The flow of credit in the UK economy and the availability of financing to the corporate sector

Daniel Monteiro
Economic Papers are written by the Staff of the Directorate-General for Economic and Financial Affairs, or by experts working in association with them. The Papers are intended to increase awareness of the technical work being done by staff and to seek comments and suggestions for further analysis. The views expressed are the author’s alone and do not necessarily correspond to those of the European Commission.

Comments and enquiries should be addressed to:

European Commission
Directorate-General for Economic and Financial Affairs
Unit Communication
B-1049 Brussels
Belgium
E-mail: Ecfin-Info@ec.europa.eu

LEGAL NOTICE

Neither the European Commission nor any person acting on its behalf may be held responsible for the use which may be made of the information contained in this publication, or for any errors which, despite careful preparation and checking, may appear.

This paper exists in English only and can be downloaded from http://ec.europa.eu/economy_finance/publications/

More information on the European Union is available on http://europa.eu

KC-A1-13-509-EN-N
doi: 10.2765/54943

© European Union, 2013
Reproduction is authorised provided the source is acknowledged.
The flow of credit in the UK economy and the availability of financing to the corporate sector

Daniel Monteiro

Abstract

This paper analyses the flow of credit in the UK economy in the years before and after the 2008 financial and economic crisis, with particular emphasis on the corporate sector and the SME segment. It carries out a comparative flow-of-funds analysis highlighting the parallelisms and differences between the sterling and euro currency areas. It also reviews the characteristics of UK funding markets and, based on an analysis of available surveys and other evidence, discusses the extent to which credit supply and demand factors have been at play in driving the marked retrenchment in credit observed in the post-crisis period. The conclusions are complemented by econometric evidence from an estimated SVAR model identifying a long period of negative credit supply and demand shocks from 2008 to 2012. The paper also discusses how competition in the UK banking industry was impaired in the post-crisis period and how to harness the current UK institutional framework for kick-starting an SME securitisation market. Finally, a review is made of the main initiatives taken by the UK authorities to improve access to finance. Overall, the paper details the supporting evidence underlying the 2011, 2012 and 2013 country-specific recommendations addressed to the UK by the Council of the European Union to the effect that the UK authorities continue to take steps to foster access to finance, to improve bank competition and to promote the non-bank lending channel.

JEL Classification: C32, E44, E51, E52, E58, G21, G28

Keywords: access to finance, UK, SME, credit easing, flow-of-funds, monetary policy, non-bank lending, bank competition, sign restrictions, SVAR

Address: European Commission, DG Economic and Financial Affairs, B-1049 Brussels, Belgium E-mail: daniel.monteiro@ec.europa.eu
# Table of Contents

*Introduction* ............................................................................................................................................. 3

1. **THE FLOW OF CREDIT IN THE UK ECONOMY IN PERSPECTIVE** .............................................. 4

2. **THE FINANCING OF THE UK PRIVATE SECTOR: HOUSEHOLDS AND CORPORATIONS** ...... 10
   
   2.1. **THE HOUSEHOLD SECTOR** ........................................................................................................ 11

   2.2. **THE CORPORATE SECTOR** ........................................................................................................ 12

   2.3. **THE SME SEGMENT** .................................................................................................................. 15

   2.4. **SME ACCESS TO NON-BANK FINANCE** ..................................................................................... 17

3. **CREDIT SUPPLY VERSUS CREDIT DEMAND SHOCKS** ............................................................ 20
   
   3.1. **DEMAND-SIDE FACTORS** ........................................................................................................ 21

   3.2. **SUPPLY-SIDE FACTORS** .......................................................................................................... 23

   3.3. **COMPETITION IN THE UK BANKING INDUSTRY** .................................................................... 27

4. **THE RELATIVE ROLE OF SUPPLY AND DEMAND: EVIDENCE FROM A STRUCTURAL ECONOMETRIC MODEL** ................................................................................................................. 31

5. **MEASURES TAKEN BY THE UK AUTHORITIES** ............................................................................. 34

6. **CONCLUSIONS** ............................................................................................................................... 37

**ANNEX: REVIEW OF ACCESS TO FINANCE SURVEYS** ........................................................................ 39


   A.2. BDRC Continental’s SME Finance Monitor ................................................................. 40

   A.3. BIS's Small Business Survey 2010 .................................................................................... 42

   A.4. FSB’s Voice of Small Business survey .............................................................................. 43

*References* ................................................................................................................................................. 44
Introduction

The flow of credit in European economies has been hindered since the onset of the global financial crisis in 2008 and, particularly, in the wake of the vulnerabilities that the crisis exposed in several banking groups since the collapse of the Lehman Brothers investment bank in September of that year. While the financial and banking crisis has differed in magnitude across countries, economies with larger, more leveraged and globally-integrated financial sectors, of which the United Kingdom is an example, were often more severely affected.

The disruption of the flow of credit that accompanied the financial and economic crisis in the UK has threatened to dampen the recovery prospects of the economy and has contributed negatively to a secular trend of low investment rates. These aspects have motivated country-specific recommendations emitted by the Council of the European Union at the conclusion of the 2011, 2012 and 2013 European Semesters to the effect that the UK continue to take action to improve access to finance1.

Section 1 of this note starts by placing the flow of credit in perspective by analysing and comparing recent macroeconomic trends and developments in both the UK and the euro area, according to a ‘flow-of-funds’ approach. The section also discusses the investment performance of the UK and the effectiveness of monetary policy transmission in the wake of the crisis.

The broad macroeconomic picture laid out in the first section is then reviewed in more detail in Section 2, which analyses the two main private recipients of credit: the household and the non-financial corporation sectors. Emphasis is given to the corporate sector, where access to finance has an important role to play in fomenting the UK’s economic recovery and in supporting investment. In this regard, particular attention is devoted to the small and medium enterprises segment, where a number of surveys and indicators have highlighted on-going difficulties in access to credit. A blueprint to kick-start an SME debt market from the demand-side is also presented in this section.

An important issue for understanding the credit crunch that has historically characterised economic and financial crisis in developed economies is the relative importance of negative supply and demand shocks in driving the reduction in the amount of credit offered in the economy. Section 3 explores this issue for the UK economy, where a number of factors have been at play in the retrenchment in credit that followed the financial crisis. Complementing the analysis of the relative role of credit supply and demand, Section 4 provides econometric evidence from an estimated SVAR model corroborating the idea that negative shocks to both loan demand and supply were crucial in driving credit developments in the UK during the crisis period.

Section 5 presents and assesses the main initiatives undertaken by the UK authorities to re-establish lending in the economy and Section 6 concludes by recapitulating the main findings.

---

1 “The Council of the European Union (…) hereby recommends that United Kingdom should take action within the period 2013-2014 to (…) improve the availability of bank and non-bank financing to the corporate sector, while ensuring that the measures primarily target viable companies, especially SMEs. Reduce barriers to entry in the banking sector, lower switching costs and facilitate the emergence of challenger banks through a divestiture of banking assets. Effectively implement the Financial Policy Committee’s recommendations on prudent assessment of bank capital requirements and on addressing identified capital shortfalls.. Council of the European Union (2013).
1. THE FLOW OF CREDIT IN THE UK ECONOMY IN PERSPECTIVE

The UK economy has historically had one of the lowest investment rates among the 28 EU countries. The comparatively poor investment performance of the UK is a structural characteristic of the economy. As Table 1 shows, the UK had the lowest average investment rate from 1995 to 2012 which, at 16%, is 5 pp. below EU average. This trend continued throughout the crisis period, which saw most EU countries drop their investment levels from 2007 figures. Nevertheless, the UK remained one of the worst performers with an average rate of 15% throughout 2008-2012, the second-lowest during that period.

Table 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Investment Rate (UK)</th>
<th>EU 28</th>
<th>UK's Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>17%</td>
<td>23%</td>
<td>28</td>
</tr>
<tr>
<td>2006</td>
<td>17%</td>
<td>23%</td>
<td>28</td>
</tr>
<tr>
<td>2007</td>
<td>18%</td>
<td>24%</td>
<td>28</td>
</tr>
<tr>
<td>2008</td>
<td>17%</td>
<td>24%</td>
<td>28</td>
</tr>
<tr>
<td>2009</td>
<td>15%</td>
<td>20%</td>
<td>28</td>
</tr>
<tr>
<td>2010</td>
<td>15%</td>
<td>19%</td>
<td>28</td>
</tr>
<tr>
<td>2011</td>
<td>14%</td>
<td>19%</td>
<td>28</td>
</tr>
<tr>
<td>2012</td>
<td>14%</td>
<td>19%</td>
<td>28</td>
</tr>
<tr>
<td>2008-2012</td>
<td>15%</td>
<td>20%</td>
<td>28</td>
</tr>
<tr>
<td>1995-2012</td>
<td>16%</td>
<td>21%</td>
<td>28</td>
</tr>
</tbody>
</table>

Source: AMECO, own calculations

A UK's investment performance cannot be fully accounted for by the large weight that the services sector has in its economy. In fact, the gross value added by the services sector as a percentage of the UK economy stood at 77% in 2012, a value on the high side when compared to the EU 27 average of 71%, but which ranked just between 8th and 5th in recent years when compared with the other EU countries2.

Nor can the low investment ratio be fully explained by low government investment. In fact, although the investment rate of the UK general government is again on the low side (an average of 1.9% during the last decade versus an EU average of 3.2%) and is a driver of low investment in the economy, there are a number of EU countries showing a weaker performance in this respect3. A similar conclusion could also be reached with respect to the saving rate: while again on the low side, there are a number of EU countries displaying a lower rate.

While a combination of factors appears to drive the low UK investment rates4, difficulties in access to finance are likely to aggravate this result and to thwart the rebalancing the economy towards investment and exports. In fact, difficulties accessing funding not only constrain corporate investment decisions5 but also hinder the reallocation of resources to the most the productive sectors in the economy, which is particularly relevant in the context of the structural changes and rebalancing needs confronting the UK economy in the post-crisis period6.

The remainder of this section provides an overview of the flow of credit in the UK economy, both before and during the current financial crisis, based on a comparative analysis of the effectiveness of monetary transmission and of ‘flow-of-funds’ developments vis-à-vis the euro area.

---

2 The share of services was calculated as gross value added by the services sector divided by the sum of gross value added by all economic branches, at current prices (AMECO data).
3 For comparison, from 2008 to 2012, the average government investment rate in the UK ranked 22nd among the EU 27 countries.
4 Besides the aforementioned factors, additional explanations of the low investment rate in the UK may include measurement issues, in particular as regards investment in intangibles, low inflation, or deflation, in investment goods with particular importance for UK companies (e.g., IT equipment) as well as other structural characteristics of the UK industry.
5 According to the LSE Growth Commission (2013) the ‘low levels of private investment and innovation in the UK are a reflection of capital market failures. Over-reliance on bank finance along with problems of bank concentration and short-termism are constraining firm growth, especially of dynamic and innovative SMEs.’
6 For a discussion of how problems in the banking system and in access to finance may be keeping less-than-viable firms in operation and effecting the rebalancing of the UK economy towards net exports, see European Commission (2013b).
7 Flow-of-funds analysis is based on the financial accounts section of the system of national accounts. Financial accounts present, for a given period, both the financial flows and stocks of the institutional sectors of an economy.
A properly functioning monetary transmission mechanism allows the monetary authority to control inflation and market interest rates, as well as to influence the monetary aggregates and the flow of credit in the economy. Equations 1 and 2 below propose a way of analysing the effectiveness of the monetary transmission mechanism by relating the degree of leverage in an economy to monetary policy variables. In particular, equation 1 factorizes the degree of ‘financial leverage’ in an economy into a portfolio shift effect and a leverage ratio, the latter being further decomposed in equation 2 into two monetary policy factors:

\[
\frac{\text{Financial Assets}}{\text{GDP}} = \frac{\text{Financial Assets}}{\text{Loans}} \times \frac{\text{Loans}}{\text{GDP}} \quad \text{(equation 1), where}
\]

\[
\frac{\text{Loans}}{\text{GDP}} \times \frac{\text{Money}}{\text{Loans}} = \frac{\text{Money}}{\text{GDP}} \quad \text{(equation 2).}
\]

Combining the two equations, we obtain the following decomposition of the degree of ‘financial leverage’ in an economy:

\[
\frac{\text{Financial Assets}}{\text{GDP}} = \frac{\text{Financial Assets}}{\text{Loans}} \times \frac{\text{Loans}}{\text{Money}} \times \frac{\text{Money}}{\text{GDP}}. \quad \text{Box 1 further elaborates on these equations.}
\]

**Box 1: MONETARY POLICY AND FINANCIAL LEVERAGE**

The equation ‘financial leverage’ into a portfolio shift effect and two monetary policy factors. The meaning of the different ratios is as follows:

- \(\frac{\text{Financial Assets}}{\text{GDP}}\) measures the degree of ‘financial leverage’ in an economy, where data on total financial assets is obtained from ESA financial accounts, excluding financial derivatives;

- \(\frac{\text{Financial Assets}}{\text{Loans}}\) is the inverse of the share of loans in total financial assets; it describes a portfolio shift effect by capturing the relative value, as well as the relative preference for loans (obtained from ESA financial accounts) vis-à-vis the other financial assets in the economy;

- \(\frac{\text{Loans}}{\text{GDP}}\) measures the degree of ‘credit leverage’ in an economy and captures information on credit availability and on potential credit crunches;

- \(\frac{\text{Loans}}{\text{Money}}\) can be understood as a loan multiplier, capturing the extent to which money (as measured by the M1 monetary aggregate) is transformed into loans to the economy;

- \(\frac{\text{Money}}{\text{GDP}}\) is the inverse of the velocity of money, which measures the speed at which money changes hands in order to transaction GDP over a given year. The velocity of money tends to change slowly in the long run, being mainly driven by innovations in the payments system, financial institutions, etc. Short-run movements in this ratio can capture monetary policy (a change in the ratio brought about by a change in GDP can also be construed as monetary policy, as the monetary authority decides not to re-establish the historical ratio through a change in the money supply).

Graphs 1 and 2 depict the evolution of the loans-to-GDP ratio decomposed according to equation 2, for the UK and the euro area (E/A). As can be observed, the pre-crisis period running from 2004 to 2008 was characterised by an overall increase in total loans as a multiple of GDP in both the euro area and the UK. This period of loose credit policies was more pronounced in the UK and came to an end in 2008, the year of the collapse of the Lehman Brothers investment bank, being followed by a period of credit containment in the euro area and of credit retrenchment and deleveraging in the UK.
The Bank of England appears to have taken an aggressive monetary policy stance early on, injecting more money into the economy and increasing the money-to-GDP ratio in 2007, at the onset of the sub-prime crisis in the USA. The European Central Bank arguably followed a more conservative policy in the run-up to the crisis and during its early stages, but also started injecting liquidity into the system in 2008, in the wake of the collapse of the Lehman Brothers bank. Mounting inflationary pressures, especially in the UK, have possibly meant a more conservative monetary policy (as measured by the money-to-GDP ratio) from 2010 to 2012.

As depicted in the previous charts, the crisis period witnessed a breakdown of the loan multiplier as measured by the loans-to-money ratio. It started to show its first weaknesses in the first half of 2008 in the UK and went on to become the driving factor in the retraction in loans in the UK and the euro area from 2009 onwards. This happened notwithstanding an aggressive monetary policy stance, which can possibly be understood as a consequence of the difficulties of monetary policy to stimulate the economy near the zero interest rate lower bound as well as the effects of an on-going credit crunch.

Graphs 3 and 4 plot the evolution of the financial-assets-to-GDP ratio for the UK and the euro area according to the factor decomposition of equation 1. As can be observed, the years from 2004 to 2007 were characterized by a sustained growth in ‘financial leverage’ in both currency areas (as measured by the Fin Assets/GDP ratio) on the back of laxer credit policies, as reflected in the continuous increase of the loans-to-GDP ratio.

The level of “financial leverage” appears to have become less sustainable when the 2007-08 crisis set in, with both currency areas experiencing periods of contraction in total financial assets. This was brought about by a drop in the financial-assets-to-loans ratio until mid-2009 and, from 2009 onwards, by credit restraint in the euro area and credit retrenchment in the UK. The drop in the FA/L ratio
observed in the first quarters of the crisis period was mainly driven by losses in total financial assets, equity in particular, vis-à-vis total loans, whose value is considerably more stable over time and, possibly, by a relative preference for less riskier assets such as loans in a context of heightened instability. In the fourth quarter of 2009 and in the first quarter of 2010 the Fin Assets/Loans ratio surges in the UK due to a rebound in the equity market from previous year minima. From 2009 onwards, the observed drop in the financial-assets-to-GDP ratio in the UK was mainly driven by a retrenchment in credit.

An alternative way of assessing the effectiveness of monetary transmission is by analysing how closely are changes in the reference interest rate (as set by the monetary authorities) transmitted to market interest rates. Graphs 5 and 6 show the dynamics of interest rate transmission for the UK and the euro area by plotting the evolution of i) the official bank rate of the Bank of England and the equivalent main refinancing operations (MRO) rate of the European Central bank, ii) the 3-month LIBOR for the UK interbank market and the equivalent EURIBOR for the euro area and iii) average interest rates charged by monetary and financial institutions to non-financial corporations (NFCs) in the UK and in the euro area.

Graph 5: Sterling-denominated interest rates
Graph 6: Euro-denominated interest rates


As can be seen from the graphs, monetary policy dynamics have been largely analogous in both geographical areas. After a period of relative stability, reference rates began leaning against the wind in 2006, as imbalances began to mount, and then dropped abruptly after September 2008 when Lehman Brothers declared bankruptcy (in particular, in the last quarter of 2008 and the first quarter of 2009) in order to support the economy and the flow of credit as the financial crisis unravelled, remaining at historically low levels since then.

The Bank of England reacted more aggressively at the onset of the crisis, dropping the official rate by 4.5 pp. between September 2008 and March 2009, to a historically low 0.5%. The European Central Bank dropped the MRO rate by approximately 3pp. in the first months of the crisis, keeping it mostly at 1% from mid-2009 to mid-2012. In July 2012, it nudged the MRO down to 0.75%, and then to 0.5% and 0.25% in May and November of 2013, respectively.

The LIBOR and EURIBOR followed suit, but whereas their spread with respect to the reference rates had been mostly in the 0.1-0.3 pp. range up until mid-2007, interbank rates decoupled from reference rates in 2007-2008 and remained somewhat unstable during much of the post-crisis period, signalling interbank tensions and a frailer monetary transmission mechanism. LIBOR spreads remained significantly higher than EURIBOR’s until the second half of 2012, but have since closed in on the reference rate supported by liquidity provision measures of the Bank of England, notably the Funding for Lending scheme.

An apparent anomaly occurred in 2009-2010 and again in 2012-13, when EURIBOR spreads turned negative. This may be due to banks expecting the EURIBOR to drop in the future or to a contraction in demand for funds in the interbank market as banks tighten their lending to the economy.
NFC interest rate spreads with respect to official rates, which averaged 1.1% in the UK and 1.3% in the euro area from 2004 until September 2008, have since surged, averaging 1.9% in the UK and 1.8% in the euro area from mid-2009 to late 2013. As discussed in section 3, the increase in the spreads of loans to the real economy suggests a credit crunch driven by a negative shock to credit supply.

Overall, both an analysis of interest rate spreads and of money-to-loan transformation ratios show that the monetary transmission mechanism has been weakened with the onset of the financial and economic crisis in both the euro area and the UK, with the UK appearing to have been more severely hit by the ensuing credit crunch.

Further insight into the flow of financing in the UK may be obtained from an analysis of the financial accounts of the European System of Accounts. Graphs 7 and 8 show the breakdown of net lending and borrowing in the UK and in the euro area according to institutional sectors in recent years.

General government has borrowed continuously in both areas, with deficits increasing after 2008 due to the financial and economic crisis which, besides having increased expenditure with social transfers and decreased tax revenues, saw the UK government nationalise the Northern Rock bank and acquire large stakes in the Royal Bank of Scotland and Lloyds banking groups.

Both areas also saw the household sector increase its precautionary savings and start deleveraging with the outset of the crisis, which in the UK meant moving from a net borrowing to a net lending position.

Non-financial corporations have traditionally been net savers in the UK and net lenders in the euro area. The continuously high net saving position of UK corporations is somewhat odd among major economies and correlates with the observed low investment level. Irrespective of the reasons which dictate the long-run trends in net savings, the current crisis has led corporations to increase savings in both geographical areas, propelling them to a balanced position in the euro area and to historically high total savings in the UK. This increase in corporate savings may constitute a rational response in a context of heightened uncertainty and fewer growth opportunities. More worrisomely from an economic policy point of view, it may also suggest that some companies have difficulties accessing external finance, which could curb investment levels and drive companies to increase the saving rate for precautionary reasons or to be able to fund investment projects through retained earnings.

Finally, financial corporations have increased total savings in the UK in the first crisis years, likely on a wish to deleverage.
Graphs 9 and 10 take a closer look at the debt level of UK corporations and households in recent years. As can be observed, debt and loans had been on the increase up until year-end 2008 as easy access to credit, favourable expectations regarding future income streams and asset appreciation propelled the economy to higher leverage ratios.

Since then, the growth in loans and debt of non-financial corporations has come to a halt and the debt-to-GDP ratio has stabilised at moderately high levels\(^{11}\), falling slightly in recent years on the back of mostly inflation-driven increases in nominal GDP.

Household debt levels witnessed a sharp increase in the run-up to the crisis as the housing market overheated, nominal house prices doubled from 2000 levels and mortgage-to-income ratios hit historically high levels. The loans-to-gross-disposable-income ratio has begun the necessary deleverage since 2008 but, at 132% in the second quarter of 2013, still remains at relatively high levels\(^{12}\).

Overall, the UK experienced high private debt levels in the pre-crisis period, which have been slowly unwinding since 2008\(^{13}\). Section 2 further analyses recent developments in the household and corporate sectors and, especially, in the small and medium enterprises segment.

---

\(^{11}\) Whereas the level of the debt-to-GDP of UK NFCs in the second quarter of 2013 was 95%, the euro area ratio peaked slightly above 80% during the financial crisis.

\(^{12}\) By comparison, the euro area ratio remained below 100% throughout the heating-up period.

\(^{13}\) The private debt indicator of the Macroeconomic Imbalances Procedure (MIP) scoreboard stood at 179% in 2012 for the UK, a figure significantly above the 133% MIP threshold. The high levels of household debt in the UK have been identified as a macroeconomic imbalance following the 2012 and 2013 in-depth reviews of the UK economy under the MIP.
2. THE FINANCING OF THE UK PRIVATE SECTOR: HOUSEHOLDS AND CORPORATIONS

This section takes a closer look at the financing of the household and corporate sector. Special attention is devoted to the issue of credit availability to non-financial corporations (NFCs), and to the SME segment in particular, which has been especially hit by the post-crisis credit crunch.

The corporate sector has an important role to play at the current conjuncture as the need to unwind the relatively high levels of debt accumulated by households and general government, as well as persistently negative real household pay growth, mean that government and household consumption and investment levels may remain constrained in the future. The prospects for a sustained recovery in UK are thus significantly linked to the behaviour of investment and exports. Graph 11 evidences the comparatively large role that households have played in driving the increase in private debt, as well as the marked slowdown in household debt accumulation in recent years.

![Graph 11: Contribution of lending to growth in UK private sector debt](image)

Source: Bank of England, own calculations

Note: Private sector debt defined as household debt plus private NFC debt

As shown in Graph 12, the corporate sector was the principal positive contributor to the change in the saving ratio from pre-crisis (2005-07) levels in the UK. In fact, when compared with other EU countries, the UK’s corporate sector offered one of the largest percentage contributions to savings during the crisis, on par with Poland and only behind Latvia, a country under a European Commission balance-of-payments assistance programme in 2009-2011. Contrastingly, the household sector had offered a significant negative contribution to the saving ratio and a positive one to the investment ratio in the decade to the crisis. As such, corporations have, at present, more leeway than households to promote investment.

---

2.1. THE HOUSEHOLD SECTOR

As mentioned at the end of Section 1, UK households underwent a deleveraging process from historically high debt-to-income ratios in the wake of the crisis. This ratio increased markedly in the UK during the heating up period when compared with the USA and the euro area, and has been adjusting in an equally pronounced manner in recent years as depicted in Graph 13.

Given the high nominal debt levels, if interest rates or unemployment were to rise, a significant number of households would possibly default on their mortgages. As Graph 14 suggests, if the official bank rate were to revert to historical averages\(^\text{15}\), the interest burden of households would increase to levels that, in the early 1990s, were consistent with high numbers of defaults and repossessions.

\(^{15}\) It should be noted that the base rate is unlikely to rise in the absence of a sustained economy recovery, which in itself would provide support to household finances.
Credit granted to households may be divided into credit secured on dwellings (i.e., mortgages) and unsecured credit (i.e., credit cards and other consumer credit). Graph 15 depicts the evolution of net lending in these two categories. As can be observed, UK households swiftly accumulated secured debt until 2008, when net flows came to a near halt, having remained checked ever since. A similar evolution, albeit on a much smaller scale, can be noted in the net flows of unsecured lending: the positive net credit inflows observed until 2008 mostly petered out in 2009-2011.

Overall, mortgage markets seem to have stabilised since the sub-prime crisis. The current challenges in the housing market appear to be concentrated on the supply side. In fact, constraints in the supply of housing drove a marked appreciation in house prices in the run-up to the crisis, and a concomitant rise in the level of mortgage loans taken by households. House prices have generally recovered since the peak of the crisis and remain at a high level, notwithstanding a weaker demand, suggesting that an increase in the supply of housing (which can be brought about, e.g., by further relaxing the strict UK planning laws and reforming the recurrent property taxation framework to encourage the release onto the market of underutilised property) remains a challenge in the stabilisation of the housing market.\(^{16}\)

### 2.2. THE CORPORATE SECTOR

As previously seen in Section 1 and in Graph 11, the pre-crisis years saw the UK non-financial companies increase their net borrowing while the ensuing years have been characterised by negative credit flows and some degree of deleveraging. Graph 16 breaks down the change in liabilities of NFCs by source of funds. Up until year-end 2008 loans were clearly the most important category, but have since contributed to shrink corporate balance sheets, especially in 2009 and 2010. Securities

---

\(^{16}\) For a discussion of the UK housing market and its links to household debt, see European Commission (2013b).
other than shares (i.e., bonds) appear to have reinforced their positive contribution from the second half of 2008 onwards, with bond issuance partly offsetting the post-crisis decrease in loans.

Graph 16: Financing of UK NFCs by source of funds

The post-crisis period from late 2008 to 2010 saw equity, both quoted and unquoted, become the prime source of financing for corporations. On aggregate, equity has remained an important source of funding in post-crisis years, with quoted equity playing a larger role in 2009-10 when compared to the period running from 2004 through 2008. Unquoted equity has contributed somewhat more modestly when compared to the pre-crisis period, possible reflecting the difficulties of smaller businesses in accumulating earnings and raising own capital in an unfavourable economic environment.

The UK financial services market is a well-developed and sophisticated one. Table 2 summarises the UK’s relative standing with respect to selected survey-based indicators on access to bank and non-bank finance.

Table 2

| Selected indicators on access to financial services from the Global Competitiveness Report |
|----------------------------------------|----------------|----------------|----------------|----------------|----------------|
|                                       | Availability of financial services | Affordability of financial services | Financing through local equity market | Ease of access to loans | Venture capital availability |
| Average EU 28                          | 5.0            | 4.6            | 3.5            | 2.8            | 2.8            |
| Best performer EU 28                   | 6.1            | 6.0            | 4.8            | 4.2            | 4.3            |
| Performance UK                        | 6.1            | 5.3            | 4.8            | 2.7            | 3.5            |
| Rank UK (in EU 28)                     | 1st            | 3rd            | 1st            | 15th           | 4th            |

Note: measured from 1 (worst) to 7 (best)

The selected indicators from the Global Competitiveness Report\textsuperscript{17} suggests that the UK is a strong performer in areas such as venture capital and equity markets, and that it has a diversified and affordable financial services offer. However, in line with other evidence presented in this paper, the UK displays a much poorer performance in terms of ease of access to loans. In fact, the related survey indicator has deteriorated markedly in the UK from a value of 4.8 in 2007-2008 to its current value of 3.1.\textsuperscript{18} Even though most countries saw their access to loans indicator drop from pre-crisis levels, the UK’s dip has been more pronounced than most.

The fact that the loans market appears to perform more poorly in comparative terms can hardly be attributed to the UK’s legal framework. In fact, the World Bank’s Doing Business indicators place the UK in top position with respect to “getting credit”. This indicator assesses the strength of credit-related legal rights in the concerned countries, as well as the availability and ease of access to information on potential borrowers. It should be noted that the Doing Business indicator does not

\textsuperscript{17} World Economic Forum (2012).
\textsuperscript{18} This indicator is based on executive survey responses to the following question: How easy is it to obtain a bank loan in your country with only a good business plan and no collateral?
assess the actual functioning of the UK’s credit market, but only selected legal and informational aspects of the underlying institutional framework.

Graphs 17 and 18 take a closer look at venture capital financing in EU countries that are members of the OECD. Confirming the findings of Table 2, the UK displays relatively high levels of venture capital investment and a well-developed business angel network.

Graph 17: Venture capital investment in 2012

![Graph showing venture capital investment in EU countries in 2012](Source: OECD)

Graph 18: Number of business angel networks/groups in 2009

![Graph showing number of business angel networks/groups in 2009](Source: OECD)

Consistent with the previous evidence on the performance of UK equity markets, Graph 19 shows that the UK has a comparatively high number of listed companies relative to its population. However, the private bond market in the UK appears relatively undeveloped when compared with other G7 countries, as depicted in Chart 20. Compared with the United States, the leading G7 country, UK companies are less likely to be rated. In fact, only approximately one third of the FTSE350 companies possessed a public rating in 2009, whereas approximately 6 in 10 US companies figuring in the S&P 1500 had a public rating from at least one of the three leading international rating companies in the same period. Also, the percentage of issuing companies in the UK bond market was significantly lower when compared with the USA, even when controlling for company size (approximately 20 pp. less).

19 HM Treasury (2010).
The recent trend of negative credit flows and deleveraging observed in the UK corporate sector has displayed different dynamics according to firm size. As shown in Graph 21, private non-financial corporations (PNFCs) have seen, on aggregate, a marked drop in lending, with net credit flows remaining negative from 2009 onwards. Lending to smaller enterprises, although dropping with a lag, also followed the overall trend. The following section examines in more detail the SME segment.

### 2.3. THE SME SEGMENT

Small and medium enterprises\(^{20}\) in the United Kingdom represent more than 99% of the total number of firms, account for approximately half of the value added by the corporate sector and employ more than half of private sector workers.

This important segment may display specific lending and borrowing dynamics which are not fully captured when the corporate sector is considered aggregately. Graph 21 highlights the continued retraction in lending to SMEs in recent years. Graphs 22 and 23 show that not only have lending volumes decreased but pricing developments have also less than favourable for smaller companies. The survey evidence based on lenders’ perceptions depicted in Graph 22 suggests that, in general, credit costs have evolved less favourably for medium or smaller firms than for large ones since the last quarter of 2009. Additionally, the hard data in Graph 23 shows an increase in SME interest rate spreads vis-à-vis the base rate when compared with November 2008, particularly for smaller businesses.

---

\(^{20}\) Although there is no unique definition of SME, the concept is usually applied to independent companies with less than 250 employees.
The relative opacity of the SME segment and the evidence suggesting that the financial crisis left a significant share of small companies credit constrained has motivated a number of access to finance surveys of this particular segment. The Annex presents a review and analysis of the available survey evidence from which a number of common conclusions may be drawn:

- The crisis years saw a marked increase in the rejection (and partial rejection) rates of credit applications and the UK appears to be one of the EU countries were the post-crisis credit crunch was more pronounced.

- Rejection rates in the post-crisis period have been particularly high, ranging from two in ten to over four in ten applications, depending on the survey considered.

- Rejection (and partial rejection) rates tend to be higher the smaller the size of the applying SME.

- Not all SMEs borrow and larger SMEs tend to apply more often for a loan.

- The financial crisis saw difficulties in access to finance being increasingly pointed out as the main reason preventing business success, although the most important obstacle was the poor economic situation and outlook.

- Financing of working capital and day-to-day funding has become more pressing since the outset of the crisis.

- A significant percentage of SMEs did not apply for financing because of discouragement or issues with the application process.

- The percentage of banks refusing to grant a loan because of insufficient collateral/security increased significantly in the UK, also with respect to European averages. Likewise, the percentage of banks not providing a reason for refusing a loan also increased significantly and is high in comparison with other EU countries.

Overall, notwithstanding the fact that SMEs face weaker financial conditions and have fewer investment opportunities, survey evidence suggests that a significant share of small businesses is prevented from accessing finance largely due to constraints in credit supply.
2.4. SME ACCESS TO NON-BANK FINANCE

Large corporations are able to finance themselves directly with prospective investors by, e.g., issuing bonds and other securities in well-established capital markets. This provides large businesses with alternative sources to bank financing which impose competitive pressure on the banking channel and permit these companies to continue to have access to funding even when bank lending markets dry up.

Smaller companies do not generally have easy access to non-bank lending. This follows naturally from the fact that information on the creditworthiness of smaller companies, which are generally more opaque than large companies and do not publish accounts, is more easily gathered by banks than by capital markets due to the closer and on-going commercial relationship that retail banks establish with SMEs. This monitoring role of banks has long been recognised in the corporate finance literature as a justification for the very existence of financial intermediation. Another reason why SMEs are put at a disadvantaged when accessing capital markets is the fact that securities issuance carries important fixed costs (e.g., legal and administrative costs and costs related to the assessment of creditworthiness), which may render small issues uneconomical. As it stands, high-yield bond issuance in the UK appears to be on the low side when compared with the US and euro area averages (Graph 24.) Additionally, fewer companies are credit rated in the UK than in the US.

Enhancing SME access to non-bank lending appears especially important at the current juncture and could work to fundamentally improve the way UK credit markets function in the long run. There are, however, clear challenges in promoting SME access to non-bank lending when banks themselves seem to play a crucial role in facilitating the flow of funding that runs from private savers and investors to small businesses. Innovative policies aimed at promoting SME access to non-bank lending can, nevertheless, be envisaged. The diagram in Graph 25 exemplifies one such policy. The approach formulated hereby seeks to leverage three key instruments that are available in the UK economy, namely:

1. The firm-specific knowledge possessed by UK retail banks,
2. The Basel II/III framework and

The policy is based on an originate-to-distribute model whereby banks assess the risk and provide loans to UK SMEs that are then securitised and distributed to final investors.

---

21 See Diamond (1984) for the original exposition of the delegated monitoring theory.
22 See HM Treasury (2010).
The main parts of the process can be described as follows:

1. **Credit rating of UK SMEs.** Credible credit ratings are crucial for the effective implementation of any initiative seeking to promote lending to SMEs. As discussed, banks are in a privileged position to assess the creditworthiness of small businesses. Therefore, the first phase of the originate-to-distribute process may rely on the credit ratings provided by retail banks. The accurateness of the rating process is guaranteed by the supervisory review carried out by the competent banking supervision authority. This supervisory process is, in fact, already in place in the context of the Basel II and III framework which requires that credit risk models be validated internally by the financial institution and reviewed by the supervision authority for all the institutions following the internal ratings-based approach. Therefore, if a rating process is deemed adequate for internal use, it should also arguably be adequate for external uses, and no sizeable additional costs should be incurred by the institution or the supervision authority. Credit ratings may also be provided by specialised rating companies. In any case, it is essential that the party responsible for the credit rating be clearly identified by market participants and that the associated reputational risk be clearly attributed, so as to keep proper incentives for an accurate risk assessment. Firmly anchoring credit decision on creditworthiness criteria is also crucial for preventing credit from flowing to less than viable companies.\(^{23}\)

2. **Loan origination and securitisation.** The loans granted by the financial intermediary are then securitised and passed on to final investors. This allows banks to remove these loans from their balance sheets for the most part\(^{24}\), thereby aiding them to deleverage without hurting lending to the real economy and to meet capital ratios in transition to Basel III. A successful placement of the securitised loans requires that the underlying credit risk be assessed in a credible and accurate manner. In fact, collateralised debt obligations (CDO), which have been used in the past in this type of operations, fell into disrepute with the onset of the current financial crisis when it was revealed that the credit risk underlying the different CDO tranches had been underestimated.

3. **Primary and secondary markets for SME debt securities.** The quantitative easing program of the Bank of England can be used to kick-start the SME debt securities market from the demand side. The

\(^{23}\) For a discussion of the possible effects of monetary and credit easing policies in sustaining less-than-viable companies in the UK, see European Commission (2013b)

\(^{24}\) It may be desirable that the financial intermediaries retain a share of the loans and of the associated risk on their balance sheets to ensure the right incentives for risk assessment.
central bank\textsuperscript{25} can undertake to purchase large amounts of SME securities, thereby fulfilling the dual purpose of channelling credit to small- and medium-sized companies and of developing the non-bank lending channel. The stimulus provided by the central bank injects liquidity and critical mass into the SME debt market and can encourage banks and market participants to incur in the fixed costs necessary for its proper functioning. These include, inter alia, the costs of bettering the SME rating methodology, of improving the available databases, of putting in place the necessary trading and settlement infrastructures, of developing proper harmonisation, standards and regulations and general administrative and legal costs. After the market has been established, the Bank of England could gradually phase out its participation in the market.

The amount of SME-backed securities is increasing in the UK, from approximately GBP 4.4 bn in the first quarter of 2010 to little over GBP 7 bn by mid-2013, according to data from the Association for Financial Markets in Europe\textsuperscript{26}. This increase, however, is from a comparatively low base and by mid-2013 SME-backed securities in the UK still represented less than 2\% of the total balance outstanding of collateralised securities, according to the same source (for comparison, SME securities represented more than 9\% of the European total figure). The framework proposed above is arguably ambitious in its objective of fundamentally improving the SME debt securities market, but any policy aimed at structurally changing the non-bank lending channel for medium and small businesses is likely to be so. The UK, as a global leader in financial market development and innovation, is particularly well placed for considering and putting forth ground-breaking policies in the area of non-bank lending.

SME debt securitisation is not the only venue for improving access to non-bank funding. For example, peer-to-peer lending has been growing in the UK, although from an embryonic stage. According to the Bank of England (2012a), there were around GBP 150 m of outstanding loans across the largest UK peer-to-peer lenders in 2012. Likewise, crowdfunding for corporations has also been growing fast from low levels, and asset finance firms and invoice finance firms have been taking a greater role in lending to SMEs. Finally, the Alternative Investment Market (AIM) and the order book for retail bonds (OBR) of the London Stock Exchange (LSE) can also help in assisting smaller companies accessing funding. The AIM, launched in 1995, provides access to equity for growth companies while the OBR, launched in 2010, is an electronic trading platform for bonds which includes issues from smaller companies.

Overall, SMEs can benefit from a diversified funding landscape and the aforementioned initiatives, although still displaying a comparatively small scale, carry a significant potential to improve access to funding for SMEs. One obstacle confronting their expansion, however, is the aforementioned difficulties in accessing the creditworthiness or financial prospects of smaller companies, especially where specific expertise is lacking or investors hold only a small stake in the firms concern and have therefore only a small incentive in investing in financial monitoring, as in the case of crowdfunding or peer-to-peer initiatives.

\textsuperscript{25}Alternatively, the funds made available by quantitative easing can be managed by a separate entity allowing for the government, rather than the central bank, to take on the associated credit risk.

\textsuperscript{26}See, e.g., AFME (2013).
3. CREDIT SUPPLY VERSUS CREDIT DEMANDSHOCKS

This section seeks to assess the relative importance of credit demand and supply shocks in explaining the noticeable credit retrenchment that has taken place in the UK economy since 2007. Whereas a contraction in the demand for credit may be economically rational and constitute an appropriate response of corporations and households to an adverse economic environment, a contraction in the supply of credit stemming from circumstantial or structural problems in the financial sector can slow down the UK’s economic recovery and may lend itself to policy intervention aimed at alleviating these constraints.

The basic argument identifying a negative credit supply shock follows from simple microeconomic principles. As referred in Section 1, the quantity of loans observed in the market has decreased whereas its price, as measured by interest rate spreads, has increased. This is consistent with a negative supply shock, as depicted in Graph 26.

Graph 26: A negative credit supply shock

The main issue with this argument, however, is that its comparative statics rely on a ceteris paribus assumption, which may not be verified (for example, because risk levels may have changed). As such, while keeping in mind the insight of Graph 26, this section considers a comprehensive set of demand- and supply-side explanations to account for the observed drop in the credit supplied to corporations, and to SMEs in particular.

From a demand-side perspective, possible explanatory factors for the observed retrenchment in credit are:

- Lower growth and investment opportunities;
- Higher perceived risk which decreases the net present value of investment projects;
- A wish to deleverage given the uncertain economic environment;
- Disparagement about the ability to access credit, which curtails demand.

From a supply-side perspective, possible drivers are:

Spreads are often taken as the price of credit, instead of base or quoted interest rates. From a supply point of view, changes in base or quoted rates may have an ambiguous relation with profitability, as changes in base rates increase the cost of funding and changes in quoted rates may be driven by changes in base rates. From a demand point of view, changes in quoted rates may be driven by changes in the base rate in connection with movements in the economic cycle. Focusing on spreads allows to abstract to some extent from cyclical effects and countervailing monetary policy reactions, and to unify supply and demand under a single price variable.
• Higher perceived risk and poorer collateral due to weaker corporate balance sheets;

• A wish to deleverage by banks due to a riskier business environment and the need to fulfil capital requirements in transition to Basel III;

• Higher funding costs and difficulties in obtaining funding of an adequate maturity;

• Lack of competition leading to a sub-optimal provision of credit.

Also from a supply-side perspective, SME-specific drivers may additionally include:

• Higher risk presented by smaller firms;

• Costs with administrative procedures and risk analysis, which can be proportionally more expensive in this segment due to the opacity of smaller firms and to the fact that they bring in less business;

• The SME segment being less competitive, as SMEs seek loans in markets with a regional geographical dimension, have less access to non-bank forms of finance and have lower bargaining power when compared with larger corporations negotiating bigger loans, for which banks have a higher incentive to compete.

This section analyses in turn the main aforementioned arguments based on qualitative evidence presented in the previous and current sections. Section 4 concludes the analysis by presenting the results of an econometric estimation of the impact of credit supply and demand shocks in recent years for the UK.

3.1. DEMAND-SIDE FACTORS

The crisis undoubtedly dampened expectations regarding future growth in the UK economy, which would tend to reduce demand for credit. From the perspective of a standard accelerator model of investment, lower growth prospects decrease current investment levels and, therefore, credit demand by corporations. Also, from a capital budgeting perspective, lower expected returns and higher risk lower the net present value of investment projects, possibly leading firms to place some investments on hold or discard them altogether.

There may also be a general wish to deleverage on the part of corporations, notably in order to lower their credit risk and probability of failure in a context of heightened uncertainty and, in some cases, of cumulated losses. As seen in Graph 16, it has indeed been the case that companies have resorted to equity as the preferred means of funding in recent years (although this may also reflect difficulties in access to credit). In fact, deleverage from historically-high debt-to-profits ratios took place since 2010, according to Graph 27.

---

28 While the growth rate of potential UK GDP implicit in the Commission forecast of autumn 2007 averaged 2.4% per year for the 2008-2012 period, the same figure estimated at the time of the 2013 spring forecast had dropped to 0.9%.

29 The effect of the current economic environment on capital budgeting discount rates is not clear-cut. On the one hand, a lower risk-free rate, as set by the Bank of England, lowers the discount rate. On the other hand, in times of financial and economic agitation, the market premium tends to rise. If, additionally, payoffs of new projects become more risky, the net effect on discount rates may not be straightforward.
The flow of credit in the UK economy

Graph 27: Corporate debt relative to profits (a)

(a) defined as debt net of liquid assets, relative to a four-quarter moving sum of gross operating surplus.
(b) in-period averages have been normalised to 100.

Data from surveys of Chief Financial Officers (CFO) sheds further light on the risk perceptions of large enterprises in recent years. As evidenced in Graph 28, the crisis years saw UK companies shying away from taking greater risk onto their balance sheets, with a majority of CFOs considering until the third quarter of 2010 that UK corporate balance sheets were over-leveraged. Until the beginning of 2013, a significant share of CFOs considered that external financial and economic uncertainty was high or very high, with the percentage soaring in Q3 2011 likely due to the uncertainties surrounding the resolution of the sovereign debt crisis in the euro area. However, given the marked improvement in outlook for the UK economy that took place over the course of 2013 as well as the gradual resolution of euro area uncertainties, risk perceptions eased significantly and by the third quarter of 2013 a thin majority of CFOs was again considering taking greater risk onto their balance sheets.

Graph 28: Risk perceptions of UK CFOs

Source: Deloitte's CFO Survey
Note: The survey gathers the opinions of over 300 CFOs, mainly from FTSE 350 companies.
a) Net balance of positive answers
b) Percentage answering high or very high. Series only available from 2010 Q3

As can be seen from Graph 29 on attractiveness of corporate funding by source, equity issuance became more attractive during the first years of the crisis, but lost its appeal in 2011 and 2012, before recovering somewhat in 2013. After a period of relative unattractiveness, bank borrowing has again become an appealing source of finance for large UK firms since early 2010. However, contrary to the pre-crisis trend, bond issuance remained a more attractive source than bank borrowing from 2009 to 2013.
Overall, evidence suggests that, on aggregate, large corporations reduced their demand for credit in the wake of the financial crisis on a wish to deleverage and in response to a more uncertain economic environment. This happened to some extent independently of tighter credit conditions, although the latter likely played a role in the early years of the crisis, as evidenced, for example, by the low attractiveness of bank borrowing (namely vis-à-vis bond issuance) in 2009-2010.

As seen in Section 2, SMEs face a different borrowing experience from that of their larger counterparts. In fact, survey evidence referred in Section 2.3 and detailed in the Annex shows that a large number of SMEs became significantly credit-constrained during the crisis period, with a portion of them no longer seeking to obtain bank funding due to disparagement.

### 3.2. Supply-Side Factors

Turning now to the possible factors driving a decrease in the supply of credit in the economy, heightened risk of UK corporations can offer a natural justification for reluctance to lend. However, as the data on credit default swaps presented in Graph 30 suggest, the risk of large UK corporations has decreased and stabilised since a peak in year-end 2008 and appears to be slightly lower than that of large corporations of ‘core’ EU countries.

Graph 31 presents a wider view of corporate risk by considering the write-off rates on lending to private non-financial corporations (NFCs). As expected, write-offs of NFCs rose somewhat after
2008 and appear to have since stabilised between 1% and 2%. As larger corporations tend to be more stable, this increase may have been driven to some extent by smaller enterprises. It is interesting to note that the risk appetite in the consumer credit segment has not been as affected (as can be seen, e.g., in Graph 15), notwithstanding the fact that it displays the highest write-off rates, a fact which can be understood in view of the high interest rates charged in this segment. Likewise, evidence from the European Commission/ECB survey analysed in the Annex shows that the financial conditions of borrowing SMEs worsened, on average, in the post-crisis period. From an international perspective, however, the rate of non-performing loans in the UK is seen to have remained relatively contained throughout the crisis period, as shown in Graph 32.

In conclusion, large corporations do not seem to present a significantly heightened credit risk, although SMEs are probably somewhat riskier than they were before 2008.

Regarding banks’ need to deleverage and to reduce risk exposure, it is uncontroversial that the financial liberalisation trend of the 1990s and the years in the run-up to the crisis saw the banking sectors of many developed countries taking on greater risk. Graph 33 shows the evolution of the bank Z-score for the UK and G7 countries, a rough measure of the risk of bankruptcy. The Z-score can be interpreted as the number of standard deviations a bank’s return on assets would have to drop from its mean value in order for bankruptcy to occur. Therefore, a lower value signals higher risk of failure. As can be observed, the UK banking sector appears to have significantly increased its risk level from 2003 to 2008, decreasing it thereafter.

Due to more demanding regulatory requirements and as a reaction to a riskier economic environment, UK banks have significantly strengthened their core tier 1 capital ratio since 2007, both through capital injections and by reducing their risk-weighted assets as shown in Chart 34.
The stability of the UK’s banking system was attested by the European Banking Authority (EBA) in December 2011\textsuperscript{30} in the context of the temporary bank recapitalisation exercise launched by the European Council. According to the EBA analysis, the UK was one of the European countries whose banks did not need to establish an additional capital buffer against sovereign debt exposures. In fact, the exposure of UK banks to the sovereign debt of countries under market stress was small (although exposure to their private-sector debt was higher).

More recently, the Financial Policy Committee (FPC) noted that current capitalisation levels, though nominally adequate, may not reflect a sufficiently prudent calculation of risk weights and provisions for expected losses\textsuperscript{31}. While the aggregate core tier 1 capital ratio of the UK banking sector compares favourably with other countries (Graph 35) and credit default swap spreads have remained contained (Graph 36), there is evidence of bank forbearance in the post crisis-period, with respect to both corporate and household debt\textsuperscript{32}. Overall, it does not seem that UK banks need to deleverage much further and whatever capital shortfalls may subsist, it should be possible to address them without hindering lending to the economy, as recommended by the FPC.

\textsuperscript{30} EBA Recommendation on the creation and supervisory oversight of temporary capital buffers to restore market confidence, 8 December 2011.

\textsuperscript{31} See the Financial Policy Committee’s statement from its policy meeting of 19 March 2013.

\textsuperscript{32} See European Commission (2013b).
As regards banks’ access to funding, it may seem peculiar that UK banks could face difficulties in obtaining funding when the Bank of England’s reference rate is at a very low 0.5%. However, central banking lending facilities typically provide credit with short maturities and require the posting of collateral that is subject to haircuts. With onset of the crisis, monetary authorities have sought to provide liquidity to financial institutions and generally facilitate the flow of credit through a series of monetary policy measures, as discussed in Section 5. In particular, the Bank of England’s Funding for Lending scheme introduced in mid-2012 has already contributed to significantly lower bank funding costs (Graph 37), as proxied by the sum of the 3-month LIBOR rate and the 5-year credit default swap rate of UK banks. Also the contraction in bank lending that took place since 2008 has meant that the customer funding gap (the difference between loans granted and deposits) has decreased significantly, as shown in Graph 38. Therefore, the need of UK banks to obtain wholesale funding has decreased as well.

---

35 E.g., the European Central Bank’s main refinancing operations normally have a maturity of one week, whereas the long-term refinancing operations normally have a maturity of three months.
3.3. COMPETITION IN THE UK BANKING INDUSTRY

Concentration in the UK banking system rose in the wake of the financial crisis due to the mergers and acquisitions that have since taken place, the failure of a number of small lenders, as well as due to the exit from the market of some foreign operators. As a result, in 2013 the UK banking industry was dominated by a few large players (HSBC, Royal Bank of Scotland, Lloyds, Barclays and, in some markets and to lesser extent, Santander), operating arguably under an oligopoly market structure. The UK banking industry is not alone in its move towards higher concentration, a trend which is also explained by higher international competition in some segments of the banking market. However, the crisis period saw an important government-led consolidation wave aimed at ensuring the solvency and stability of the UK banking system. Overall, as shown in Table 3, the UK banking system appears to be significantly concentrated by international standards.

Table 3
Bank concentration in G7 countries

<table>
<thead>
<tr>
<th>Bank concentration 2009</th>
<th>Canada</th>
<th>France</th>
<th>Germany</th>
<th>Italy</th>
<th>Japan</th>
<th>UK</th>
<th>US</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank concentration 2006</td>
<td>0.55</td>
<td>0.52</td>
<td>0.77</td>
<td>0.46</td>
<td>0.69</td>
<td>0.48</td>
<td>0.40</td>
<td>0.61</td>
</tr>
<tr>
<td>Banks per million persons</td>
<td>2.95</td>
<td>7.90</td>
<td>22.60</td>
<td>12.49</td>
<td>6.65</td>
<td>8.50</td>
<td>31.70</td>
<td>13.26</td>
</tr>
</tbody>
</table>

a) Assets of 3 largest banks as a share of assets of all commercial banks; source: World Bank's Financial Structure dataset 2010
b) Source: Bankscope, IMF, Bank of England calculations (Posen, 2009)

Concentration can have an impact on access to finance if it leads to decreased competition among credit providers. Under the structure-conduct-performance paradigm and in line with basic microeconomic principles normal strategic interactions among banks should lead to a provision of credit which decreases with the degree of concentration in the credit market. Additionally, more concentrated markets increase the probability of firms engaging in cooperative behaviour, which would increase interest rates and lower the supply of credit. Finally, in less-than-competitive markets, firms will tend to pass on to final consumers only a fraction of the gains obtained from lower input costs. Although industry consolidation can happen due to a market-based selection of the most efficient firms, the fact that in the case of the UK banking industry it was mainly brought about by financial stability reasons makes this development a cause for added concern from a competition point of view.

Even though the UK’s investment banking industry is exposed to international competition, the retail banking industry retains an essentially national or regional dimension and has become significantly concentrated. Graph 39 shows the evolution of the concentration levels for a number of relevant retail banking markets, as measured by the Herfindahl-Hirschman Index (HHI).

34 A standard result from, e.g., Cournot models or Bertrand models with differentiation. Additionally, the significant entry and exit costs in the banking industry mean that banking markets are not easily contestable which, taking also into account that there is some degree of differentiation and customers face switching costs, implies that concentration should be a significant driver of the degree of competition in the market.

35 As seen in Section 1 and Graph 5, UK banks have not fully passed on to borrowers the 2008 drop in the official bank rate, as spreads have increased from pre-crisis levels. However, there can be several possible reasons for this development including an increase in bank funding costs due to factors other than the base rate, or increased riskiness of borrowers.

36 The Herfindahl-Hirschman Index is calculated as the summation of the squared market shares of the (independent) firms operating in a given market. Higher values of the HHI denote therefore higher concentration levels. The HHI ranges from a maximum value of 10000 (or 1, depending on the chosen normalisation) for the case of a single monopolist company, to a value of 0 for the theoretical case of an infinitude of firms, each operating in the market with a negligible share.
As can be observed, concentration increased significantly in all the analysed markets and by year-end 2010 the HHI was above the reference level of 1000 in all 6 identified retail markets, denoting them as "concentrated markets" according to the Office of Fair Trading (OFT) and Competition Commission guidelines. Additionally, concentration in some markets such as "SME banking" and "main personal current accounts" (PCA) approached the HHI threshold of 2000, which would place them in the category of highly concentrated markets, according to the OFT. In fact, in 2011, the largest four banks accounted for 77% of the PCA market and 85% of the SME banking segment, according to the Independent Commission on Banking. Concentration in the last two markets is particularly worrisome as, regarding "SME banking", smaller companies have little access to non-bank finance and are often constrained to seek finance from their regional bank branches, and, as regards PCA, it is a market that constitutes a gateway to other financial products and a retail bank that does not manage to secure a foothold on the PCA market may face significant difficulties in expanding and competing effectively in other markets. The high degree of concentration in the PCA market led the OFT to conduct a review of the market in 2012 where it concluded that concentration had increased since its last review in 2008 and that account switching rates remained low.

The degree of competition in a given market is only partially captured by its degree of concentration. Other variables, such as the strength of barriers to entry, the level of transparency and the importance of switching costs also play an important role. However, the performance of the UK retail banking sector seems to be sub-optimal on account of all these variables, as summarised in a recent report by the Parliamentary Commission on Banking Standards (2013): "retail banking is characterised by high market concentration and substantial barriers to entry. The limited switching between providers can be seen as a symptom of this. There is insufficient market discipline on banks to reduce prices and improve service. This lack of competition, compounded by generally low levels of customer understanding of financial products and services, is an important reason why banks can sustain poor standards of conduct and do not seem to feel the same pressure to respond to reputational damage as would be the case in many other industries." Overall, measures aiming at promoting competition should help in facilitating access to finance. This can be achieved through a dual approach, both by increasing the number of competitors as well as by increasing competition between the different market players.

As previously mentioned, the crisis period saw a marked consolidation in the UK banking industry. A major player in this consolidation trend was the UK Government itself, who intervened in the market to help to bail out a number of financial institutions. As of 2013, Government held a controlling interest in the Royal Bank of Scotland (81%) and is a controlling shareholder of the Lloyds banking group, though it began reducing its stake from 39% to 33% in September 2013. A small degree of

---

39 Before bailing out Lloyds, the Government had pushed through its takeover of HBOS, an ailing banking and insurance company.
de-consolidation has since taken place. In January 2012, Northern Rock, which had been bailed out and acquired by the Government, was sold to Virgin Money. However, the divestiture carries limited potential to improve competition in the short term as Northern Rock is a comparatively small bank.

The single most impactful measure to fundamentally change the current banking market structure is likely the one proposed by the Independent Commission on Banking (ICB)\(^{40}\), in line with EU state aid decisions, to the effect that the UK Government take action to create a **new challenger bank**, namely by means of a divestiture of Lloyds's assets. As the ICB pointed out, for a new bank to inject competitive pressure into the market, it should have sufficient scale and financial backbone to act as a challenger bank. In the past, only banks with a sufficiently high share in the PCA market seem to have been able to grow and act as challengers to the incumbents. In fact, the OFT analysis of the PCA market observed effective competitor banks as occupying a market share of roughly 5 to 14 per cent (...) This range has been observed in the context of the PCA market but there is good reason to believe that a similar market share range (albeit slightly lower) might apply to the market for banking services to the smallest SMEs, given that their demands will, to a certain degree, not differ radically from PCA customers\(^{41}\). Graph 40 illustrates how banks identified as "challengers" have exerted much greater competitive pressure than smaller banks in the past, namely by quoting higher interest rates on PCA deposits. Also, in order for the new bank to be financially stable, its loans-to-deposit ratio should not be higher than that of the incumbent banks, otherwise the entrant might behave less aggressively by deleveraging and contracting its loan book. Finally, the creation of a new challenger bank should acknowledge the geographical dimension of the relevant banking markets. As pointed out by the Treasury Select Committee in an investigation into bank competition, "competition and choice may improve in certain areas whilst other areas will benefit much less from new entry into the market. This is an issue of particular importance given evidence we have received that concentration levels and so-called 'regional monopolies' are higher in areas like Scotland and Northern Ireland or certain English regions than in other parts of the country"\(^{42}\).

---

**Graph 40: Estimated average interest rates on deposits for standard personal current accounts**

![Graph 40: Estimated average interest rates on deposits for standard personal current accounts](image)

Source: Individual bank data, GfK FRS, Defaqto and Independent Banking Commission analysis.

The divestitures of banking assets belonging to Lloyds and the Royal Bank of Scotland (RBS) are bound to happen according to EU state aid rules. In September 2013 a preliminary steps towards Lloyds' divestiture was concluded when it re-launched 631 branches under a separate TSB brand and structure, which it expects to sell in the future. Progress towards the RBS divestiture was slow to materialise, with the plans to sell part of its branches to Santander collapsing in 2012. However, in September 2013 RBS announced it was selling 314 branches to a consortium backed by the Church of England. Overall, the magnitude of the divestitures involved may fall short of the required to ensure that the resulting banks inject a marked degree of competitive pressure. As noted by the OFT\(^{43}\), "in the past, effective competitor banks were able to compete successfully (that is, to win additional business and grow market shares) with (...) a branch network of around 700 branches or

---

\(^{40}\) Independent Commission on Banking (2011).

\(^{41}\) Office of Fair Trading (2013b).

\(^{42}\) Treasury Committee, Ninth Report - Competition and choice in retail banking, 24\(^{th}\) March 2011.

\(^{43}\) Office of Fair Trading (2013b).
more”; similarly, the ICB (2011) advise a share of the PCA market of at least 6% for a new bank to act as a challenger, which is higher than what will result from the Lloyds’ divestiture, according to the OFT (2013b).

The other aspect of the aforementioned dual approach is based on improving competition under the current market structure, namely by lowering switching costs, increasing transparency for consumers and by decreasing barriers to entry. In fact, as mentioned by the previously-mentioned Treasury Committee “a focus on tackling concentration without tackling these issues would do little to promote a more competitive market. New and expanding entrants will only succeed in growing in growing in key markets, such as the current account and SME markets, if impediments to their expansion—primarily problems with switching and the lack of transparency and comparability—are tackled”.

As regards barriers to entry, the OFT carried out an investigation in 201044 that concluded that while regulatory requirements and access to the necessary inputs were not overly important sources of barriers to entry, entrants still faced difficulties in expanding their market shares due to switching costs, the high level of brand loyalty and the importance of having a sufficiently large local branch network. Capital requirements may also have disproportionately penalised small banks in the past due to their concentration on fewer clients and business areas and their usage of the less sophisticated "standard" approach for calculating capital requirements. This is expected to change to some extent in the future, as the Basel III framework introduces added capital charges for large, systemically important banks.

As regards transparency and switching costs, the ICB proposed a number of positive initiatives in this regard that the UK Government has welcomed in principle. These included the introduction of a seamless redirection service for PCAs and SME accounts and the requirement for banks to provide customers with information on interest foregone in current account statements. In September 2013, a 7-day account redirection service was introduced, with 89,000 switches taking place during the first month of operation of the service, a figure which is moderately higher than the 80,000 switches that had taken place during the comparable 2012 period45. Facilitating the process of bank account switching appears well justified. According to survey data46, only 6% of customers had switched their PCA in the year of 2011, nearly one quarter of the switching customers experienced problems with the process and one tenth of the customers said they would like to switch but feared the process would be too risky or would take too long. The observed levels of switching are not likely due to very high levels of customer satisfaction. Another survey47 found that UK banks had the worst customer relationships across the surveyed countries. Switching costs may be particularly relevant for SMEs, who depend more on bank loans and may have an incentive to establish long-term relationships in order to build up reputation and reduce the monitoring costs of their lenders. The UK authorities have left open the possibility of introducing full account portability in the future after assessing its potential costs and benefits, a measure which has greater potential for reducing switching costs and promoting competition than the current account redirection service48.

44 Office of Fair Trading, Review of barriers to entry, expansion and exit in retail banking, November 2010.
45 Payments Council (2013).
46 Accenture survey, January 2012.
47 Forrester, European Bank Customer Advocacy Rankings, January 2012.
48 The Parliamentary Commission on Banking Standards (2013) has also defended an independent assessment of the introduction of full account portability, noting their concerns with respect to the fact that “the largest banks object very strongly to bank account portability. While there is some evidence that individual banks may have done some work on the costs of account portability, this does not appear to have been accompanied by a comprehensive consideration of all the benefits of portability. This gives the impression that their objections are instinctive and, arguably, that they are opposed to any reform that could encourage competition.”
4. THE RELATIVE ROLE OF SUPPLY AND DEMAND: EVIDENCE FROM A STRUCTURAL ECONOMETRIC MODEL

The fact that both supply and demand factors have been at play in driving the observed credit crunch makes it more difficult to assess their relative importance. The few econometric analyses of the UK experience during the crisis period have generally ascribed a significant role to contractions in credit supply, while acknowledging the possible role of other shocks, including shocks to demand. In this vein, Bell and Young (2010) present the results from a structural vector autoregression (SVAR) model including standard macroeconomic and financial variables, where investment-grade corporate bond spreads are taken as a proxy for credit spreads. They find that real M4 lending growth was negatively affected from 2008 through the first half of 2010 by negative credit supply shocks, even as other shocks appear to have contributed positively in 2009. Although caution is given as to the uncertainty underlying the estimates, the authors point out that the results for 2009 and the first half of 2010 indicating a negative credit shock appear to be relatively robust, as the entire range of reasonable values for the shocks is negative. Armstrong et al (2013) use micro data from SME access to finance surveys to estimate a probit model of loan application success and find that, controlling for changes in firms’ characteristics and risk profiles, rejection rates for SMEs increased significantly in 2008-09 and, especially, in 2010-12. Interestingly, the authors find that it was low and average-risk SMEs that appeared to have been most affected by the crisis, while rejection rates for high-risk firms were broadly unchanged. The authors also find a similar evolution for interest rate margins, which rose significantly for SMES after 2008, even when controlling for heightened risk. These results are in line with those of an earlier study by Fraser (2012) based likewise on an econometric analysis of SME survey evidence.

The present section proposes and estimates a structural macroeconomic model for assessing shocks in the demand and supply of loans to UK non-financial corporations (NFCs) in recent years. The underlying SVAR model is kept parsimonious to reduce the number of estimated coefficients and is of the form

\[
B_0 \begin{bmatrix} \ln(PMI)_t \\ \ln(HICP)_t \\ \ln(loans)_t \\ \text{spread}_t \end{bmatrix} = C + B_1 \begin{bmatrix} \ln(PMI)_{t-1} \\ \ln(HICP)_{t-1} \\ \ln(loans)_{t-1} \\ \text{spread}_{t-1} \end{bmatrix} + \begin{bmatrix} \varepsilon_{AS_t} \\ \varepsilon_{AD_t} \\ \varepsilon_{LS_t} \\ \varepsilon_{LD_t} \end{bmatrix}.
\]

The first equation of the model captures the "aggregate supply" (AS) dynamics in the economy, where activity levels are measured by the composite PMI, a close tracker of GDP available at monthly frequency. Likewise, the second equation captures "aggregate demand" (AD) dynamics. The third and fourth equations describe NFC loan supply (LS) and demand (LD), respectively, where the interest rate spread for NFCs is measured with respect to the Bank of England's base rate. The shocks corresponding to the 4 structural equations are denoted by \( \varepsilon \) and collected in the error vector.

Due to identification problems arising from simultaneity in the equations, the SVAR model is estimated as a reduced-form VAR(1) model. The data sources used are Markit for the composite PMI, Eurostat for the HICP and the Bank of England for NFC lending and spreads. The lending series is taken as monetary financial institutions' sterling net lending to private NFCs (excluding securitisations) and the spread is calculated as the difference between the sterling weighted average interest rate for new advances on a floating rate to private NFCs and the Bank of England base rate. The sample runs from January 2004 to September 2013 and the lending and interest rate series were corrected for a break in August 2005 and January 2011, respectively.

The reduced-form VAR is estimated by OLS and the structural relations are recovered through an identification strategy whereby sign restrictions are imposed on the parameter values. The intuition for this approach can be seen in Graph 26. As depicted in the chart, a loan supply shock will shift the

49 The authors rely, in particular, on the SME Finance Monitor presented in section A.2 of the Annex for 2011 and 2012.
50 This is the year when the Bank of England began collecting the average NFC interest rates series.
supply curve, decreasing total loan amounts and increasing spreads in the case of a negative shock, or leading to more loans being offered at a lower spread, in the case of a positive shock. Differently, a loan demand shock pushes loan quantities and prices in the same direction (upwards in the case of a positive shock and downwards in the case of a contraction in demand). For a full identification, and in line with macroeconomic theory, (positive) AS shocks are assumed to increase economic activity and decrease the price level while (positive) AD shocks increase both activity and the price level. In all cases, we impose that the sign of the effects persists for at least 6 months. The identification strategy is agnostic with respect to the effects of the four shocks on the other remaining variables.

In order to obtain the structural shocks and impulse response functions, the reduced-form shocks from the VAR estimation are linearly-recombined by multiplying them by the triangular matrix resulting from the Cholesky decomposition of their covariance, which ensures that the resulting "base set" of shocks are linearly independent.\footnote{As per the modelling assumptions, the structural shocks must be independent of each other.}

The aforementioned procedure produces one candidate model that can be checked against the imposed sign restrictions. In order to produce several candidate models producing different impulse response functions, we draw several times from a random normal matrix and obtain a corresponding number of orthogonal matrices $Q$ via QR decompositions. The $Q$ matrices are then multiplied by the base set of shocks to arrive at different candidate models. The draws are continued until more than 1000 models satisfying the sign restrictions have been found. We consider the medium of the impulse responses across the models as a reasonable representation of the effect of the structural shocks on our variables and, as in Fry and Pagan (2010), we select the best-matching medium-target (MT) model as the one that minimizes the quadratic differences with respect to the medium impulse responses across the different variables.

Graphs 41 and 42 plot the impulse response functions of loans and spreads (as obtained from the MT model) to positive shocks in credit supply and demand. Both shocks contribute to increase loan amounts, with the increase over the first 6 months being a direct consequence of the imposed sign restrictions. The effects of credit supply and demand shocks on interest rates are fairly symmetrical and tend to dissipate over time.

Graph 43 shows the estimated structural credit supply and demand shocks for the UK from 2004 to 2013.
The profile of the shocks suggests a period of financial exuberance from 2005 to 2007 characterized by positive shocks in both credit supply and demand. The positive credit supply and demand shocks slow down in the second half of 2007, a year which saw the collapse of Northern Rock (September 2007) and during which the US subprime crisis became increasingly evident. Credit supply is forcibly hit in the second half of 2008 following the bankruptcy of Lehman Brothers (September 2008), which inaugurates a long period characterized by large negative supply and demand shocks that would last until the second half of 2011. This was a time when the euro area crisis intensified and when concentration in the UK banking industry rose markedly (see Graph 39 for the sharp increase in 2009).

Starting in 2011, credit demand begins to register positive shocks, which intensify in 2012. Credit supply, however, does not follow suit and only after the summer of 2012 do positive shocks start to emerge, following the introduction of the Funding for Lending Scheme by the Bank of England, the announcement of the outright monetary transactions program by the ECB and the gradual resolution of tensions in the euro area. Positive supply shocks continued into 2013, possibly aided by a brighter macroeconomic outlook for the UK that began to materialise in the second quarter of the year.

The evidence from the econometric model suggests that both credit demand and supply played an important role in driving the observed contraction in credit. The negative contributions from credit supply, however, appear to have started earlier and to have lasted longer, with credit demand starting to normalise already in 2011. The identified negative credit shocks can be due to several reasons including, as discussed in 3.2 and 3.3, deteriorating bank funding conditions, lessened competition, balance sheet problems and higher perceived risk. Overall, the econometric evidence appears to corroborate the analysis in Section 3.
5. MEASURES TAKEN BY THE UK AUTHORITIES

The UK authorities have devised and implemented a number of measures to restore lending to the economy. Among these are the several monetary policy measures which, although not designed exclusively to restore the flow of credit can, nevertheless, help to improve it. As seen in Section 1, the sharp decrease in reference rates was among the first measures taken to tackle the crisis. As looser monetary policies brought reference interest rates close to zero thereby depleting the capacity of standard monetary policy to deliver further stimulus, central banks such as the ECB, the Federal Reserve and the Bank of England have engaged in unorthodox monetary policy measures such as quantitative easing, soft commitments to keep interest rates low in the future, or explicit "forward guidance". In particular, the Bank of England began its quantitative easing programme in March 2009 and ended its third round of asset purchases in 2012, by which time a total of GBP 375 bn had been injected into the economy. Other unorthodox measures introduced by the Bank of England include the activation of the extended collateral term repo facility in 2012 whereby the range of collateral accepted by the Bank of England in refinancing operations was temporarily relaxed, the introduction of the Funding for Lending Scheme (FLS) in the summer of 2012 and the adoption of forward guidance in August 2013 whereby a future increase in the official bank rate was made dependent on a the unemployment rate dropping below 7% (allowing for certain ‘knockouts’ related to inflation and financial stability conditions). Likewise, unorthodox policies have also been implemented by the ECB, including the temporary extension of the term of refinancing operations from weeks and months to several years, alleviating the associated collateral requirements and the introduction of the outright monetary transactions programme. Even though unorthodox monetary policies have not sufficed to restore lending in the economy, they may facilitate the flow of credit, namely by reducing bank funding costs and aligning the maturity of funding with banks’ needs. As it stands, the Bank of England still disposes of monetary policy instruments to further stimulate lending. Such a policy mix may include easing liquidity provisions in the vein of the ECB’s aforementioned initiatives, further quantitative easing, further cuts in the current 0.5% reference rate, setting a negative interest rate on (excess) reserve deposits held by banks, temporarily expanding the collateral base for refinancing operations or applying lower haircuts.

Besides the aforementioned monetary policy measures, the UK authorities have also devised specific initiatives to improve access to finance for corporations. Table 4 describes the main initiatives that are currently underway and provides a short assessment of their implementation 52.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding for Lending Scheme (FLS): Under the Scheme, launched in July 2012, banks and building societies that increase lending to UK households and businesses are able to borrow from the Bank of England against eligible collateral at a lower cost than institutions that scale back on lending. Participating banks and building societies are able to borrow up to 5% of their stock of existing lending to the real economy, plus any net expansion of lending during a reference period. The Scheme was extended in April 2013 to incentivise lending to SMEs by offering banks the equivalent of ten times their net lending to SMEs in FLS funding (down to five times in 2014). At the same time,</td>
<td>According to November 2013 data, 42 institutions representing more than 80% of the lending stock to households and non-financial corporations had signed up for the scheme. By the end of the third quarter of 2013, roughly one year after the introduction of the FLS, the cumulative net lending by participating institutions remained negative, although the Scheme appears to have been effective in reducing bank funding costs (see Chart 37). During its first year of operation, the Scheme was more successful in boosting lending and reducing the cost of credit for households and large businesses than in supporting lending to SMEs.</td>
</tr>
</tbody>
</table>

---

52 Although the FLS can be appropriately included under the heading of monetary policy measures, it is included in the table as it was designed specifically to promote bank lending.

53 Implementation data for some of the initiatives is partly derived from National Audit Office (2013).
The Scheme was prolonged by one year, to January 2015.

<table>
<thead>
<tr>
<th><strong>Business Bank:</strong> A new government-backed business bank is being created to diversify and promote the provision of financing to SMEs in collaboration with existing financial institutions. The bank is expected to eventually support up to GBP 10 bn of lending to SMEs and to bring existing access to finance initiatives under its tutelage.</th>
<th>The government has committed GBP 1 bn to be invested in the bank. Investments will phased in and the bank should be fully operational by the end of 2014. Overall, the business bank can help plug the gaps in SME access to finance and contribute to increase competition in the banking industry. It can also help in consolidating under a single institution the numerous government initiatives promoting access to finance.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enterprise Finance Guarantee (EFG):</strong> The EFG provides banks with a government guarantee on loans to SMEs that lack the security or track record for a commercial loan. The guarantee is set at 75% of the outstanding balance of a loan while default payments are capped at 15% of the total lending amount. The EFG allows for up to GBP 2 bn of guaranteed lending between 2011-12 and 2014-15. By the end of 2012-13, approximately 21,000 companies had benefitted from the scheme, with the utilisation rate averaging approximately 60% of the total guaranteed lending capacity.</td>
<td>GBP 120 m of funding has been committed from 2012-13 to 2014-15, with approximately 7,500 new business having benefitted from the scheme by September 2013.</td>
</tr>
<tr>
<td><strong>Start-up loans:</strong> The scheme provides loans and mentoring to young entrepreneurs of start-up companies that would have difficulties obtaining a commercial loan due to a lack of track record or assets.</td>
<td>The small business strand of the BFP has GBP 100 m of available funding from 2012-13 to 2014-15. By the end of July 2013, approximately 880 loans had been granted representing a total of GBP 50 m in lending, of which GBP 12.5 had been provided by the government. The medium-sized business strand had committed GBP 863 m to help create six new lending funds as of September 2013. Of this amount, GBP 159 had been drawn down which, coupled with private sector contributions, enabled GBP 827 m of lending to 18 businesses over the first 6 months of operation of the BFP.</td>
</tr>
<tr>
<td><strong>Business Finance Partnership (BFP):</strong> In the BFP the government co-invests alongside private sector participants in order to increase the provision of non-bank funding to SMEs. The BFP is composed of two strands, one investing in funds that lend to medium-sized businesses and the other investing in non-bank forms of lending for small businesses.</td>
<td>In July 2013 there were 12 funds investing approximately GBP 400 m in 149 fast-growing businesses, with the government providing approximately 60% of the total investment amount.</td>
</tr>
<tr>
<td><strong>Enterprise Capital Funds (ECF):</strong> The ECF are risk capital funds co-invested by the government and the private sector that provide equity finance to early stage companies.</td>
<td>The report was published in March 2012 identifying a business funding gap of up to GBP 191 bn over the following 5 years and presenting a series of recommendations to promote alternative sources of funding, which were generally welcomed by the Government. Non-banking financing via crowdfunding and peer-to-peer lending has been growing in the UK, although from a small base.</td>
</tr>
<tr>
<td><strong>Breedon report:</strong> The government commissioned the Breedon report to inquire into alternatives to bank funding for businesses.</td>
<td>The previous table is non-exhaustive and a number of other initiatives have also been implemented by the authorities, often in collaboration with private sector investors. These include i) the Business Growth Fund proving equity finance to high growth potential SMEs, ii) the Business Angel Co-Investment Fund supporting business angel investments in early-stage, high-growth SMEs, iii) the UK Innovation Investment Fund investing in technology-based businesses and iv) a number of</td>
</tr>
</tbody>
</table>

---

55 Breedon Taskforce (2012).
investment tax reliefs, namely via the Enterprise Investment Scheme, the Seed Enterprise Investment Scheme and the Venture Capital Trusts. Devolved administrations have also implemented their own initiatives. There are also policy measures that have since been discontinued or superseded, notably the National Loan Guarantee Scheme (NLGS) and Project Merlin. The NLGS, introduced in March 2012, sought to help firms access cheaper finance by reducing the cost of bank loans to businesses with turnover of up to £250 million by 1 percentage point through government guarantees on unsecured borrowing by banks. The introduction of the FLS largely superseded the NLGS. Finally, Project Merlin was an agreement finalised in February 2011 between the government and the major UK banks setting gross lending targets for 2011. Although the gross lending targets were broadly met by the participating banks, net corporate lending flows remained negative in 2011, partly due to specification issues with the targets themselves (e.g., the lending measure was set in gross rather than net terms and included undrawn amounts and lending to public corporations).

Overall, the several government initiatives, though generally positive, were not game-changers and have not sufficed to reverse the negative lending trends described in the previous sections. Given the myriad of existing initiatives and the partial take-up witnessed in some cases (e.g., Enterprise Finance Guarantee) consolidating them under one institution such as the Business Bank would likely grant them more visibility and make them easier to navigate, especially by SMEs. As regards the FLS, it did not manage to move corporate net lending into positive territory over its first year of operation, although it probably prevented lending from dropping faster. The reduction in net lending was driven by the three largest banks participating in the FLS (Lloyds, Royal Bank of Scotland and Santander) for which the Bank of England identified capital shortfalls in 2013, suggesting that the weakness in lending is linked to the on-going balance sheet strengthening in these institutions. Also, given that mortgage lending products are more standardised and offer higher security due to the associated real estate collateral, it is likely that financial institutions have prioritised the FLS funds to support lending in this segment. It is important that credit-easing measures aimed at the household sector do not contribute to further reallocate credit away from the corporate sector and to crowd out productive investment. This is a potential risk of the Help to Buy scheme introduced in April 2013 which entails government-backed equity loans and mortgage guarantees to support housing demand and stimulate the housing market.

56 As mentioned in BDRC Continental (2013b), “Whilst awareness of the Funding for Lending Scheme has also increased, knowledge of other schemes available to help and support SMEs to access finance remained flat, which may mean that some SMEs are not as well equipped as they could be to take advantage of future opportunities.”

57 See Section 3.2 and footnote 31.
The economic and financial crisis severely affected the flow of credit in the UK. As seen in Section 1, while the pre-crisis period was characterized by dynamic and continued increases in the loans-to-GDP ratio, 2008 marked a reversion in this trend. In fact, notwithstanding unprecedented monetary activism exemplified by the sharp drop in base rates and the introduction of unconventional policies, a breakdown in the loans-to-money transformation ratio has meant a marked retrenchment in loan amounts in the post-crisis period. The UK experience is not unlike the euro area's, and several parallelisms can be drawn. However the pre-2008 financial exuberance and the subsequent backlash appear to have been significantly more pronounced in the UK, a fact which is confirmed both by an analysis of the evolution of macro-financial variables and ratios in the two currency areas, as well as by comparative survey evidence on ease of access loans.

The credit retrenchment that took place in the UK since 2008 can be partially explained by an economically-rational intent of corporations and households to deleverage in face of unfavourable growth prospects and a more uncertain economic environment. On the other hand, insufficiencies in credit supply have also meant that some businesses, notably SMEs, were prevented from accessing finance even when wishing to do so.

The deleveraging trend of the household sector appears well justified given the very high level of debt, notably mortgage debt, which UK households accumulated in the run-up to the crisis (Section 2.1). However, a similar deleveraging trend in the corporate sector can hinder the recovery prospects of the UK economy as, at the current juncture, non-financial corporations represent the institutional sector with the greatest leeway to take on more financing and to drive growth through investment and exports (Section 2.2). This makes it particularly important that the viable corporations that are seeking finance be able to obtain it. The combined results of a number of different surveys show, however, that loan rejection rates increased markedly in the post-crisis period for small and medium companies, something which does not appear entirely justified on the basis of changes in the characteristics of the loan applicants (Section 2.3 and Annex).

The crisis years saw the banking sector become more reluctant in lending to corporations that do not offer sufficient security and collateral. As discussed in Section 3, while this increased reluctance can be partly understood as a reaction to a riskier environment, new regulatory requirements and the need to boost capital ratios, forbearance and the comparatively low degree of competition in the UK banking sector may also mean that credit is not being allocated in a fully efficient manner.

Both a qualitative and quantitative analysis of credit supply and demand factors suggest that the observed retrenchment in credit can be understood as a combination of negative shocks to demand and supply. In particular, econometric evidence from a SVAR model presented in Section 4 suggests that the UK corporate credit market experienced a bout of sustained negative supply shocks starting at around the time of the collapse of the Lehman Brothers bank in September 2008 and which lasted until mid-2012 (Graph 43). Demand shocks were also mostly negative throughout this period, but turned positive already in 2011. The second half of 2012 and 2013 witnessed the re-emergence of positive supply shocks, possibly on account of further unorthodox measures, such as the Funding for Lending Scheme and the outright monetary transactions programme, as well as an improvement in economic outlook in the euro area and in the UK.

Notwithstanding some recent positive signs, the looser monetary policy followed by the Bank of England throughout the crisis period (Section 5) has not been sufficient in itself to re-establish lending in the economy, in particular for SMEs, who continued to experience negative credit flows and increased spreads in 2013. While monetary authorities still dispose of a mix of non-standard policies which may be implemented or stepped up to ease funding and liquidity restrictions faced by banks other, more structural, measures should continue to be considered and implemented by the authorities.
As discussed in Section 3.3, the UK banking industry experienced a government-led consolidation wave in the wake of the 2008 financial crisis which reinforced its oligopolistic structure and made it significantly concentrated by international standards. Initiatives aimed to increase banking competition should have a positive effect on access to finance and the UK authorities have so far considered or implemented a number of measures improving market structure and functioning. The creation of new challenger banks by means of divestitures of assets belonging to government-intervened banks, a key measure proposed by the Independent Commission on Banking and required by EU state aid decisions, is underway. However, in order to inject significant competitive pressure into the market it is crucial that the resulting new banks be financially balanced, operationally sound and dispose of sufficient assets and size. Also, the introduction of full bank account portability would likely have a significant impact in lowering customer switching costs. In general, improving bank competition seems particularly pertinent for the SME segment, which has fewer alternatives of non-bank financing and is otherwise inherently less competitive.

The UK authorities have currently in place several initiatives aiming at promoting financing to the economy, as reviewed in Section 5. While these initiatives have been generally positive and have helped to alleviate the negative effects of the post-crisis credit crunch, they have not been successful in reversing the negative financing trends. Also, some recent initiatives may result in rechanneling funding to mortgages rather to corporations and to SMEs. Finally, the myriad of existing initiatives makes them harder to navigate by firms and consolidating them under one institution, such as the future Business Bank, appears to be desirable in order to increase their visibility and take-up.

While large firms can finance themselves directly in wholesale markets and profit from the well-developed financial services offer of the UK (Section 2.2), SMEs largely rely on banks to obtain their external funding. There is, however, creative scope for new policies to be envisaged that promote the non-bank lending channel for SMEs (Section 2.4). For instance, the Bank of England transmits its policies of quantitative easing by purchasing government bonds or those of large and highly creditworthy companies, which face no difficulties in accessing finance. Unorthodox measures could be devised to kick-start a market for securitised SME loans from the demand side by harnessing the existing credit rating expertise of banks, the Basel II/III framework and the funds of the quantitative easing programme.

The flow of credit in the UK economy may be close to turning a corner in connection with recent improvements in the macroeconomic outturns and outlook, and as banks finish adapting to a new regulatory environment. Improving access to finance for firms and SMEs is set to remain a crucial element for driving the desirable rebalancing of the UK economy, fomenting investment and fostering the reallocation of resources to the most productive sectors of the economy throughout the on-going recovery.
ANNEX: REVIEW OF ACCESS TO FINANCE SURVEYS

This annex carries out a review and analysis of the major surveys commissioned to assess the impact of the financial crisis on SME access to finance. Three of these surveys allow for a comparative analysis of the pre- and post-crisis periods as a comparable vintage of date is available for 2007. They are the joint European Commission and European Central Bank Survey on the Access to Finance of Small and Medium-sized Enterprises (A.1), BDRC Continental's SME Finance Monitoring (A.2) and BIS's Small Business Survey 2010 (A.3). The Eurostat survey allows additionally for cross country comparisons. Another recent survey is presented in subsection A.4 (FSB's Voice of Small Business) confirming the conclusion that access to finance problems continued to be relevant throughout 2013.


The European Commission and the European Central Bank coordinated two surveys of non-financial SMEs in 20 Member States, one before the crisis (2007) and another one more recently (2010), covering approximately 25,000 businesses employing 10 to 250 workers.\(^58\)

<table>
<thead>
<tr>
<th>Success rates in obtaining loan finance</th>
<th>No success</th>
<th>Partial success</th>
<th>Success</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Country average</strong></td>
<td>13%</td>
<td>16%</td>
<td>71%</td>
</tr>
<tr>
<td><strong>UK</strong></td>
<td>21%</td>
<td>15%</td>
<td>65%</td>
</tr>
<tr>
<td><strong>UK’s rank (out of 20)</strong></td>
<td>6th</td>
<td>12th</td>
<td>12th</td>
</tr>
</tbody>
</table>

| Change in 'no success' 10-07           | 10 pp.     | 15 pp.         |

Table A.1

An analysis of the raw data of the 2010 survey, as available from Eurostat’s database, reveals the following findings for the UK:

- In 2010, one in five loan applications in the UK were non-successful, whereas the participating countries’\(^59\) simple average was 13%, ranking the UK 6th in terms of the highest frequency of loan rejections. This figure was up from 5.6% in 2007 for the UK.

- Driving the UK’s high loan rejection rates are the service sectors\(^60\), where the UK ranked 2\(^{nd}\) in rejection levels. This may be due to the fact that the services industry generally possesses poorer collateral, which could suggest a flight to security by UK creditors.

- Companies reported a worsened financial situation all over Europe, with the UK broadly in line with cross-country averages, suggesting that supply-side factors might have been comparatively more relevant in the UK.

\(^{58}\) I.e., micro-businesses with less than 10 employees were excluded.

\(^{59}\) Belgium, Bulgaria, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden and the United Kingdom.

\(^{60}\) An exception is ‘section M’ (professional, scientific and technical services).
Respondents all over Europe considered that difficulties in obtaining finance had increased. A large number of UK businesses had no opinion as to this question but those who did painted a somewhat more pessimistic picture than businesses from other countries.

Access to equity became somewhat more difficult across the surveyed countries, but appears to have deteriorated less in the UK. All equity sources considered, the UK shows a good comparative performance.

A similar pattern emerges when considering financing sources other than bank loans or equity (e.g., leasing, factoring, overdrafts, credit lines, etc.) where survey data points to a strong and resilient performance of the UK when compared with other European countries.

The reasons presented by UK banks for refusing a loan are generally in line with European averages. However, it stands out from a comparative analysis that a large number of respondents said that the banks invoked other (non-specified) reasons for refusing credit. It also stands out that, on average, UK banks considered less often that ‘too many previous loans’ was the main reason for refusing to grant a new loan.

The reasons for UK SME businesses to refuse an offered loan are very much in line with EU averages. It is interesting to note, however, that there are some mixed findings with respect to the effect of interest rates on the decision to accept a loan. On the one hand, high interest rates were pointed out by UK firms refusing a loan as the main reason in 36% of the cases (34% on average across countries), a high figure given the very low reference rates, which suggests that they were not being adequately transmitted to the market by high-street banks (as discussed in Sections 1 and 2). On the other hand, this reason had been chosen by 45% of UK respondents refusing a loan in 2007 and has thereby dropped significantly in the 2010 survey, showing the positive effects of looser monetary policy. Interest rates, however, are not the only type of borrowing costs. In fact, the importance of ‘unacceptable non-interest-rate related conditions’ rose from 13% to 23% in 2010.

According to UK businesses, the main reason limiting growth was the general economic outlook (24% of responses), followed by price competition/small margins (17%) and limited demand in local markets (13%). Not enough financing was chosen as the main reason by approximately 4% of SMEs.

A.2. BDRC Continental’s SME Finance Monitor

BDRC Continental has produced a series of independent reports on access to finance since 2011 commissioned by the Business Finance Taskforce. The reports are based on quarterly interviews covering 5,000 SMEs at a time. The main findings for 2012 as a whole are summarised in Table A.2.

---

61 The taskforce is composed of the CEOs and senior representatives of the six largest UK banks: Barclays, HSBC, Lloyds Banking Group, Royal Bank of Scotland, Santander and Standard Chartered.
Four in ten SMEs were using external finance by year-end 2012, down from approximately half of all interviewed SMEs in the first half of 2011. The percentage of borrowing SMEs shows important variations with respect to company size, ranging from 37% in the case of zero-employee businesses to 68% for those with 50 to 249 employees.

There is a discrepancy in self-reported risk assessments and external risk assessments. Self-assessments, as measured by ‘credit issues’ (e.g., bounced checks and missed loan repayments) that SMEs report to have experienced in the past do not vary markedly with company size, whereas external risk ratings are much more unfavourable for smaller companies.

Approximately 1 in 3 SMEs applying for a loan do not manage to obtain the desired facility either because they were turned down or because of other issues with the offer. Additionally, approximately 1 in 5 applicants managed to obtain funding only after going through issues with the offer. Smaller companies were much more likely to be declined than medium-sized ones. This may be due to several reasons, including the higher perceived risk of smaller companies, poorer collateral, other supply-side issues as discusses in Section 3, or the fact that lower financial literacy of smaller enterprises may lead them to apply for a loan even when they do not gather the conditions for success. Loan refusals are also seen to correlate with poorer external risk assessments and with the age of the business (start-ups and younger companies being much more likely to be rejected than established businesses).

Loan rejection rates have increased markedly from 2007 (from 4% to 34%). Rejection rates for overdraft applications have also increased, but less markedly.

---

62 As supplied by rating companies D&B and Experian.
The main purposes of SMEs applying for an overdraft in 2012 were to finance working capital, to use it as a safety net or to finance short-term funding gaps. The main purposes of SMEs applying for a loan were to buy fixed assets (29%), including motor vehicles and premises, to fund expansion in the UK (25%) and to develop new products or services (15%).

Some SMEs (7%) have not applied for funding, although they wished to do so. Discouragement and issues with the process of borrowing account for approximately 79% of the reasons for this.

A.3. BIS's Small Business Survey 2010

The Small Business Survey by the UK's Department for Business, Innovation and Skills (BIS) interviewed 3,817 SMEs between July and September 2010 on a number of questions, including access to finance. The following table compares the main findings of this survey with the results from the pre-crisis Annual Survey of Small Businesses:

Table A.3

Selected results from BIS's Small Business Survey 2010

<table>
<thead>
<tr>
<th>Eventual outcome of application for finance</th>
<th>All</th>
<th>1-9 emps</th>
<th>10-49 emps</th>
<th>50-249 emps</th>
<th>2007/08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtained all they needed:</td>
<td>68%</td>
<td>67%</td>
<td>68%</td>
<td>76%</td>
<td>89%</td>
</tr>
<tr>
<td>- From first source</td>
<td>56%</td>
<td>55%</td>
<td>61%</td>
<td>66%</td>
<td>80%</td>
</tr>
<tr>
<td>- From another source</td>
<td>11%</td>
<td>12%</td>
<td>6%</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>Obtained some, but not all</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
<td>7%</td>
<td>2%</td>
</tr>
<tr>
<td>Obtained none</td>
<td>21%</td>
<td>22%</td>
<td>19%</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>Don't know/refused</td>
<td>5%</td>
<td>5%</td>
<td>7%</td>
<td>6%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Main reasons for applying for finance

<table>
<thead>
<tr>
<th>2010</th>
<th>2007/08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working capital, cashflow</td>
<td>56%</td>
</tr>
<tr>
<td>Capital equipment or vehicles</td>
<td>21%</td>
</tr>
<tr>
<td>Buying land or buildings</td>
<td>10%</td>
</tr>
<tr>
<td>Improving buildings</td>
<td>9%</td>
</tr>
<tr>
<td>Research &amp; development</td>
<td>2%</td>
</tr>
</tbody>
</table>

Reasons for difficulties arranging finance

<table>
<thead>
<tr>
<th>2010</th>
<th>2007/08</th>
</tr>
</thead>
<tbody>
<tr>
<td>No reason given</td>
<td>24%</td>
</tr>
<tr>
<td>Insufficient security</td>
<td>20%</td>
</tr>
<tr>
<td>Business sector too risky</td>
<td>9%</td>
</tr>
<tr>
<td>Recession/current credit climate</td>
<td>6%</td>
</tr>
<tr>
<td>Poor business credit history</td>
<td>6%</td>
</tr>
<tr>
<td>Didn't meet criteria</td>
<td>5%</td>
</tr>
<tr>
<td>Rejected terms of finance offered</td>
<td>5%</td>
</tr>
<tr>
<td>No credit history/not been in business long enough</td>
<td>2%</td>
</tr>
<tr>
<td>Applied for too much</td>
<td>2%</td>
</tr>
<tr>
<td>Business too small/too new</td>
<td>2%</td>
</tr>
<tr>
<td>No security</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>14%</td>
</tr>
<tr>
<td>Don't know/refused</td>
<td>10%</td>
</tr>
</tbody>
</table>

Source: BIS's Small Business Survey 2010 and Annual Survey of Small Businesses 2007/08

Note: Total percentages are obtained using population rather than sample weights, due to stratified sampling

More SMEs have sought finance in 2010 (26%) than in the pre-crisis survey of 2007/8 (23%), suggesting a supply-side element to the observed contraction in credit. Larger firms
and firms in the primary sector were the ones that sought finance the most (45%) whereas the business services sector was the one that sought finance the least (22%).

- Of those SMEs applying for finance in 2010, 21% did not manage to obtain it while 6% were partially successful. Approximately 2 in 3 enterprises obtained all they needed, but 11% only obtained it from sources other than the first one approached. As in the SME Finance Monitor survey, rejection rates were higher among smaller SMEs. Success rates were down from 2007: the percentage of companies obtaining all the funding they needed dropped from 89% to 68%.

- In 2010, SMEs applied more to obtain financing for working capital and less for capital investment, when compared with 2007/08. This suggests that the financing of day-to-day operations became more pressing, whereas long-term investment became less important in a context of low expected growth.

- Banks offered no reasons for refusals in 24% of the cases (12% in 2007/08). The most commonly offered reason was insufficient security (20% versus 13% in 2007/08).

- Of those companies not applying for finance, 8% thought that they would be rejected or that it would be too expensive. Only 5% said it was because they didn’t want to take on more risk.

- Access to finance was not considered the main obstacle to business success, although its importance rose with the crisis (from 3% of answers in 2007/08 to 8% in 2010). As in the Eurostat survey, the adverse general economic conditions were pointed out as the major obstacle to success (33% of answers in 2010 versus 16% in 2007/08).

A.4. FSB’s Voice of Small Business survey

The Federation of Small Businesses publishes each quarter the Voice of Small Business Index based on SME survey data assessing, inter alia, credit conditions. The Index report for the third quarter of 2013 covered 2,686 respondents as its main conclusions were:

- Slightly over 20% of SMEs had applied for credit. Of these, 47% had been turned down (the decision was still pending in 11% of the cases).

- Approximately two thirds of SMEs considered that credit availability was either "quite poor" or "very poor" and more than half considered that credit was quite or very unaffordable. However, the cost of credit appears to have fallen and credit availability increased with respect to the previous year, with approximately a third of successful applicants reporting being offered interest rates of 4% or lower.
References

AFME, ‘Securitisation Data Report Q2:2013’, September 2013


BDRC Continental, ‘SME Finance Monitor Q4 2012’, March 2013a

BDRC Continental, ‘The Changing Mix of SME External Funding’, August 2013b


Breedon Taskforce, ‘Boosting Finance Options for Businesses’, March 2012

Capital Economics, ‘UK Consumer Focus - Have households fixed their balance sheets?’, September 2013

Centre for Business Research, ‘Financing UK small and medium-sized firms’, August 2008


European Commission, ‘In-depth review for the United Kingdom in accordance with Article 5 of Regulation (EU) No 1176/2011 on the prevention and correction of macroeconomic imbalances’, 2013b

European Commission, ‘European Economic Forecast - Spring 2013’, May 2013c

Federation of Small Businesses, ‘FSB Voice of Small Business Index, Quarter 3 2013’

Fraser, S., ‘The Impact of the Financial Crisis on Bank Lending to SMEs’, July 2012


HM Treasury, ‘Discussion paper on non-bank lending’, 2010


National Audit Office, ‘Improving access to finance for small and medium-sized enterprises’, November 2013

Office of Fair Trading, ‘Review of the personal current account market’, January 2013a

Office of Fair Trading, ‘Letter of advice from OFT Chief Executive, Clive Maxwell’, September 2013b


Payments Council, ‘89,000 current account switches during first month of new service’, October 2013


As of n° 120, Economic Papers can be accessed and downloaded free of charge at the following address:

No. 2  The first two years of FECOM transactions, by Robert Triffin (July 1981).
No. 3  A review of the informal Economy in the European Community, By Adrian Smith (July 1981).
No. 6  The bilateral trade linkages of the Eurolink Model : An analysis of foreign trade and competitiveness, by P. Ranuzzi (January 1982).
No. 7  United Kingdom, Medium term economic trends and problems, by D. Adams, S. Gillespie, M. Green and H. Wortmann (February 1982).
No. 8  Où en est la théorie macroéconomique, par E. Malinvaud (juin 1982).
No. 9  Marginal Employment Subsidies : An Effective Policy to Generate Employment, by Carl Chiarella and Alfred Steinherr (November 1982).
No. 10 The Great Depression: A Repeat in the 1980s ?, by Alfred Steinherr (November 1982).
No. 15 Monetary assets and inflation induced distortions of the national accounts - conceptual issues and correction of sectoral income flows in 5 EEC countries, by Alex Cukierman and Jorgen Mortensen (May 1983).
No. 17 The employment miracle in the US and stagnation employment in the EC, by M. Wegner (July 1983).
No. 20 Monetary assets and inflation induced distortions of the national accounts. The case of Belgium, by Ken Lennan (October 1983).
No. 21 Actifs financiers et distorsions des flux sectoriels dues à l’inflation: le cas de la France, par J.-P Baché (octobre 1983).
No. 22 Approche pragmatique pour une politique de plein emploi : les subventions à la création d'emplois, par A. Steinherr et B. Van Haepenen (octobre 1983).


No. 24 U.S. Deficits, the dollar and Europe, by O. Blanchard and R. Dornbusch (December 1983).


No. 26 Actifs financiers et distorsions des flux sectoriels dues à l'inflation : le cas de l'Italie, par A. Reati (janvier 1984).

No. 27 Evolution et problèmes structurels de l'économie italienne, par Q. Ciardelli, F. Colasanti et X. Lannes (janvier 1984).

No. 28 International Co-operation in Macro-economic Policies, by J.E. Meade (February 1984).


No. 30 The integration of EEC qualitative consumer survey results in econometric modelling : an application to the consumption function, by Peter Praet (February 1984).


No. 33 An analytical Formulation and Evaluation of the Existing Structure of Legal Reserve Requirements of the Greek Economy : An Uncommon Case, by G. Demopoulos (June 1984).


No. 37 Schemas for the construction of an "auxiliary econometric model" for the social security system, by A. Coppini and G. Laina (June 1985).

No. 38 Seasonal and Cyclical Variations in Relationship among Expectations, Plans and Realizations in Business Test Surveys, by H. König and M. Nerlove (July 1985).


No. 40 Rate of profit, business cycles and capital accumulation in West German industry, 1960-1981, by A. Reati (July 1985).


No. 43 Toward Understanding Major Fluctuations of the Dollar by P. Armington (January 1986).

No. 44 Predictive value of firms' manpower expectations and policy implications, by G. Nerb (March 1986).

No. 45 Le taux de profit et ses composantes dans l'industrie française de 1959 à 1981, par Angelo Reati (mars 1986).
No. 46 Forecasting aggregate demand components with opinions surveys in the four main EC-Countries - Experience with the BUSY model, by M. Biart and P. Praet (May 1986).


No. 48 Evolution et problèmes structurels de l'économie française, par X. Lannes, B. Philippe et P. Lenain (août 1986).

No. 49 Long run implications of the increase in taxation and public debt for employment and economic growth in Europe, by G. Tullio (August 1986).

No. 50 Consumers Expectations and Aggregate Personal Savings, by Daniel Weiserbs and Peter Simmons (November 1986).


No. 52 Validity and limits of applied exchange rate models : a brief survey of some recent contributions, by G. Tullio (December 1986).


No. 54 Internal and External Liberalisation for Faster Growth, by Herbert Giersch (February 1987).

No. 55 Regulation or Deregulation of the Labour Market : Policy Regimes for the Recruitment and Dismissal of Employees in the Industrialised Countries, by Michael Emerson (June 1987).


No. 57 Capital/Labour substitution and its impact on employment, by Fabienne Ilzkovitz (September 1987).

No. 58 The Determinants of the German Official Discount Rate and of Liquidity Ratios during the classical goldstandard: 1876-1913, by Andrea Sommariva and Giuseppe Tullio (September 1987).

No. 59 Profitability, real interest rates and fiscal crowding out in the OECD area 1960-1985 (An examination of the crowding out hypothesis within a portfolio model), by Jorgen Mortensen (October 1987).

No. 60 The two-handed growth strategy for Europe : Autonomy through flexible cooperation, by J. Drèze, Ch. Wyplosz, Ch. Bean, Fr. Giavazzi and H. Giersch (October 1987).

No. 61 Collusive Behaviour, R & D, and European Policy, by Alexis Jacquemin (November 1987).


No. 63 Monetary Policy Coordination Within the EMS: Is there a Rule ?, by M. Russo and G. Tullio (April 1988).


No. 65 The completion of the internal market : results of macroeconomic model simulations, by M. Catinat, E. Donni and A. Italianer (September 1988).

No. 66 Europe after the crash : economic policy in an era of adjustment, by Charles Bean (September 1988).

No. 67 A Survey of the Economies of Scale, by Cliff Pratten (October 1988).

No. 68 Economies of Scale and Intra-Community trade, by Joachim Schwalbach (October 1988).

No. 69 Economies of Scale and the Integration of the European Economy : the Case of Italy, by Rodolfo Helg and Pippo Ranci (October 1988).

No. 70 The Costs of Non-Europe - An assessment based on a formal Model of Imperfect Competition and Economies of Scale, by A. Smith and A. Venables (October 1988).
No. 71  Competition and Innovation, by P.A. Geroski (October I 988).
No. 72  Commerce Intra-Branche - Performances des firmes et analyse des échanges commerciaux dans la Communauté européenne par le Centre d'Etudes Prospectives et d'Informations Internationales de Paris (octobre 1988).
No. 73  Partial Equilibrium Calculations of the Impact of Internal Market Barriers in the European Community, by Richard Cawley and Michael Davenport (October 1988).
No. 74  The exchange-rate question in Europe, by Francesco Giavazzi (January 1989).
No. 75  The QUEST model (Version 1988), by Peter Bekx, Anne Bucher, Alexander Italianer, Matthias Mors (March 1989).
No. 76  Europe's Prospects for the 1990s, by Herbert Giersch (May 1989).
No. 77  1992, Hype or Hope : A review, by Alexander Italianer (February 1990).
No. 79  Country Studies - The United Kingdom, by Tassos Belessiotis and Ralph Wilkinson (July 1990).
No. 80  See "Länderstudien" No. 1
No. 81  Country Studies - The Netherlands, by Filip Keereman, Françoise Moreau and Cyriel Vanbelle (July 1990).
No. 83  Completion of the internal market : An application of Public Choice Theory, by Manfred Teutemann (August 1990).
No. 84  Monetary and Fiscal Rules for Public Debt Sustainability, by Marco Buti (September 1990).
No. 85  Are we at the beginning of a new long term expansion induced, by technological change ?, by Angelo Reati (August 1991).
No. 89  Microeconomics of Saving, by Barbara Kauffmann (December 1991).
No. 90  Exchange Rate Policy for Eastern Europe and a Peg to the ECU, by Michael Davenport (March 1992).
No. 91  The German Economy after Unification : Domestic and European Aspects, by Jürgen Kröger and Manfred Teutemann (April 1992).
No. 94  Regional Integration in Europe by André Sapir (September 1992).
No. 95  Hungary : Towards a Market Economy (October 1992).
No. 99 Towards budget discipline : an economic assessment of the possibilities for reducing national deficits in the run-up to EMU, by Dr. J. de Haan, Dr. C.G.M. Sterks and Prof. Dr. C.A. de Kam (December 1992).
No. 100 EC Enlargement and the EFTA Countries, by Christopher Sardelis (March 1993).
No. 102 Targeting a European Monetary Aggregate, Review and Current Issues, by Christopher Sardelis (July 1993).
No. 103 What Have We Learned About the Economic Effects of EC Integration ? - A Survey of the Literature, by Claudia Ohly (September 1993).
No. 104 Measuring the Term Structure of ECU Interest Rates, by Johan Verhaeven and Werner Röger (October 1993).
No. 106 The Implications for Firms and Industry of the Adoption of the ECU as the Single Currency in the EC, by M. Burndge and D.G. Mayes (January 1994).
No. 107 What does an economist need to know about the environment ? Approaches to accounting for the environment in statistical informations systems, by Jan Scherp (May 1994).
No. 108 The European Monetary System during the phase of transition to European Monetary Union, by Dipl.-Vw. Robert Vehrkamp (July 1994).
No. 109 Radical innovations and long waves into Pasinetti’s model of structural change : output and employment, by Angelo Reati (March 1995).
No. 110 Pension Liabilities - Their Use and Misuse in the Assessment of Fiscal Policies, by Daniele Franco (May 1995).
No. 113 Banking in Ecu - A Survey of Banking Facilities across the European Union in the ECU, Deutschmark and Dollar and of Small Firms’ Experiences and Opinions of the Ecu, by BDO Stoy Hayward Management Consultants (July 1995).
No. 114 Fiscal Revenues and Expenditure in the Community. Granger-Causality Among Fiscal Variables in Thirteen Member States and Implications for Fiscal Adjustment, by Tassos Belessiotis (July 1995).
No. 115 Potentialities and Opportunities of the Euro as an International Currency, by Agnès Bénassy-Quéré (July 1996).
No. 116 Consumer confidence and consumer spending in France, by Tassos Belessiotis (September 1996).
No. 117 The taxation of Funded Pension Schemes and Budgetary Policy, by Daniele Franco (September 1996).
No. 118 The Wage Formation Process and Labour Market Flexibility in the Community, the US and Japan, by Kieran Mc Morrow (October 1996).
No. 119 The Policy Implications of the Economic Analysis of Vertical Restraints, by Patrick Rey and Francisco Caballero-Sanz (November 1996).
No. 120 National and Regional Development in Central and Eastern Europe: Implications for EU Structural Assistance, by Martin Hallet (March 1997).
<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Authors</th>
<th>Publication Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>122</td>
<td>A dynamic analysis of France’s external trade - Determinants of merchandise imports and exports and their role in the trade surplus of the 1990s</td>
<td>Tassos Belessiotis and Giuseppe Carone</td>
<td>October 1997</td>
</tr>
<tr>
<td>123</td>
<td>QUEST II - A Multi Country Business Cycle and Growth Model</td>
<td>Werner Roeger and Jan in’t Veld</td>
<td>October 1997</td>
</tr>
<tr>
<td>126</td>
<td>The Legal Implications of the European Monetary Union under the U.S. and New York Law</td>
<td>Niall Lenihan</td>
<td>January 1998</td>
</tr>
<tr>
<td>127</td>
<td>Exchange Rate Variability and EU Trade</td>
<td>Khalid Sekkat</td>
<td>February 1998</td>
</tr>
<tr>
<td>130</td>
<td>EUCARS: A partial equilibrium model of European CAR emissions (Version 3.0)</td>
<td>Cécile Denis and Gert Jan Koopman</td>
<td>November 1998</td>
</tr>
<tr>
<td>131</td>
<td>Is There a Stable Money Demand Equation at The Community Level? - Evidence, using a cointegration analysis approach, for the Euro-zone countries and for the Community as a whole</td>
<td>Kieran Mc Morrow</td>
<td>November 1998</td>
</tr>
<tr>
<td>132</td>
<td>Differences in Monetary Policy Transmission? A Case not Closed</td>
<td>Mads Kieler and Tuomas Saarenheimo</td>
<td>November 1998</td>
</tr>
<tr>
<td>133</td>
<td>Net Replacement Rates of the Unemployed. Comparisons of Various Approaches</td>
<td>Aino Salomäki and Teresa Munzi</td>
<td>February 1999</td>
</tr>
<tr>
<td>134</td>
<td>Some unpleasant arithmetics of regional unemployment in the EU. Are there any lessons for the EMU?</td>
<td>Lucio R. Pench, Paolo Sestito and Elisabetta Frontini</td>
<td>April 1999</td>
</tr>
<tr>
<td>135</td>
<td>Determinants of private consumption</td>
<td>A. Bayar and K. Mc Morrow</td>
<td>May 1999</td>
</tr>
<tr>
<td>136</td>
<td>The NAIRU Concept - Measurement uncertainties, hysteresis and economic policy role</td>
<td>P. McAdam and K. Mc Morrow</td>
<td>September 1999</td>
</tr>
<tr>
<td>137</td>
<td>The track record of the Commission Forecasts</td>
<td>F. Keereman</td>
<td>October 1999</td>
</tr>
<tr>
<td>139</td>
<td>The millennium round: An economic appraisal</td>
<td>Nigel Nagarajan</td>
<td>November 1999</td>
</tr>
<tr>
<td>141</td>
<td>Regional Specialisation and Concentration in the EU</td>
<td>Martin Hallet</td>
<td>February 2000</td>
</tr>
<tr>
<td>143</td>
<td>Report on Financial Stability</td>
<td>Economic and Financial Committee (EFC)</td>
<td>May 2000</td>
</tr>
<tr>
<td>144</td>
<td>Estimation of Real Equilibrium Exchange Rates</td>
<td>Jan Hansen and Werner Roeger</td>
<td>September 2000</td>
</tr>
<tr>
<td>145</td>
<td>Time-Varying Nairu/Nawru Estimates for the EU’s Member States</td>
<td>K. McMorrow and W. Roeger</td>
<td>September 2000</td>
</tr>
<tr>
<td>146</td>
<td>ECFIN’s Effective tax rates. Properties and Comparisons with other tax indicators</td>
<td>Carlos Martinez-Mongay</td>
<td>October 2000</td>
</tr>
<tr>
<td>No.</td>
<td>Title</td>
<td>Authors/Institutions</td>
<td>Date</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>147</td>
<td>The Contribution of Information and Communication Technologies to Growth in Europe and the US: A Macroeconomic Analysis</td>
<td>by Werner Roeger (January 2001)</td>
<td></td>
</tr>
<tr>
<td>148</td>
<td>Budgetary Consolidation in EMU</td>
<td>by Jürgen von Hagen (ZEI, University of Bonn, Indiana University, and CEPR), Andrew Hughes Hallett (Strathclyde University, Glasgow, and CEPR), Rolf Strauch (ZEI, University of Bonn)</td>
<td>(March 2001)</td>
</tr>
<tr>
<td>149</td>
<td>A Case for Partial Funding of Pensions with an Application to the EU Candidate Countries</td>
<td>by Heikki Oksanen</td>
<td>(March 2001)</td>
</tr>
<tr>
<td>151</td>
<td>Modification of EU leading indicators based on harmonised business and consumer surveys, by the IFO Institute for economic Research, introduction by Pedro Alonso, Directorate General for Economic and Financial Affairs</td>
<td>(May 2001)</td>
<td></td>
</tr>
<tr>
<td>152</td>
<td>Are international deposits tax-driven?</td>
<td>by Harry Huizinga and Gaëtan Nicodème</td>
<td>(June 2001)</td>
</tr>
<tr>
<td>153</td>
<td>Computing effective corporate tax rates: comparisons and results, by Gaëtan Nicodème</td>
<td>(June 2001)</td>
<td></td>
</tr>
<tr>
<td>154</td>
<td>An indicator-based short-term forecast for quarterly GDP in the Euro-area</td>
<td>by Peter Grasmann and Filip Keereman</td>
<td>(June 2001)</td>
</tr>
<tr>
<td>155</td>
<td>Comparison between the financial structure of SMES and that of large enterprises (LES) using the BACH database</td>
<td>by Dorothée Rivaud (Université de Reims and CEPN-Paris), Emmanuelle Dubocage (Université de Paris 13), Robert Salais (INSEE and IDHE Cachan)</td>
<td>(June 2001)</td>
</tr>
<tr>
<td>156</td>
<td>Report on financial crisis management, by the Economic and Financial Committee</td>
<td>(July 2001)</td>
<td></td>
</tr>
<tr>
<td>157</td>
<td>EMU and asymmetries in monetary policy transmission, by Massimo Suardi</td>
<td>(July 2001)</td>
<td></td>
</tr>
<tr>
<td>158</td>
<td>Finance and economic growth – a review of theory and the available evidence, by Michael Thiel</td>
<td>(July 2001)</td>
<td></td>
</tr>
<tr>
<td>159</td>
<td>A return to the convertibility principle? Monetary and fiscal regimes in historical perspective, by Michael D. Bordo and Lars Jonung</td>
<td>(September 2001)</td>
<td></td>
</tr>
<tr>
<td>160</td>
<td>Reforms in tax-benefit systems in order to increase employment incentives in the EU, by G. Carone and A. Salomäki</td>
<td>(September 2001)</td>
<td></td>
</tr>
<tr>
<td>161</td>
<td>Policy responses to regional unemployment: lessons from Germany, Spain and Italy, by Sara Davies and Martin Hallet</td>
<td>(December 2001)</td>
<td></td>
</tr>
<tr>
<td>162</td>
<td>EU pension reform – An overview of the debate and an empirical assessment of the main policy reform options, by Kieran Mc Morrow and Werner Roeger</td>
<td>(January 2002)</td>
<td></td>
</tr>
<tr>
<td>164</td>
<td>Deposit insurance and international bank deposits, by Harry Huizinga and Gaëtan Nicodème</td>
<td>(February 2002)</td>
<td></td>
</tr>
<tr>
<td>165</td>
<td>EMU and the euro – the first 10 years - Challenges to the sustainability and price stability of the euro area - what does history tell us?</td>
<td>by Lars Jonung (February 2002)</td>
<td></td>
</tr>
<tr>
<td>166</td>
<td>Has EMU shifted policy? By F. Ballabriga and C. Martinez-Mongay</td>
<td>(February 2002)</td>
<td></td>
</tr>
<tr>
<td>168</td>
<td>The development of quantitative empirical analysis in macroeconomics, by Fernando Ballabriga</td>
<td>(April 2002)</td>
<td></td>
</tr>
<tr>
<td>169</td>
<td>Non-Ricardian fiscal policies in an open monetary union, by Javier Andrés, Fernando Ballabriga and Javier Vallés</td>
<td>(April 2002)</td>
<td></td>
</tr>
<tr>
<td>170</td>
<td>Germany’s growth performance in the 1990’s, by Directorate General for Economic and Financial Affairs</td>
<td>(May 2002)</td>
<td></td>
</tr>
</tbody>
</table>
No. 171 Report by the Economic and Financial Committee (EFC) on EU financial integration (May 2002)
No. 172 The effects of fuel price changes on the transport sector and its emissions – simulations with TREMOVE, by Jacques Delsalle (July 2002)
No. 173 Latin America’s integration processes in the light of the EU’s experience with EMU, by Heliodoro Temprano Arroyo (July 2002)
No. 174 Pension reforms: key issues illustrated with an actuarial model, by Heikki Oksanen (July 2002)
No. 175 Sector and size effects on effective corporate taxation, by Gaëtan Nicodème (August 2002)
No. 176 Production function approach to calculating potential growth and output gaps – estimates for the EU Member States and the US”, by Cecile Denis, Kieran Mc Morrow and Werner Röger (September 2002)
No. 177 Fiscal policy in Europe: how effective are automatic stabilisers? By Anne Brunila, Marco Buti and Jan in ‘t Veld (September 2002)
No. 178 Some selected simulation experiments with the European Commission’s QUEST model, by Werner Röger and Jan in ‘t Veld (October 2002)
No. 180 Revisiting the Stability and Growth Pact: grand design or internal adjustment? By Marco Buti, Sylvester Eijffinger and Daniele Franco (January 2003)
No. 182 Economic and financial market consequences of ageing populations, by K. Mc Morrow and Werner Röger (April 2003)
No. 183 How much has labour taxation contributed to European structural unemployment? by Christophe Planas, Werner Röger and Alessandro Rossi (May 2003)
No. 184 Assessment of GDP forecast uncertainty, by Staffan Lindén (May 2003)
No. 185 Foreign ownership and corporate income taxation: an empirical evaluation, by Harry Huizinga and Gaëtan Nicodème (June 2003)
No. 186 Employment protection legislation: its economic impact and the case for reform, by David Young (July 2003)
No. 187 What is the impact of tax and welfare reforms on fiscal stabilisers? A simple model and an application to EMU, by Marco Buti (European Commission) and Paul Van den Noord (OECD), (July 2003)
No. 188 Wage formation and European integration, by Torben M. Andersen (CEPR, IZA and EPRU), (July 2003)
No. 189 External assumptions, the international environment and the track record of the Commission Forecasts, by Filip Keereman (September 2003)
No. 190 European “Education Production Functions”: what makes a difference for student achievement in Europe? By Ludger Wößmann (CESifo München) (September 2003)
No. 191 Exchange Rates are a Matter of Common Concern”: Policies in the Run-Up to the Euro? By Zenon Kontolemis (September 2003)
No. 193 Remain in withdraw from the labour market? A comparative study on incentives, by Aino Salomäki (October 2003)
No. 194 Fiscal rules, inertia and discretionary fiscal policy, by Martin larch and Matteo Salto (October 2003)
No. 195 Can fiscal consolidations be expansionary in the EU? Ex-post evidence and ex-ante analysis, by Gabriele Giudice, Alessandro Turrini and Jan in ‘t Veld (December 2003)
No. 196  Population ageing and public finance targets, by Heikki Oksanen (December 2003)

No. 197  Indicators of unemployment and low-wage traps (Marginal Effective Tax Rates on Labour), by Giuseppe Carone, Aino Salomäki, Herwig Immervoll and Dominique Paturot (December 2003)

No. 198  Reviewing adjustment dynamics in EMU: from overheating to overcooling, by Servaas Deroose, Sven Langedijk and Werner Roeger (January 2004)

No. 199  Innovations, technological specialization and economic growth in the EU, by Andre Jungmittag, (February 2004)

No. 200  Issues in corporate governance, by Christoph Walkner (March 2004)

No. 201  Pension reforms: an illustrated basic analysis, by Heikki Oksanen (April 2004)

No. 202  Public investment and the EU fiscal framework, by Alessandro Turrini (May 2004)

No. 203  Fiscal effects of accession in the new Member States, by Martin Hallet (May 2004)

No. 204  The empirics of trade and growth: where are the policy recommendations?, by Klaus Wälde and Christina Wood (May 2004)

No. 205  To be or not to be in the euro? The benefits and costs of monetary unification as perceived by voters in the Swedish euro referendum 2003, by Lars Jonung (June 2004)

No. 206  Fiscal policy in EMU: Rules, discretion and political incentives, by Marco Buti and Paul van den Noord (July 2004)

No. 207  Public Pensions in the National Accounts and Public Finance Targets, by Heikki Oksanen (July 2004)

No. 208  An analysis of EU and US productivity developments (a total economy and industry level perspective), by Cécile Denis, Kieran McMorrow and Werner Röger (July 2004)

No. 209  The link between product market reform and macro-economic performance, by Rachel Griffith (IFS and CEPR) and Rupert Harisson (IFS) (August 2004)

No. 210  Improving fiscal policy in the EU: the case for independent forecasts, by Lars Jonung and Martin Larch (August 2004)

No. 211  Economics of the Common Agricultural Policy; by Rainer Wichern (August 2004)

No. 212  Determinants of European cross-border mergers and acquisitions, by Miriam Manchin (September 2004)

No. 213  The determinants of part-time work in EU countries: empirical investigations with macro-panel data, by Hielke Buddelmeyer (MIAESR & IZA), Gilles Mourre (ECFIN) and Melanie Ward (ECB, CEPR and IZA) (September 2004)

No. 214  Trade agreements and trade flows: Estimating the Effect of Free Trade Agreements on Trade Flows with an Application to the European Union - Gulf Cooperation Council Free Trade Agreement, by Scott L. Baier (Clemson University) and Jeffrey H. Bergstrand (University of Notre Dame) (September 2004)

No. 215  A useful tool to identify recessions in the Euro-area by Pilar Bengoechea (Directorate-General for Economic and Financial Affairs) and Gabriel Pérez Quirós (Bank of Spain) (October 2004)

No. 216  Do labour taxes (and their composition) affect wages in the short and the long run? by Alfonso Arpaia and Giuseppe Carone (October 2004)

No. 217  Investment in education: the implications for economic growth and public finances, by Andrea Montanino, Bartosz Przywara and David Young (November 2004)

No. 218  Product market reforms and productivity: a review of the theoretical and empirical literature on the transmission channels, by Gaëtan Nicodème and Bernard Sauner-Leroy (November 2004)

No. 219  A sorted leading indicators dynamic (SLID) factor model for short-run euro-area GDP forecasting, by Daniel Grenouilleau (December 2004)
No. 220  An estimated new keynesian dynamic stochastic general equilibrium model of the Euro area, by Marco Ratto, Werner Röger, Jan in't Veld and Riccardo Girardi (January 2005)

No. 221  The Lisbon Strategy and the EU's structural productivity problem, by C. Denis, K. Mc Morrow, W. Röger and R. Veugelers (February 2005)

No. 222  Impact of Market Entry and Exit on EU Productivity and Growth Performance, by Michele Cincera (DULBEA-CERT, ULB and CEPR) and Olivia Galgau (DULBEA, ULB)

No. 223  The framework for fiscal policy in EMU: What future after five years of experience? By Elena Flores, Gabriele Giudice and Alessandro Turrini, (March 2005)

No. 224  How costly was the crisis of the 1990s? A comparative analysis of the deepest crises in Finland and Sweden over the last 130 years, by Lars Jonung (Directorate-General for Economic and Financial Affairs) and Thomas Hagberg (Ekonomistyrningsverket, Stockholm) (March 2005)

No. 225  Sustainability of EU public finances, by Fernando C. Ballabriga (ESADE Business School and Carlos Martinez-Mongay (Directorate-General for Economic and Financial Affairs) (April 2005)

No. 226  Integration and consolidation in EU banking - an unfinished business, by Christoph Walkner and Jean-Pierre Raes (Directorate-General for Economic and Financial Affairs) (April 2005)


No. 230  Actuarial neutrality across generations applied to public pensions under population ageing: effects on government finances and national saving, by Heikki Oksanen (Directorate-General for Economic and Financial Affairs) (July 2005)

No. 231  State Aid to Investment and R&D, by David R.Collie (Cardiff Business School, Cardiff University) (July 2005)


No. 233  Progressive Taxation, Macroeconomic Stabilization and efficiency in Europe, by Carlos Martinez-Mongay (Directorate-General for Economic and Financial Affairs) and Khalid Sekkat (University of Brussels)

No. 234  Economic forecasts and fiscal policy in the recently acceded Member States, by Filip Keereman (Directorate-General for Economic and Financial Affairs) (November 2005)


No. 236  The economic impact of ageing populations in the EU25 Member States, by Giuseppe Carone, Declan Costello, Nuria Diez Guardia, Gilles Mourre, Bartosz Przywara, Aino Salomaki (Directorate-General for Economic and Financial Affairs) (December 2005)

No. 237  The boom-bust Cycle in Finland and Sweden 1984-1995 in an international perspective, by Lars Jonung (Directorate-General for Economic and Financial Affairs), Ludger Schuknecht and Mika Tujula (ECB) (December 2005)

No. 238  Labour market institutions and labour market performance: a survey of the literature, by Alfonso Arpaia and Gilles Mourre (Directorate-General for Economic and Financial Affairs) (December 2005)

No. 239  Tracking labour market reforms in the EU Member States: an overview of reforms in 2004 based on the LABREF database, by Alfonso Arpaia, Declan Costello, Gilles Mourre and Fabiana Pierini (Directorate-General for Economic and Financial Affairs) (December 2005)
<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Author(s)</th>
<th>Institute/University</th>
</tr>
</thead>
<tbody>
<tr>
<td>240</td>
<td>Using Factor Models to Construct Composite Indicators from BCS Data - A Comparison with European Commission Confidence Indicators</td>
<td>Christian Gayer* and Julien Genet** (Directorate-General for Economic and Financial Affairs and Hendyplan, Brussels)</td>
<td></td>
</tr>
<tr>
<td>241</td>
<td>Will the New Stability and Growth Pact Succeed? An Economic and Political Perspective</td>
<td>Marco Buti (Directorate-General for Economic and Financial Affairs)</td>
<td></td>
</tr>
<tr>
<td>242</td>
<td>Cross-border mergers and acquisitions and the role of trade costs, by Alexander Hijzen* (University of Nottingham), Holger Görg (University of Nottingham and DIW Berlin) and Miriam Manchin (Tinbergen Institute, Rotterdam University)</td>
<td>(February 2006)</td>
<td></td>
</tr>
<tr>
<td>243</td>
<td>The link between product market reform, innovation and EU macroeconomic performance</td>
<td>Rachel Griffith, Rupert Harrison and Helen Simpson, Institute for Fiscal Studies (IFS)</td>
<td></td>
</tr>
<tr>
<td>244</td>
<td>Study on methods to analyse the impact of State aid on competition, by Rainer Nitsche (CRA International) and Paul Heidhues (University of Bonn and CEPR)</td>
<td>(February 2006)</td>
<td></td>
</tr>
<tr>
<td>246</td>
<td>Economic Spillover and Policy Coordination in the Euro Area</td>
<td>Klaus Weyerstrass, Johannes Jaenicke, Reinhard Neck, Gottfried Haber (Institute for Advanced Studies, Carinthia) and Bas van Aarle, Koen Schoors, Niko Gobbin, Peter Claeyts (Gent University)</td>
<td></td>
</tr>
<tr>
<td>247</td>
<td>Calculating potential growth rates and output gaps: A revised production function approach</td>
<td>Cécile Denis, Daniel Grenouilleau, Kieran Mc Morrow and Werner Röger (Directorate-General for Economic and Financial Affairs)</td>
<td></td>
</tr>
<tr>
<td>251</td>
<td>The macroeconomic effects of a pandemic in Europe - A model-based assessment</td>
<td>Lars Jonung and Werner Röger (Directorate-General for Economic and Financial Affairs) (June 2006)</td>
<td></td>
</tr>
<tr>
<td>252</td>
<td>Assessing the factors of resilience of private consumption in the euro area</td>
<td>Servaas Deroose (Directorate-General for Economic and Financial Affairs) (June 2006)</td>
<td></td>
</tr>
<tr>
<td>253</td>
<td>Long-term labour productivity and GDP projections for the EU25 Member States : a production function framework</td>
<td>Giuseppe Carone, Cécile Denis, Kieran Mc Morrow, Gilles Mourre and Werner Röger (Directorate-General for Economic and Financial Affairs) (June 2006)</td>
<td></td>
</tr>
<tr>
<td>255</td>
<td>Monetary and exchange rate agreements between the European Community and Third Countries</td>
<td>B. Lamine (Directorate-General for Economic and Financial Affairs) (September 2006)</td>
<td></td>
</tr>
<tr>
<td>256</td>
<td>Labour Migration Patterns in Europe: Recent Trends, Future Challenges</td>
<td>N. Diez Guardia and K. Pichelmann (Directorate-General for Economic and Financial Affairs) (September 2006)</td>
<td></td>
</tr>
<tr>
<td>257</td>
<td>Pension systems, intergenerational risk sharing and inflation</td>
<td>R. Beetsma (University of Amsterdam) and A.L. Bovenberg (Tilburg University) (October 2006)</td>
<td></td>
</tr>
</tbody>
</table>
No. 259  Global Trade Integration and Outsourcing: How Well is the EU Coping with the New Challenges? by Karel Havik and Kieran Mc Morrow (Directorate-General for Economic and Financial Affairs) (October 2006)

No. 260  International profit shifting within multinationals: a multi-country perspective, by Harry Huizinga (Tilburg University) and Luc Laeven (International Monetary Fund) (December 2006)

No. 261  What a difference does it make? Understanding the empirical literature on taxation and international capital flows, by Ruud A. de Mooij (CPB Netherlands Bureau for Economic Policy Analysis) and Sjef Ederveen (Ministry of Economic Affairs, the Netherlands) (December 2006)


No. 263  Input Capital structure and international debt shifting by Harry Huizinga (Tilburg University), Luc Laeven (International Monetary Fund), Gaëtan Nicodème (Directorate-General for Economic and Financial Affairs) (December 2006)

No. 264  The Corporate Income Tax: international trends and options for fundamental reform, by Michael P. Devereux (Oxford University) and Peter Birch Sørensen (University of Copenhagen) (December 2006)

No. 265  Reforming the taxation of multijurisdictional enterprises in Europe: a tentative appraisal, by Marcel Gérard (Catholic University of Mons) (December 2006)

No. 266  Fiscal policy in an estimated open-economy model for the Euro area, by Marco Ratto, Werner Roeger, Jan in ’t Veld (Directorate-General for Economic and Financial Affairs) (December 2006)


No. 268  Public pension expenditure in the EPC and the European Commission projections: an analysis of the projection results by Aino Salomäki (Directorate-General for Economic and Financial Affairs) (December 2006)

No. 269  Corporate tax policy, entrepreneurship and incorporation in the EU by Ruud A. De Mooij (CPB Netherlands Bureau for Economic Policy Analysis) and Gaëtan Nicodème (Directorate-General for Economic and Financial Affairs) (December 2006)

No. 270  Policy rule evaluation by contract-makers: 100 years of wage contract length in Sweden, by Klas Fregert (Department of Economics University of Lund, Sweden) and Lars Jonung (Directorate-General for Economic and Financial Affairs)


No. 272  Study on the feasibility of a tool to measure the macroeconomic impact of structural reforms Christian Dreger (DIW), Manuel Artís (AQR), Rosina Moreno (AQR), Raúl Ramos (AQR), Jordi Suriñach (AQR), Edited by Directorate-General for Economic and Financial Affairs

No. 273  How reliable are the statistics for the Stability and Growth Pact?, by Luis Gordo Mora (Banco de Espana) and Joao Nogueira Martins (Directorate-General for Economic and Financial Affairs) (February 2007)

No. 274  Adjustment in EMU: A model-based analysis of country experiences, by Sven Langedijk and Werner Roeger (Directorate-General for Economic and Financial Affairs) (March 2007)


No. 276  The political economy of public investment, by Roel M.W.J.Beetsma (University of Amsterdam, Tinbergen Institute, CEPR and CESifo), Frederick van der Ploeg (EUI, Florence, University of Amsterdam, CEPR and CESifo) (April 2007)
No. 277 ECB vs. Council vs. Commission: Monetary and Fiscal Policy Interactions in the EMU when Cyclical Conditions Are Uncertain, by Fabio Balboni (University of Bologna), Marco Generali (General for Economic and Financial Affairs) (April 2007)

No. 278 Robust Monetary Policy with the Cost Channel, by Peter Tillmann (University of Bonn) (May 2007)


No. 281 Nominal and real wage flexibility in EMU, by Alfonso Arpaia (European Commission, Directorate General for Economic and Financial Affairs), Karl Pichelmann (European Commission, Directorate General for Economic and Financial Affairs and Associate Professor, Institute d'Études Européennes - Université Libre de Bruxelles) (June 2007)

No. 282 Quantitative Assessment of Structural Reforms: Modelling the Lisbon Strategy, by Alfonso Arpaia, Isabel Grilo, Werner Roeger, Jan in’t Veld and Peter Wobst (European Commission, Directorate General for Economic and Financial Affairs) (June 2007)

No. 283 The Potential Impact of the Fiscal Transfers under the EU Cohesion Policy Programme, by Jan in’t Veld (European Commission, Directorate General for Economic and Financial Affairs) (June 2007)


No. 285 Testing the EU fiscal surveillance: How sensitive is it to variations in output gap estimates?, by Sven Langedijk and Martin Larch (European Commission, Directorate General for Economic and Financial Affairs) (August 2007)


No. 288 Towards Inflation Targeting in Egypt: Fiscal and institutional reforms to support disinflation efforts, by Hoda Abdel-Ghaffar Youssef (Former intern at European Commission, Directorate General for Economic and Financial Affairs) (September 2007)

No. 289 Pension Systems, Ageing and the Stability and Growth Pact, by Roel Beetsma (University of Amsterdam, CEPR and CESifo) and Heikki Oksanen (European Commission, Directorate General for Economic and Financial Affairs) (October 2007)


No. 291 The track record of the Commission’s forecasts - an update, by A. Melander, G. Sismanidis and D. Grenouillé (European Commission, Directorate General for Economic and Financial Affairs) (October 2007)

No. 292 Price convergence in the enlarged internal market, by Christian Dreger (coordinator of the study), Konstantin Kholodilin, Kirsten Lommatzsch, Jirka Slácalek (German Institute for Economic Research (DIW Berlin)) and Przemysław Woźniak (Center for Social and Economic Research (CASE Warzaw)) (November 2007)


No. 295 Where does Capital Flow? A Comparison of U.S. States and EU Countries 1950-2000. by Sebnem Kalemli-Ozcan (University of Houston and NBER), Bent E. Sorensen (University of Houston and CPER) and Belgi Turan (University of Houston) (December 2007)

No. 296 The euro – what's in it for me? An economic analysis of the Swedish Euro Referendum of 2003 by Lars Jonung (European Commission, Directorate General for Economic and Financial Affairs) and Jonas Vlachos (University of Stockholm) (December 2007)


No. 298 (To be published)

No. 299 Hedging and invoicing strategies to reduce exchange rate exposure: a euro area perspective by Björn Döhring (European Commission, Directorate General for Economic and Financial Affairs) (January 2008)

No. 300 Government expenditure and economic growth in the EU: long-run tendencies and short-term adjustment by Alfonso Arpaia (European Commission, Directorate General for Economic and Financial Affairs) and Alessandro Turrini (European Commission, Directorate General for Economic and Financial Affairs and CEPR) (February 2008)

No. 301 The effectiveness and efficiency of public spending by Ulrike Mandl, Adriaan Dierx and Fabienne Ilzkovitz (European Commission, Directorate General for Economic and Financial Affairs) (February 2008)

No. 302 European economic and monetary integration, and the optimum currency area theory by Francesco Paolo Mongelli (ECB) (February 2008)

No. 303 Sui Generis EMU by Barry Eichengreen (University of California, Berkeley) (February 2008)

No. 304 Euro Area Enlargement and Euro Adoption Strategies by Zsolt Darvas (Corvinus University of Budapest and Argenta ZRt ) and György Szapáry (Central European University and former Deputy Governor of the National Bank of Hungary) (February 2008)

No. 305 Coordination without explicit cooperation: monetary-fiscal interactions in an era of demographic change by Andrew Hughes Hallett (George Mason University, University of St Andrews and CEPR) (February 2008)

No. 306 EMU’s decentralized system of fiscal policy by Jürgen von Hagen (Department of Economics, University of Bonn) and Charles Wyplosz (Graduate Institute of International Studies and CEPR) (February 2008)

No. 307 A long term perspective on the euro by Michael Bordo (Rutgers University and NBER) and Harold James (Princeton University and European University Institute) (February 2008)

No. 308 A modern reconsideration of the theory of Optimal Currency Areas by Giancarlo Corsetti (European University Institute, University of Rome III, and CEPR) (March 2008)

No. 309 The impact of the euro on international stability and volatility by Stefan Gerlach (Institute for Monetary and Financial Stability, University of Frankfurt and CEPR) and Mathias Hoffmann (Institute for Empirical Research in Economics, University of Zurich) (March 2008)

No. 310 Taxation policy in EMU by Julian Alworth (Said Business School Oxford University and Econpubblica – Università Bocconi) and Giampaolo Arachi (Università del Salento and Econpubblica – Università Bocconi) (March 2008)

No. 311 Economic governance in an enlarged euro area by Iain Begg (European Institute, London School of Economic and Political Science) (March 2008)
No 312 Financial market integration under EMU by Tullio Jappelli and Marco Pagano (University of Naples Federico II, CSEF and CEPR) (March 2008)

No 313 Is the euro advantageous? Does it foster European feelings? Europeans on the euro after five years by Lars Jonung (European Commission, Directorate General for Economic and Financial Affairs) and Cristina Conflitti (ECARES Université Libre de Bruxelles) (March 2008)

No 314 The ECB and the bond market by Carlo Favero (IGIER-Università Bocconi and CEPR) and Francesco Giavazzi (IGIER-Università Bocconi, MIT, CEPR and NBER) (March 2008)

No 315 Factor mobility and the distribution of economic activity in integrated economies: evidence and implications by Harry P. Bowen (McColl School of Business, Queens University of Charlotte), Haris Munundar (Bank Indonesia, Bureau of Economic Research) and Jean-Marie Viaene (Erasmus University Rotterdam, Tinbergen Institute and CESifo) (March 2008)

No 316 Government size and output volatility: should we forsake automatic stabilization? By Xavier Debrun (International Monetary Fund), Jean Pisani-Ferry (Bruegel and Université Paris-Dauphine) and André Sapir (Université Libre de Bruxelles, Bruegel and CEPR) (April 2008)

No 317 The international role of the euro: a status report by Elias Papaioannou (Dartmouth College) and Richard Portes (London Business School and CEPR) (April 2008)

No 318 The impact of EMU on growth and employment by Ray Barrell, Sylvia Gottschalk, Dawn Holland, Ehsan Khorman, Iana Liadze and Olga Pomerantz (NIESR) (April 2008)


No 320 Received wisdom and beyond: Lessons from fiscal consolidation in the EU by Martin Larch and Alessandro Turrini (European Commission, Directorate-General for Economic and Financial Affairs) (April 2008)

No 321 Study on the impact of the euro on trade and foreign direct investment by Richard Baldwin (Graduate Institute, Geneva), Virginia DiNino (Bank of Italy), Lionel Fontagné (Paris School of Economics and Université Paris I), Roberto A. De Santis and Daria Taglioni (ECB) (May 2008)

No 322 Adjustment dynamics in the euro area – A Fresh look at the role of fiscal policy using a DSGE approach by G. Russell Kincaid (International Monetary Fund) (May 2008)

No 323 Fiscal policy and the cycle in the Euro Area: The role of government revenue and expenditure by Alessandro Turrini (European Commission, Directorate-General for Economic and Financial Affairs) (May 2008)

No 324 Defying the ‘Juncker Curse’: can reformist governments be re-elected? by Marco Buti, Alessandro Turrini, Paul Van den Noord (European Commission, Directorate-General for Economic and Financial Affairs), and Pietro Biroli (Rodolfo Debenedetti Foundation) (May 2008)


No 326 ‘Constrained Flexibility’ as a tool to facilitate reform of the EU budget by Marco Buti and Mario Nava (European Commission, Directorate-General for Economic and Financial Affairs) (June 2008)

No 327 The economic aspects of the energy sector in CIS countries by CASE (Centre for Social and Economic Research) (June 2008)


No 329 Monetary and Financial Integration in East Asia: The Relevance of European Experience by Yung Chul Park (Korea University) and Charles Wyplosz (The Graduate Institute, Geneva and CEPR) (September 2008)

No 330 ECB Credibility and Transparency by Petra M. Geraats (University of Cambridge) (June 2008)
No 331 The Great Moderation in the euro area: What role have macroeconomic policies played? by Laura González Cabanillas and Eric Ruscher (European Commission, Directorate-General for Economic and Financial Affairs) (June 2008)

No 332 Sovereign bond market integration: the euro, trading platforms and globalisation by Guntram B. Wolff (European Commission, Directorate-General for Economic and Financial Affairs) and Alexander Schulz (Deutsche Bundesbank) (June 2008)

No 333 Time-varying integration, the euro and international diversification strategies by Lieven Baele (Tilburg university, CentER and Netspar) and Koen Inghelbrecht (Ghent university) (July 2008)

No 334 Risk sharing and portfolio allocation in EMU by Yuliya Demyanyk (Federal Reserve Bank of St. Louis), Charlotte Ostergaard (Norwegian School of Management and Norges Bank) and Bent E. Sørensen (University of Houston and CEPR) (July 2008)

No 335 QUEST III: an estimated DSGE model of the euro area with fiscal and monetary policy by Marco Ratto (JRC), Werner Roeger and Jan in ’t Veld (European Commission, Directorate-General for Economic and Financial Affairs) (July 2008)


No 337 The quality of public finances and economic growth by Salvador Barrios and Andrea Schaechter (European Commission, Directorate-General for Economic and Financial Affairs) (September 2008)

No 338 Mobility in Europe – Why it is low, the bottlenecks, and the policy solutions by Alexandre Janiak (Sciences Po, ULB and Universidad de Chile) and Etienne Wasmer (Sciences Po, OFCE) (September 2008)

No 339 How product market reforms lubricate shock adjustment in the euro area by Jacques Pelkmans (College of Europe and Vlerick School of Management), Lourdes Acedo Montoya (CEPS) and Alessandro Maravalle (College of Europe) (October 2008)

No 340 Fiscal Policy, intercountry adjustment and the real exchange rate within Europe by Christopher Allsopp (University of Oxford) and David Vines (University of Oxford and Australian National University) (October 2008)

No 341 Global impact of a shift in foreign reserves to Euros by Fritz Breuss (Europainstitut and Department of Economics, Vienna University of Economics and Business Administration), Werner Roeger and Jan in ’t Veld (European Commission, Directorate-General for Economic and Financial Affairs) (November 2008)

No 342 Adjustment capacity to external shocks of EU candidate and potential candidate countries of the Western Balkans, with a focus on labour markets, and background studies (final report - vol. I and countries studies - vol. II) by European Commission, Directorate-General for Economic and Financial Affairs and the Vienna Institute for International Economic Studies (November 2008)

No 343 The role of the euro in Sub-Saharan Africa and in the CFA franc zone by Martin Hallet (European Commission, Directorate-General for Economic and Financial Affairs) (November 2008)
No 348  Costs and benefits of running an international currency by Elias Papaioannou (Dartmouth College and CEPR) and Richard Portes (London Business School and CEPR) (November 2008)

No 349  Economic impact of migration flows following the 2004 EU enlargement process – A model based analysis - by Francesca D’Auria, Kieran Mc Morrow (European Commission, Directorate-General for Economic and Financial Affairs) and Karl Pichelmann (European Commission, Directorate-General for Economic and Financial Affairs and Institut d'études européennes, Université Libre de Bruxelles) (November 2008)


No 351  Structural Reforms in the EU: A simulation-based analysis using the QUEST model with endogenous growth by Werner Roeger, Janos Varga and Jan in ‘t Veld (European Commission, Directorate-General for Economic and Financial Affairs) (December 2008)

No 352  Asia-Europe: the third link by Jérémie Cohen-Setton and Jean Pisani-Ferry (Brugel) (December 2008)

No 353  Constricted, lame and pro-cyclical? Fiscal policy in the euro area revisited by Servaas Deroose, Martin Larch and Andrea Schaechter (European Commission, Directorate-General for Economic and Financial Affairs) (December 2008)


No 355  Competitiveness and growth in EMU: The role of the external sector in the adjustment of the Spanish economy by Carlos Martinez-Mongay (European Commission, Directorate-General for Economic and Financial Affairs) and Luis Angel Maza Lasierra (Bank of Spain and European Commission) (January 2009)

No 356  International Taxation and Multinational Firm Location Decisions by Salvador Barrios (European Commission, Directorate-General for Economic and Financial Affairs), Harry Huizinga (Tilburg University and CEPR), Luc Laeven (International Monetary Fund and CEPR), Gaëtan Nico dème (European Commission, Directorate-General for Economic and Financial Affairs, CEB, CESifo and ECARES) (January 2009)

No 357  Fiscal Policy with Credit Constrained Households by Werner Roeger and Jan in ‘t Veld (European Commission, Directorate-General for Economic and Financial Affairs) (January 2009)


No 359  Taxes and employment – is there a Scandinavia puzzle? by Torben M. Andersen (School of Economics and Management, Aarhus University, CEPR, CESifo and IZA) (February 2009)

No 360  The Swedish model for resolving the banking crisis of 1991 - 93. Seven reasons why it was successful by Lars Jonung (European Commission, Directorate-General for Economic and Financial Affairs) (February 2009)

No 361  An Evaluation of the EU’s Fifth Enlargement with special focus on Bulgaria and Romania by Fritz Breuss (Research Institute for European Affairs (Europainstitut) and Vienna University of Economics and Business Administration) (March 2009)

No 362  Real convergence, financial markets, and the current account – Emerging Europe versus emerging Asia by Sabine Herrmann (Deutsche Bundesbank) and Adalbert Winkler (Frankfurt School of Finance & Management) (March 2009)

No 363  Migration in an enlarged EU: A challenging solution? By Martin Kahanec (IZA) and Klaus F. Zimmermann (IZA, DIW Berlin, Bonn University, and Free University of Berlin) (March 2009)

No 364  Evolving pattern of intra-industry trade specialization of the new Member States (NMS) of the EU: the case of automotive industry by Elżbieta Kawecka-Wyżykowska (Warsaw School of Economics) (March 2009)

No 365  The consistency of EU foreign policies towards new member states by Jean-Claude Berthélemy and Mathilde Maurel (Centre d’Economie de la Sorbonne, University Paris 1) (March 2009)
No 366 The Second Transition: Eastern Europe in Perspective by Stefania Fabrizio, Daniel Leigh, and Ashoka Mody (IMF) (March 2009)

No 367 The EU Enlargement and Economic Growth In the CEE New Member Countries by Ryszard Rapacki and Mariusz Próchniak (Warsaw School of Economics) (March 2009)

No 368 Sustainable Real Exchange Rates in the New EU Member States: Is FDI a Mixed Blessing? By Jan Babecký (Czech National Bank), Aleš Bulíř (International Monetary Fund) and Kateřina Šmídková (Czech National Bank and Charles University) (March 2009)

No 369 FDI Spillovers in the Czech Republic: Takeovers vs. Greenfields by Juraj Stančík (CERGE-EI) (March 2009)

No 370 Saving in an ageing society with public pensions: implications from lifecycle analysis by Heikki Oksanen (European Commission, Directorate-General for Economic and Financial Affairs) (March 2009)

No 371 A Model-based Assessment of the Macroeconomic Impact of EU Structural Funds on the New Members States by Janos Varga and Jan in ’t Veld (European Commission, Directorate-General for Economic and Financial Affairs) (March 2009)

No 372 The quest for the best consumer confidence indicator by Andreas Jonsson and Staffan Lindén (European Commission, Directorate-General for Economic and Financial Affairs) (March 2009)

No 373 Money demand in the euro area: new insights from disaggregated data by Ralph Setzer and Guntram B. Wolff (European Commission, Directorate-General for Economic and Financial Affairs) (March 2009)

No 374 The cyclically-adjusted budget balance in EU fiscal policy making: A love at first sight turned into a mature relationship by Martin Larch and Alessandro Turrini (BEPA, European Commission, Directorate-General for Economic and Financial Affairs) (March 2009)

No 375 External rebalancing is not just an exporters’ story: real exchange rates, the non-tradable sector and the euro by Eric Ruscher and Guntram B. Wolff (European Commission, Directorate-General for Economic and Financial Affairs) (March 2009)

No 376 Efficiency of public spending in support of R&D activities by Michele Cincera (ULB, CEPR and JRC-IPTS), Dirk Czarnitzki and Susanne Thorwarth (KUL & ZEW) (April 2009)


No 378 The so-called ’sovereign wealth funds’: regulatory issues, financial stability and prudential supervision by Simone Mezzacapo (University of Perugia) (April 2009)

No 379 Understanding labour income share dynamics in Europe by Alfonso Arpaia, Esther Pérez and Karl Pichelmann (European Commission, Directorate-General for Economic and Financial Affairs) (May 2009)

No 380 Price rigidity in the euro area — An assessment by Emmanuel Dhyne (National Bank of Belgium and Université de Mons-Hainaut), Jerzy Konieczny (Wilfried Laurier University and Rimini Centre for Economic Analysis), Fabio Rumler (National Bank of Austria) and Patrick Sevestre (National Bank of France and Paris School of Economics, Université Paris 1 – Panthéon Sorbonne) (May 2009)

No 381 The euro and prices: changeover-related inflation and price convergence in the euro area by Jan-Egbert Sturm, Ulrich Fritsche, Michael Graff, Michael Lamla, Sarah Lein, Volker Nitsch, David Liechti and Daniel Triet (KOF Swiss Economic Institute, ETH Zurich) (June 2009)

No 382 Gauging by numbers: A first attempt to measure the quality of public finances in the EU by Salvador Barrios and Andrea Schaechter (European Commission, Directorate-General for Economic and Financial Affairs) (July 2009)

No 383 Lessons for China from financial liberalization in Scandinavia by Hongyi Chen (HKIMR, Hong Kong) Lars Jonung (European Commission, Directorate-General for Economic and Financial Affairs) and Olaf Unteroberdoerster (IMF, Washington DC) (August 2009)
| No. 384 | The diffusion/adoption of innovation in the Internal Market by Jordi Suriñach, Fabio Manca, Rosina Moreno (Anàlisi Quantitativa Regional-IREA (AQR-IREA) – Universitat de Barcelona), Corinne Autant-Bernard and Nadine Massard (Centre de Recherches Economiques de l’Université De Saint-Etienne - CREUSET) (September 2009) |
| No. 386 | Growth and economic crises in Turkey: leaving behind a turbulent past? By Mihai Macovei (European Commission, Directorate-General for Economic and Financial Affairs) (October 2009) |
| No. 387 | A model-based analysis of the impact of cohesion policy expenditure 2000-06: simulations with the QUEST III endogenous R&D model by Janos Varga and Jan in ‘t Veld (European Commission, Directorate-General for Economic and Financial Affairs) (October 2009) |
| No. 388 | Determinants of intra-euro area government bond spreads during the financial crisis by Salvador Barrios, Per Iversen, Magdalena Lewandowska and Ralph Setzer (European Commission, Directorate-General for Economic and Financial Affairs) (November 2009) |
| No. 389 | Macroeconomic effects of cost savings in public procurement by Lukas Vogel (European Commission, Directorate-General for Economic and Financial Affairs) (November 2009) |
| No. 390 | Study on the efficiency and effectiveness of public spending on tertiary education by Miguel St. Aubyn, Álvaro Pina, Filomena Garcia and Joana Pais (ISEG – Technical University of Lisbon) (November 2009) |
| No. 391 | Institutions and Performance in European Labour Markets: Taking a fresh look at evidence by Alfonso Arpaia (European Commission, DG Economic and Financial Affairs and IZA ) and Gilles Mourre (European Commission, DG Economic and Financial Affairs, Solvay Brussels School of Economics and Management, Université Libre de Bruxelles (ULB) (November 2009) |
| No. 392 | A comparison of structural reform scenarios across the EU member states – Simulation-based analysis using the QUEST model with endogenous growth by Francesca D’Auria, Andrea Pagano, Marco Ratto and Janos Varga (European Commission, Directorate-General for Economic and Financial Affairs) (December 2009) |
| No. 393 | EU accession: A road to fast-track convergence? By Uwe Böwer and Alessandro Turrini (European Commission, Directorate-General for Economic and Financial Affairs) (December 2009) |
| No. 394 | Study on Quality of Public Finances in Support of Growth in the Mediterranean Partner Countries of the EU by CASE – Centre for Social and Economic Research (December 2009) |
| No. 396 | Did the introduction of the euro impact on inflation uncertainty? An empirical assessment by Matthias Hartmann and Helmut Herwartz (Christian-Albrechts-University Kiel) (December 2009) |
| No. 397 | Using a DSGE model to look at the recent boom-bust cycle in the US by Marco Ratto, Werner Roeger and Jan in ‘t Veld (European Commission, Directorate-General for Economic and Financial Affairs) (January 2010) |
| No. 399 | How to close the productivity gap between the US and Europe: A quantitative assessment using a semi-endogenous growth model by Werner Roeger, Janos Varga and Jan in ‘t Veld (European Commission, Directorate-General for Economic and Financial Affairs) (January 2010) |
| No. 400 | The role of technology in health care expenditure in the EU by Kamil Dybczak and Bartosz Przywara (European Commission, Directorate-General for Economic and Financial Affairs) (February 2010) |
| No. 401 | An indicator-based assessment framework to identify country-specific challenges towards greener growth by Joan Canton, Ariane Labat and Anton Roozhuijen (European Commission, Directorate-General for Economic and Financial Affairs) (February 2010) |
No. 402 Business Cycle Synchronization in Europe: Evidence from the Scandinavian Currency Union by U. Michael Bergman (University of Copenhagen) and Lars Jonung (European Commission, Directorate-General for Economic and Financial Affairs) (February 2010)

No. 403 Market Integration and Technological Leadership in Europe by René Belderbos, Leo Sleuwaegen and Reinhilde Veugelers (Vlerick Leuven Gent Management School) (commissioned by European Commission, Directorate-General for Economic and Financial Affairs) (February 2010)


No. 405 EU labour market behaviour during the Great Recession by Alfonso Arpaia and Nicola Curci (European Commission, Directorate-General for Economic and Financial Affairs) (February 2010)

No. 406 Options for International Financing of Climate Change Mitigation in Developing Countries by Mark Hayden, Žiga Žarnić (European Commission, Directorate-General for Economic and Financial Affairs) and Paul J.J. Veenendaal (CPB Netherlands) (February 2010)

No. 407 Heterogeneity in money holdings across euro area countries: the role of housing by Ralph Setzer, Paul van den Noord, Guntram B. Wolff (European Commission, Directorate-General for Economic and Financial Affairs) (February 2010)


No. 410 Does capacity utilisation help estimating the TFP cycle by C. Planas, W. Roeger and A. Rossi (European Commission, Directorate-General for Economic and Financial Affairs and Joint Research Centre) (May 2010)

No. 411 To be published
Resilience of Emerging Market Economies to Economic and Financial Developments in Advanced Economies by M. Ayhan Kose and Eswar S. Prasad (Research Department, IMF and Cornell University, Brookings Institution and NBER) (May 2010)

No. 412 The Chinese pension system – first results on assessing the reform options by Heikki Oksanen (European Commission, Directorate-General for Economic and Financial Affairs) (June 2010)

No. 413 What is the growth potential of green innovation? An assessment of EU climate policy options by Andrea Conte, Ariane Labat, Janos Varga and Žiga Žarnić (European Commission, Directorate-General for Economic and Financial Affairs) (June 2010)


No. 416 Proliferation of Tail Risks and Policy Responses in the EU Financial Markets by Lucjan T. Orlowski (Sacred Heart University) (June 2010)

No. 417 Projecting future health care expenditure at European level: drivers, methodology and main results by Bartosz Przywara (European Commission, Directorate-General for Economic and Financial Affairs) (July 2010)

No. 419 Discretionary measures and tax revenues in the run-up to the financial crisis by Salvador Barrios and Raffaele Fargnoli (European Commission, Directorate-General for Economic and Financial Affairs) (July 2010)

No. 420 The production function methodology for calculating potential growth rates and output gaps by Francesca D’Auria, Cécile Denis, Karel Havlík, Kieran Mc Morrow, Christophe Planas, Rafal Raciborski, Werner Röger and Alessandro Rossi (European Commission, Directorate-General for Economic and Financial Affairs) (July 2010)

No. 421 Management of China’s foreign exchange reserves: a case study on the state administration of foreign exchange (SAFE) by Yu-Wei Hu (July 2010)


No. 423 Assessing financial integration: a comparison between Europe and East Asia by Rossella Calvi (MSc Economics and Social Sciences, Bocconi University) (September 2010)

No. 424 Quantifying the potential macroeconomic effects of the Europe 2020 strategy: stylised scenarios by Alexandr Hobza and Gilles Mourre (European Commission, Directorate-General for Economic and Financial Affairs) (September 2010)

No. 425 Determinants of Capital Flows to the New EU Member States Before and During the Financial Crisis by Anton Jevčák, Ralph Setzer and Massimo Suardi (European Commission, Directorate-General for Economic and Financial Affairs) (September 2010)

No. 426 Fiscal stimulus and exit strategies in the EU: a model-based analysis by Werner Roeger and Jan in’t Veld (European Commission, Directorate-General for Economic and Financial Affairs) (September 2010)

No. 427 Comparing alternative methodologies for real exchange rate assessment by Matteo Salto and Alessandro Turrini (European Commission, Directorate-General for Economic and Financial Affairs) (September 2010)


No. 429 The stability and Growth Pact: Lessons from the Great Recession by Martin Larch (Directorate General for Economic and Financial Affairs, European Commission), Paul van den Noord (Organisation for Economic Co-operation and Development (OECD), Lars Jonung (Lund University, Swedish Fiscal Policy Council) (December 2010)

No. 430 China’s External Surplus: Simulations with a Global Macroeconomic Model by Lukas Vogel (European Commission, Directorate-General for Economic and Financial Affairs) (December 2010)

No. 431 The portfolio balance effect and reserve diversification: an empirical analysis by Costas Karfakis (University of Macedonia, Department of Economics) (December 2010)

No. 432 Trade Elasticities: A Final Report for the European Commission by Jean Imbs (Paris School of Economics, HEC Lausanne, Swiss Finance Institute and CEPR) and Isabelle Méjean (International Monetary Fund, Ecole Polytechnique and CEPR) (December 2010)


No. 435 The forecasting horizon of inflationary expectations and perceptions in the EU – Is it really 12 months? by Lars Jonung (Lund University and Swedish Fiscal Policy Council) and Staffan Lindén (European Commission, Directorate-General for Economic and Financial Affairs) (December 2010)
| No. 436 | The EMU sovereign-debt crisis: Fundamentals, expectations and contagion by Michael G. Arghyrou (Cardiff Business School) and Alexandros Kontonikas (University of Glasgow Business School) (European Commission, Directorate-General for Economic and Financial Affairs) (February 2011) |
| No. 437 | Food and energy prices, government subsidies and fiscal balances in south Mediterranean countries by Marga Peeters and Ronald Albers (European Commission, Directorate-General for Economic and Financial Affairs) (February 2011) |
| No. 438 | Extension of the Study on the Diffusion of Innovation in the Internal Market by Jordi Suriñach, Fabio Manca and Rosina Moreno (AQR-IREA – UB) (European Commission, Directorate-General for Economic and Financial Affairs) (February 2011) |
| No. 439 | Fiscal policy and the labour market: the effects of public sector employment and wages by Pedro Gomes (Universidad Carlos III de Madrid) (European Commission, Directorate-General for Economic and Financial Affairs) (February 2011) |
| No. 440 | Commodity prices, commodity currencies, and global economic developments by Paolo A. Pesenti and Jan J.J. Groen (Federal Reserve Bank of New York) (European Commission, Directorate-General for Economic and Financial Affairs) (March 2011) |
| No. 441 | Measuring Euro Area Monetary Policy Transmission in a Structural Dynamic Factor Model by Matteo Barigozzi (London School of Economics and Political Science) Antonio M. Conti (Bank of Italy) and Matteo Luciani (Università degli Studi di Roma 'La Sapienza') (European Commission, Directorate-General for Economic and Financial Affairs) (March 2011) |
| No. 443 | Structural reforms and external rebalancing in the euro area: a model-based analysis by Lukas Vogel (European Commission, Directorate-General for Economic and Financial Affairs) (July 2011) |
| No. 444 | Global currencies for tomorrow: A European perspective by gnazio Angeloni, Agnès Bénassy-Quéré, Benjamin Carton, Zsolt Darvas, Christophe Destais, Jean Pisani-Ferry, André Sapir, and Shahin Vallée (Bruegel and CEPII team)(European Commission, Directorate General for Economic and Financial Affairs) (July 2011) |
| No. 445 | Household savings and mortgage decisions: the role of the 'down-payment channel' in the euro area by Narcissa Balta and Eric Ruscher (European Commission, Directorate-General for Economic and Financial Affairs) (September 2011) |
| No. 446 | The improbable renaissance of the Phillips curve: The crisis and euro area inflation dynamics by Lourdes Acedo Montoya and, Björn Döhring (European Commission, Directorate General for Economic and Financial Affairs) (October 2011) |
| No. 448 | Tax avoidance and fiscal limits: Laffer curves in an economy with informal sector Lukas Vogel (European Commission, Directorate General for Economic and Financial Affairs) (January 2012) |
| No. 449 | Corporate balance sheet adjustment: stylized facts, causes and consequences by Eric Ruscher (European Commission, Directorate General for Economic and Financial Affairs) and Guntram Wolff (Bruegel) (February 2012) |
| No. 451 | Inflation forecasting and the crisis: assessing the impact on the performance of different forecasting models and methods by Christian Buelens (March 2012) |
No. 470 The performance of simple fiscal policy rules in monetary union by Lukas Vogel and Werner Roeger (European Commission, Directorate General for Economic and Financial Affairs) Bernhard Herz, (University of Bayreuth) (November 2012)

No. 471 Energy Inflation and House Price Corrections by Andreas Breitenfellner (European Commission, Directorate General for Economic and Financial Affairs), Jesús Crespo Cuaresma (Vienna University of Economics and Business) and Philipp Mayer (Erste Group) (November 2012)


No. 474 The impact of structural policies on external accounts in infinite-horizon and finite-horizon models by Lukas Vogel (European Commission, Directorate General for Economic and Financial Affairs) (December 2012)

No. 475 An early-detection index of fiscal stress for EU countries by Katia Berti, Matteo Salto and Matthieu Lequien (European Commission, Directorate General for Economic and Financial Affairs) (December 2012)

No. 476 The accuracy of the Commission’s forecasts re-examined by Laura González Cabanillas and Alessio Terzi (European Commission, Directorate General for Economic and Financial Affairs) (December 2012)

No. 477 Indebtedness, Deleveraging Dynamics and Macroeconomic Adjustment by Carlos Cuerpo, Inês Drumond, Julia Lendvai, Peter Pontuch and Rafal Raciborski (European Commission, Directorate General for Economic and Financial Affairs) (March 2013)

No. 478 The cyclically-adjusted budget balance used in the EU fiscal framework: an update by Gilles Mourre, George-Marian Isbasoiu, Dario Paternoster and Matteo Salto (European Commission, Directorate General for Economic and Financial Affairs) (March 2013)

No. 479 Expected sovereign defaults and fiscal consolidations by Werner Roeger and Jan in ’t Veld (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 480 Stochastic public debt projections using the historical variance-covariance matrix approach for EU countries by Katia Berti (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)


No. 483 Growth risks for the EU emanating from global imbalances by Tatiana Fic and Ali Orazgani (National Institute of Economic and Social Research) (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 484 International fragmentation of production, trade and growth: Impacts and prospects for EU member states by Neil Foster, Robert Stehrer (The Vienna Institute for International Economic Studies – wiiw) and Marcel Timmer (Groningen Growth and Development Centre, Faculty of Economics and Business, University of Groningen (RUG)) (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 485 Recent Changes in Europe’s Competitive Landscape and Medium-Term Perspectives: How the Sources of Demand and Supply Are Shaping Up by Bart van Ark (The Conference Board and University of Groningen), Vivian Chen, Bert Colijn, Kirsten Jaeger, Wim Overmeer (The Conference Board) and Marcel Timmer (University of Groningen) (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 486 ICT, Reallocation and Productivity by Eric J. Bartelsman (VU University Amsterdam, Tinbergen Institute) (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 487 The Political Economy of Structural Reform and Fiscal Consolidation Revisited by Hans Peter Grüner (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 489 Do Sound Public Finances Require Fiscal Rules Or Is Market Pressure Enough? by Michael Bergman (University of Copenhagen), Michael M. Hutchison (University of California) and Svend E. Hougaard Jensen (Copenhagen Business School) (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)


No. 492 Country adjustment to a ‘sudden stop’: Does the euro make a difference? by Daniel Gros and Cinzia Alcidi (Centre for European Policy Studies CEPS) (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 493 Finance at Center Stage: Some Lessons of the Euro Crisis by Maurice Obstfeld (University of California, Berkeley, NBER, and CEPR) (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 494 Systemic Risk and Home Bias in the Euro Area by Niccolò Battistini (Rutgers University), Marco Pagano (Università di Napoli Federico II, CSEF, EIEF and CEPR) and Saverio Simonelli (Università di Napoli Federico II and CSEF) (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)


No. 496 Post-Crisis Reversal in Banking and Insurance Integration: An Empirical Survey by Dirk Schoenmaker (Duisenberg School of Finance, Amsterdam) (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)


No. 498 Europe’s Quest for Fiscal Discipline by Charles Wyplosz (Graduate Institute of International and Development Studies, Geneva and CEPR) (European Commission, Directorate General for Economic and Financial Affairs) (April 2013)

No. 499 Discretionary tax measures: pattern and impact on tax elasticities by Savina Princen, Gilles Mourre, Dario Paternoster and George-Marian Isbasoiu (European Commission, Directorate General for Economic and Financial Affairs) (May 2013)

No. 500 The bonsai and the gardener: using flow data to better assess financial sector leverage by Javier Villar Burke (European Commission, Directorate General for Economic and Financial Affairs) (June 2013)

No. 501 Fiscal relations across government levels in times of crisis – making compatible fiscal decentralization and budgetary discipline (European Commission, Directorate General for Economic and Financial Affairs) (July 2013)

No. 502 The role of tax policy in times of fiscal consolidation by Savina Princen and Gilles Mourre (European Commission, Directorate General for Economic and Financial Affairs) (August 2013)

No. 503 Do corporate taxes distort capital allocation? Cross-country evidence from industry-level data by Serena Fatica (European Commission, Directorate General for Economic and Financial Affairs) (September 2013)

No. 504 Effects of fiscal consolidation envisaged in the 2013 Stability and Convergence Programmes on public debt dynamics in EU Member States by Katia Berti, Francisco de Castro and Matteo Salto (European Commission, Directorate General for Economic and Financial Affairs) (September 2013)
| No. 505 | Endogenous housing risk in an estimated DSGE model of the Euro Area by Beatrice Pataracchia, Rafal Raciborski, Marco Ratto and Werner Roeger (European Commission, Directorate General for Economic and Financial Affairs) (September 2013) |
| No. 506 | Fiscal consolidations and spillovers in the Euro area periphery and core by Jan in ’t Veld (European Commission, Directorate General for Economic and Financial Affairs) (October 2013) |
| No. 508 | The gap between public and private wages: new evidence for the EU by Francisco de Castro, Matteo Salto and Hugo Steiner (European Commission, Directorate General for Economic and Financial Affairs) (October 2013) |
| No. 509 | The flow of credit in the UK economy and the availability of financing to the corporate sector by Daniel Monteiro (European Commission, Directorate General for Economic and Financial Affairs) (December 2013) |
HOW TO OBTAIN EU PUBLICATIONS

Free publications:
• one copy:
  via EU Bookshop (http://bookshop.europa.eu);

• more than one copy or posters/maps:
  from the European Union’s representations (http://ec.europa.eu/represent_en.htm);
  from the delegations in non-EU countries (http://eeas.europa.eu/delegations/index_en.htm);
  by contacting the Europe Direct service (http://europa.eu/europedirect/index_en.htm) or
calling 00 800 6 7 8 9 10 11 (freephone number from anywhere in the EU) (*).

  (*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

Priced publications:
• via EU Bookshop (http://bookshop.europa.eu).

Priced subscriptions:
• via one of the sales agents of the Publications Office of the European Union