality Review or additional restrictive regulation, financial institutions may be concentrating more on improving their own financial position than providing credit to households and firms.

In the *Moderate* and *Accelerating Recovery* scenarios, recovery results in economic growth between 1½ and 2½%, a gradual return of unemployment to the equilibrium rate of 4¼%, an inflation rate near or even above the ECB-target of 2% and a more balanced government budget. Accumulated risks in the *Delayed Recovery* scenario put a drag on growth, maintain deflation risk in southern European countries in particular, prevent a recovery of the labour market and markedly increase government debt.

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Financial crisis, euro crisis, what's next? The title of this book suggests an answer: recovery. Yet, what road will it take? Recovery of the financial sector, the labour market and the housing market? Originating from resilience of the European and Dutch economies? Leading to the return of pre-crisis consumption growth? Recovery is a plausible road for the economies of Europe and the Netherlands in the next decade. But it's not the only road. Continuing demand shortfalls may delay the recovery.

Roads to recovery focuses on the Dutch economy in a European context. The book reviews the impact of the Great Recession and paints a picture of the economy today. It gives an outlook into the next decade by means of three scenarios for the European and Dutch economies.

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