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Foreword

Persistently low growth and investment are a source of deep concern in European economies. The causes are extensively discussed but the financial system is repeatedly cited as a potentially major contributory factor. Is this justified? Is there evidence to support it?

This Green Paper is the first output from a project on *Restarting European Long-Term Investment Finance (RELTIF)*, supported by Emittedi Titoli. The Green Paper comprises two parts. In the first part, it records the significant changes in financing patterns of European companies that have occurred over the last few years. The second part analyses the causes of these changes and poses some key research and policy questions that follow from them.

The Green Paper records that overall there is little evidence of a shortage of long-term finance for companies with access to bond and stock markets. In fact, the corporate sector has decreased borrowing over the last few years and become a net provider of funds to the financial system. However, small and medium enterprises sector lack access to finance and there is mounting evidence of a supply of finance problem for these companies.

The Paper goes on to note that investment problems may reflect more widespread flaws in the structure and governance of SMEs, large corporations and financial institutions. These mean that differences between supply and demand influences on investment are even harder to identify than previously realized.

These observations have significant implications for policy. There have been a large number of policy responses to promote European corporate financing over the last few years but they have lacked focus and a clear underlying rationale. The implication of the Green Paper is that responses need to be much more carefully thought through and targeted if they are to address Europe's growth and investment deficit.

The Paper is designed to stimulate comment and reaction. In particular we welcome comments on the following points:

- Have we focused on the right set of areas of corporate finance?
- Are our descriptions of the facts correct and complete?
- Are there other sources of information and data that we have omitted?
- Have we described the correct influences on financing patterns?
- Are there other factors that we have omitted?
- Are we focusing on the right set of policy and research questions?
- Are there others that should be included?

We request that any comments on these and other points raised by this document be submitted to Anna Mennella at the Centre for Economic Policy Research (CEPR) at CEPR, 77 Bastwick Street, EC1V 3PZ, London, UK (email: amennella@cepr.org) by Friday 27 February 2015. Please mark all correspondence “RELTIF Green Paper”.

CEPR, which takes no institutional positions on economic policy matters, is delighted to provide a platform for an exchange of views on this critical topic.

Tessa Ogden
Deputy Director, CEPR
London, 28 January 2015

Executive Summary

Low growth, low investment, insufficient spend on infrastructure, weak bank lending to the corporate sector, and funding deficiencies of small and medium-sized enterprises are all major causes of concern in Europe. To many, they point to serious problems in the financing of European companies and in Europe's financial systems. Accordingly, they have prompted a raft of policy measures, culminating in Jean-Claude Juncker's recently announced €315 billion infrastructure investment programme.

Are these concerns valid and do the structure and performance of the financial system lie at their root? If so, what should be done to address them, and have the right policy prescriptions been identified?

The Centre for Economic Policy Research (CEPR) and Assonime have embarked on a major research programme to address these issues. This document sets out the policy questions that will be part of the programme. It begins by describing the current state of European financial markets and then considers the factors that underpin their operation. Finally, it discusses the policy questions that derive from these observations.

This paper argues that the underlying causes of the low levels of investment in Europe have not yet been identified and many of the policies currently being pursued are therefore based on perception rather than fact. In particular, it is far from clear that the source of the investment deficit is the financial system; it could equally well be low demand for capital rather than insufficient supply of finance. Even if it is supply rather than demand for finance, then there is a question of whether the problem is a transitory one that is slowly being resolved over time as the effect of the financial crisis fades, or a structural one that will persist.

There is therefore a serious risk of Europe hurtling into a series of unjustified policy prescriptions that might not work and might even end up exacerbating rather than alleviating problems. Instead, this Green Paper suggests that there should be a more considered assessment of the extent to which the financial system is really at the heart of Europe's investment problem and the appropriate target for policy prescriptions.

The background to recent developments is that the corporate sector has significantly decreased its levels of borrowing and in many countries is a net provider of funds to the financial system. Moreover, markets have increased in significance as a source of finance for the European corporate sector. In particular, while initial public offerings by companies coming to the market for the first

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time have remained depressed since the financial crisis, there has been a rise in corporate bond and secondary equity issuance by companies already listed on stock markets.

There is therefore little evidence of a shortage of long-term finance, at least for the companies that can access bond and stock markets. For these companies, the development of corporate bond and equity markets in Europe has diminished dependence on bank finance and reduced the degree of cyclical of funding. During periods of restricted bank lending, bond markets have provided an alternative source of finance, sometimes expanding when bank finance diminishes.

This relatively encouraging picture of European corporate finance, however, neglects the fact that while large companies have access to market sources of finance, small and medium-sized enterprises (SMEs) often do not. They cannot therefore benefit from the expansion of market sources and the countercyclical funding that these provide to offset that available from banks.

SMEs are an extremely important component of the European corporate sector and account for a substantial proportion of both employment and output. They are highly dependent on bank finance and therefore may have been particularly affected by the impact of the financial crisis on bank lending. The financial fragility of SMEs and their exposure to interest rate rises is a possible reason for the hesitation of banks to lend more to them. Alternative equity sources, including private equity, are limited and the fall in initial public offerings suggests that this avenue is increasingly difficult for SMEs to access.

The level of integration of the financial system in relation to the corporate sector remains remarkably limited. Differences in patterns of financing across countries are much more pronounced than across companies within a country. The financial crisis has put a brake on integration and may have encouraged retrenchment into domestic markets away from cross-border lending.

Good sources of information on companies are an important determinant of their financing capabilities and they are a particular constraint on SMEs, for which there are few publicly available sources of information. In some European countries there are public sector providers of information on SMEs, but private providers may also facilitate SME access to market as well as bank sources of finance. A number of new market sources of financing for SMEs, such as crowdfunding and peer-to-peer lending, have recently emerged but it is too early to establish the overall significance and durability of these sources.

The problem of financing SMEs may have been intensified by regulation. The strengthening of bank regulation has involved the imposition of capital requirements related to risk-weighted measures of bank assets. Since the risk-weighted requirements associated with SME lending are high and since SMEs

are particularly dependent on bank finance, if there has been an adverse effect of capital requirements on bank lending, SMEs will have felt this effect most acutely.

While there is therefore a serious *possibility* of deficiencies in the provision of finance to SMEs, this in itself does not establish that there *is* one. Changes in the funding of companies may reflect changes in demand by firms for funding of capital investment as well as supply of finance by financial institutions and markets. Falls in demand for finance after the financial crisis coincided closely with a tightening in the terms on which firms were able to raise finance, so that it is difficult to disentangle the two effects by just observing the time patterns of changes.

There is, however, evidence from some countries that the terms on which finance was made available became more stringent before there were falls in demand for finance. That provides some support for the possible influence of supply factors. More convincingly, there is evidence from companies that simultaneously borrowed from several banks that deteriorations in the financial condition of their lenders adversely affected the provision of finance to them. Hence, there is some evidence of supply influences on European bank lending, although the jury is still out on its significance relative to demand factors.

While financing problems appear to be concentrated at the SME end of the corporate sector, the deficiencies of the financial system may be more pervasive than that and reflect defects of the structure and governance of large as well as small companies, and of non-bank financial institutions as well as banks. Even though the funding of large companies may not be a problem, financial markets can still have a substantial impact on their investment through ownership and control, and there is increasing concern about the short-term influences that equity markets may exert on companies.

In particular, the investment chain from institutional investors, such as pension funds and life insurance companies, to firms involves intermediation by fund managers that are concerned about short-term performance. Long-term liabilities to, for example, pensioners are thereby converted into short-term investments in companies and instead of being actively and directly involved in the promotion of the long-term prosperity of their investments, pension funds and life insurance firm assets are managed by their fund managers as highly diversified portfolios.

The governance problems of companies are reflected in weak oversight of corporations, short-term evaluations of performance, excessive executive remuneration and a weak relationship of remuneration to long-term performance. These problems may have been intensified by regulation, such as Solvency II in relation to insurance companies, which has encouraged pension funds and life insurance companies to move away from equity investments into lower-risk government securities.

Governance problems of a different form may also have afflicted banks. Here the conflict is not so much between short- and long-term investors but between creditors and shareholders. In view of their high levels of leverage, creditors in banks (both depositors and bondholders) are exposed to excessive risk. There is a marked contrast between the upside gains that shareholders derive when banks are doing well and the losses that depositors, bondholders and ultimately taxpayers bear when banks do so badly that they are bankrupt. Banks may therefore have been encouraged to engage in excessive risk taking in the form of, for example, trading at the expense of their more traditional lending and deposit-taking activities.

Corporate governance may also lie at the root of the provision of finance to SMEs. Here the governance problem may be one of knowledge transfer to and oversight of those managing newly established and growing enterprises. Private equity markets may play a key role in this regard, but so too might the banking system since families are frequently reluctant to dilute ownership in their businesses through equity issuance. The success of the German SME sector may at least in part be due to the greater and longer-term involvement of German banks in the growth and development of SMEs.

The fact that governance issues may lie at the heart of the conduct of all of SMEs, large corporations, banks and equity institutions suggests that the distinction between demand and supply influences on investment may be even more opaque and harder to untangle than previously thought.

This suggests a set of key policy questions to be addressed in greater depth in the subsequent stage of the research programme:

- Is the investment of SMEs in Europe driven by a shortage of supply of finance or by low demand for investment by firms, and is its current low level transitory or structural in nature?
- If the problem is one of demand, does this reflect a particular governance failure of SMEs in Europe?
- If the problem is associated with the supply of finance, is this primarily due to regulation or the governance of banks?
- Is there a governance problem associated with companies listed on stock markets, and is this due to the nature of the intermediation chain in equity markets or to the regulation of equity institutions?

Introduction

The last few years have been a period of intense analysis and questioning of the European financial system. In particular there have been several reports that have looked into the role of the European banking system in the financing of European companies.¹ This flurry of activity is in part a response to concerns raised by the financial crisis, in part a reflection of the moribund nature of much Eurozone economic activity, and in part due to a belief that certain parts of the European corporate sector face funding constraints.

The purpose of this document is not simply to add to the existing documents but to encourage a different approach to addressing the issue. In particular, it seeks to promote participation of academics in analysing the issues at hand and to stimulate policy prescriptions informed by current academic research.

Assonime and the Centre for Economic Policy Research (CEPR) in London are jointly organising a programme of research examining corporate financing in Europe. It is designed to serve two purposes. The first is to advance our understanding of issues relating to the financing of corporations, and especially European corporations, and the second is to provide evidence on the policy issues that are at the forefront of debates in Europe about the financing of corporations.

The research programme is divided into two stages. In the first stage, the programme is identifying policy issues that are at the forefront of current debates, in particular those that lend themselves to academic analysis and can be informed by economic research. The second stage is then to commission research on the issues identified in the first stage and to produce a final policy report (a 'White Paper') based on the accumulated evidence.

This document, a 'Green Paper', relates to the first stage. It considers the issues that have been highlighted to date and those that lend themselves most readily to policy analysis. It is divided into two parts. The first part briefly surveys a large body of evidence and presents stylised facts on the financing of the European corporate sector. It is in turn divided into four sections: small and medium-sized enterprises (SMEs); long- versus short-term debt finance; bonds versus bank finance; and debt versus equity finance.

The second part of this Green Paper considers some possible explanations and causes of the stylised facts of the first part. It discusses supply versus demand explanations, financial intermediation, information problems, financial regulation, and corporate governance of both financial intermediaries and non-financial enterprises.

¹ See, for example, Bain-IIF (2013), ECB (2013 and 2014a), European Commission (2014a) and Giovannini and Moran (2013).

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There is a summary of the Green Paper at the end and a list of research questions that we believe it is possible and important to address.

A complementary paper to this one describes the policy initiatives that are currently in place or in the process of being implemented.²

² Lugaresi (2015).

Part 1: Changing financing patterns

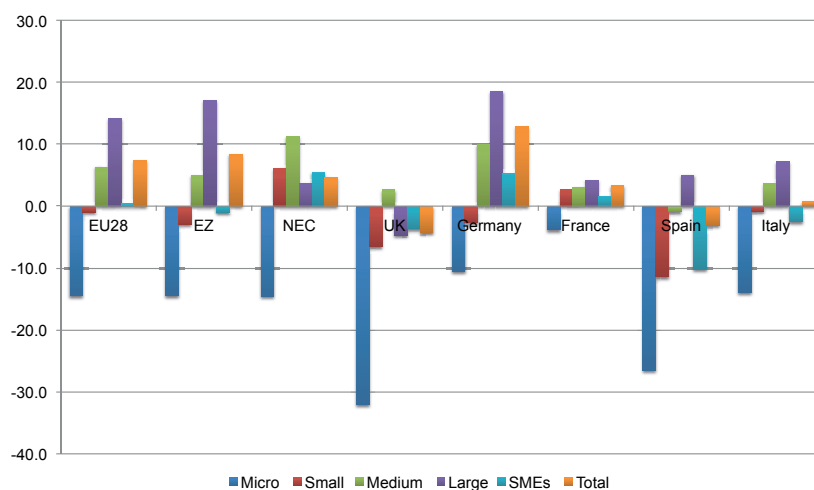
1 Small and medium-sized enterprises

1. *SMEs are important and vulnerable*

Small and medium-sized enterprises (SMEs) are the backbone of the European corporate structure. In Europe there are 21.3 million companies, employing 88.6 million individuals and totalling €3,537bn of gross value added.³ They account for 99.8% of all enterprises, 67.4% of jobs and 58.1% of gross value added (Kraemer-Eis et al., 2013). The distribution among size classes varies, with Spain and Italy having a high proportion of micro firms. Klein (2014) shows that the European countries with the highest prevalence of SMEs suffered the most severe economic downturn.

While the corporate sector as a whole increased its sales from 2007 to 2012 (computed for a comparable sample over the period), SMEs performed significantly worse than large companies in all major Eurozone countries, and in several countries the overall rate of change over the five years was negative (Figure 1.1).⁴

Figure 1.1 Turnover – rate of change, 2017-07



Source: Prometeia sample.

3 The European definition of an SME is an enterprise that employs fewer than 250 persons, and has an annual turnover not exceeding €50 million and/or an annual balance sheet total not exceeding €43 million.

4 Prometeia has provided the statistics presented in this section. Data refer to a sample (from the Orbis database) identified and controlled by Prometeia of 129,114 European companies. Their contribution is gratefully acknowledged.

2. *Investment and innovation by SMEs are sensitive to finance*

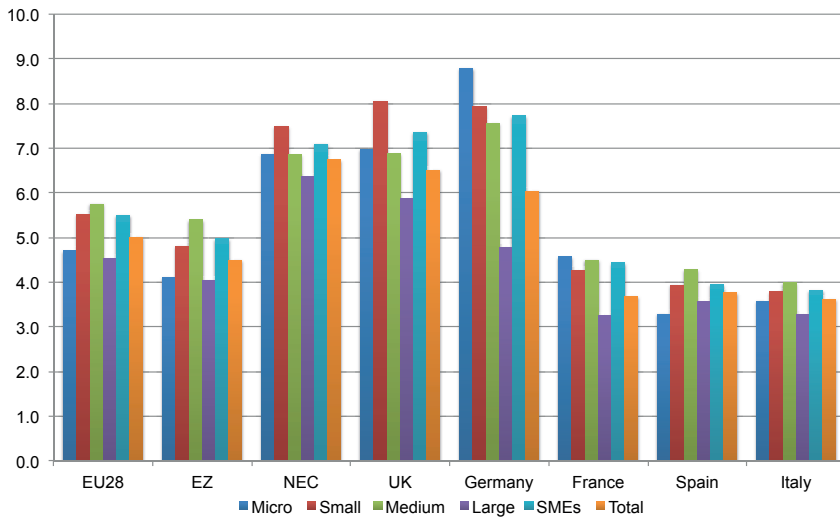
Investment decisions are affected by the financial position of firms. For the corporate sector as a whole (ECB, 2013) there is a positive relationship between cash flows and investment rates (ECB, 2007). Ferrando et al. (2014) find that the flexibility of financial conditions is particularly crucial for privately owned, young and small firms.

Expenditure on innovation is dependent on the size of firms. In Germany, for instance, the range of innovation expenditure per innovative company varies from €22,000 in companies with fewer than five employees to €1.1 million in companies with 50 or more employees. When surveyed, companies name high costs and financing difficulties as the main obstacles to innovation (Zimmermann, 2014).

3. *Profit margins declined, but vary significantly across countries*

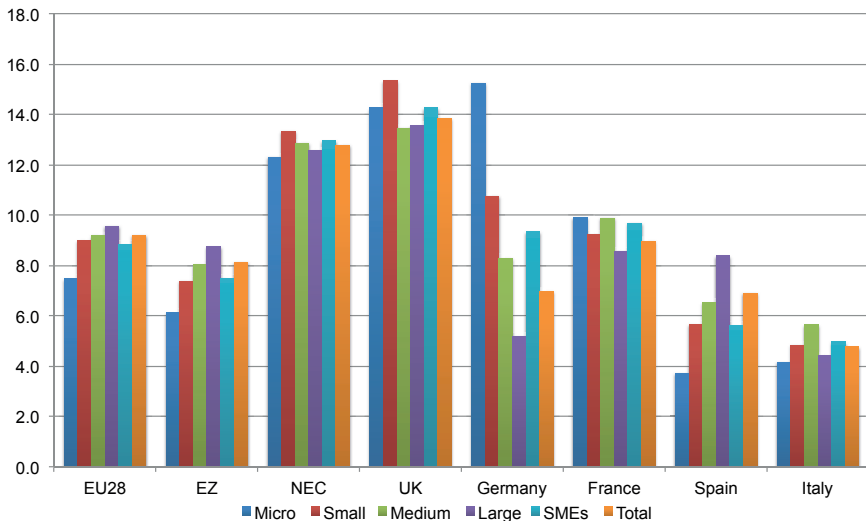
In general, investment returns are lower for SMEs than for large firms, and fell more during the crisis (Wagenvoort and Torfs, 2013b). To defend their sales, the corporate sector, and SMEs in particular, were forced to accept a decline in their profit margins.⁵ However, as of 2013 return on assets (RoA) and return on equity (RoE) for SMEs still remained if anything slightly higher than for large companies. Moreover, differences across countries are much more appreciable than differences across size classes within a country (Figures 1.2a and 1.2b).

Figure 1.2a Return on assets, 2013



Source: Prometeia sample.

⁵ The comparison of 2013 with 2007 should take into account the fact that data refer to a changing sample, as Orbis has widened the number of companies in their database at the same time as companies have dropped out of the sample.

Figure 1.2b Return on equity, 2013

Source: Prometeia sample.

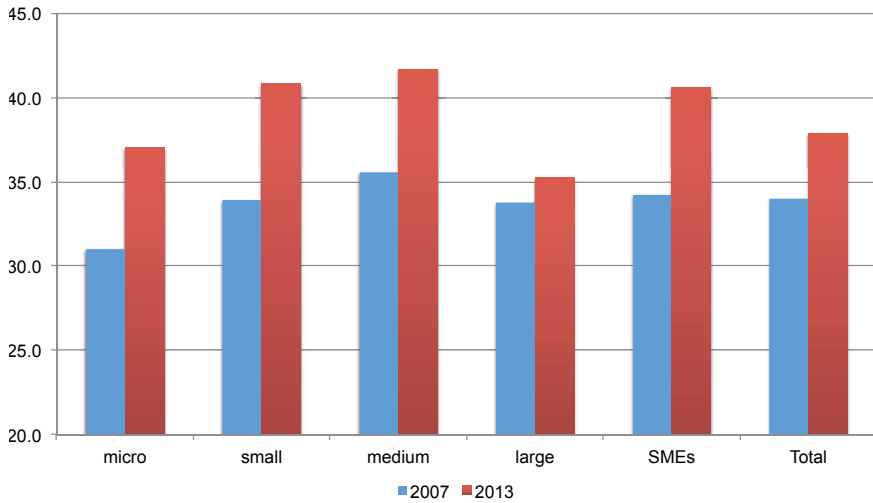
4. *SMEs are particularly dependent on external finance and there are pronounced differences in this across European countries*

The financing of SMEs is usually discussed in relation to two paradigms: the pecking-order hypothesis (internal funds are preferred over external funds and bank loans over market instruments) and the life-cycle hypothesis (financial needs change as firms grow, with internal funds, trade credit and business angels being most important in the initial stages of firm development (Berger and Udell, 1998)).

For the EU28 countries, the level of equity rose between 2007 and 2013 for all size classes, but remained below or around 40% of total assets. Looking at individual countries, SME capitalisation ratios are not significantly different from the relevant sector average, while in general German and Italian companies are less capitalised. In particular, micro firms in Italy show the lowest level of capitalisation (Figure 1.3).

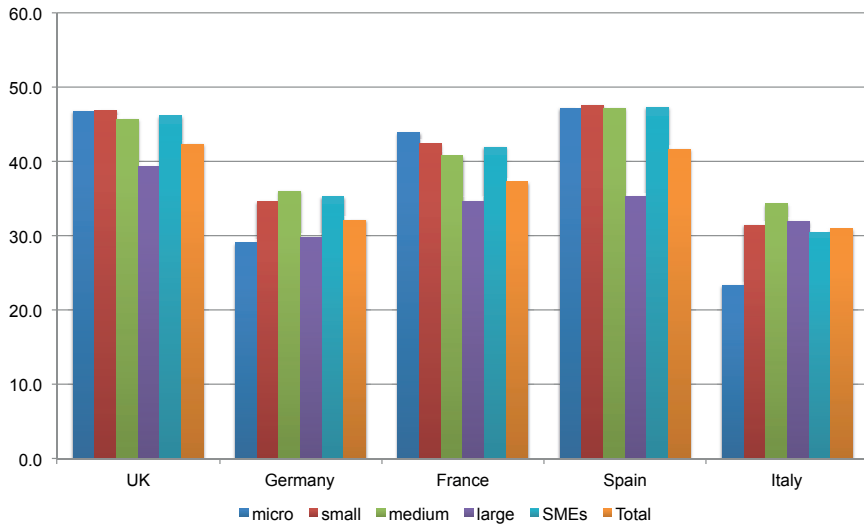
The composition of debt (and in particular of financial debt) varies across countries and the crisis has intensified these differences. There is a clear distinction between countries where short-term debt dominates the liability structure (UK and Italy have the highest level of short-term debt for micro companies) and countries where companies rely to a greater extent on long-term debt (Germany in particular, but also France and Spain). Italy is the country that combines a low level of equity and a high reliance on short-term debt.

Figure 1.3a EU28: Equity/total assets



Source: Prometeia sample.

Figure 1.3b EU28: Equity/total assets, 2013



Source: Prometeia sample.

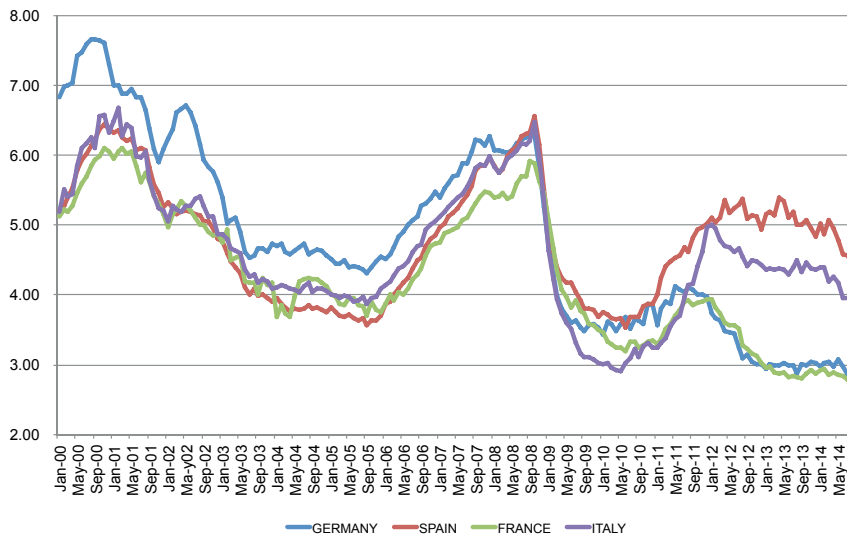
In other words, in most countries SMEs suffer from a shortage of equity, long-term debt or both, and in general, differences in firms' leverage between countries are more important than those between industries (ECB, 2013).

5. *SMEs are particularly dependent on bank finance and face adverse financing terms*

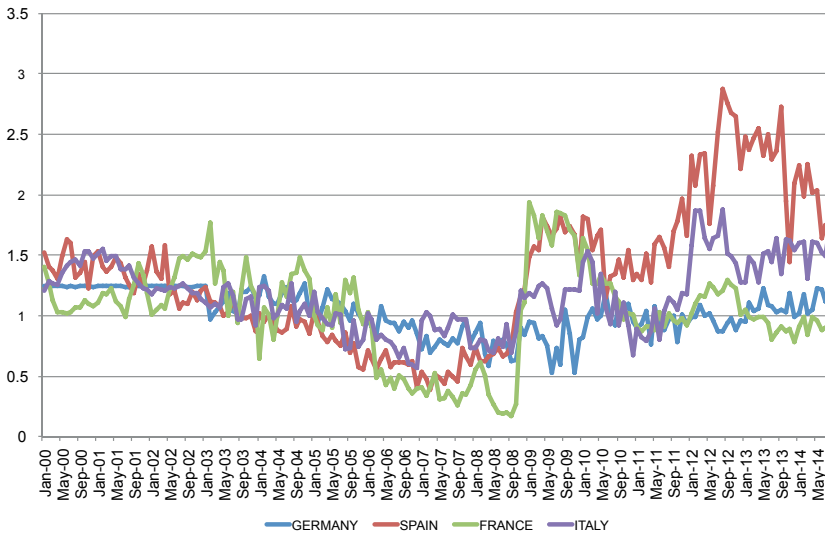
SMEs are in general more dependent on bank credit than other firms. They face significant obstacles in borrowing funds and, once they borrow, they rely heavily on bank debt (ECB, 2013). The freezing of bank lending after the crisis hit the SME sector particularly hard (ECB, 2014a), creating a financing gap that many researchers have tried to measure (Ferrando et al., 2013). Much of the unfulfilled demand for financing derives from working capital (Giovannini and Moran, 2013; Bain-IIF, 2013), and payment delays by public entities were a significant source of working capital requirements.

The fragmentation of the European markets has affected the pass-through from market to lending rates, leading to the formation of two wedges: between countries, and between companies in each country. Figure 1.4a shows that loan rates to SMEs (proxied by rates for loans up to €1 million) rose in Italy and Spain while remaining substantially flat in France and Germany. Moreover, loan rates for SMEs rose faster than for other companies (Figure 1.4b). The net effect is that while before the crisis Italian and Spanish SMEs were paying lower rates than German SMEs, now they are paying between 150 and 200 basis points more. Moreover, since early 2011, bank rates on large loans in the stressed economies are actually higher than rates on small loans in the rest of the Eurozone, a clear symptom of less favourable economic conditions in the former group of countries (ECB, 2014; Öztürk and Mrkaic, 2014). The latest ECB data confirm this finding only for Spain.

Figure 1.4a Loans under €1 million



Source: ECB.

Figure 1.4b Spread of large-small loans

Source: ECB.

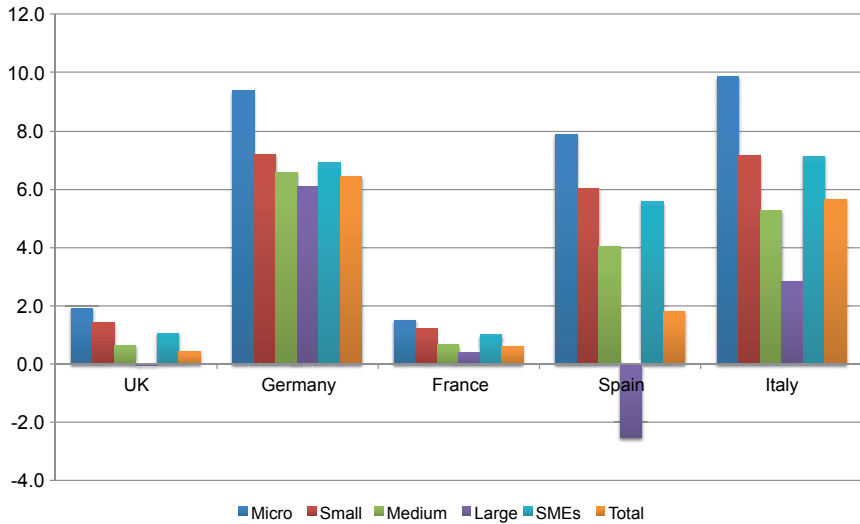
6. *The corporate sector, including SMEs, increased its investments in financial assets*
 The corporate sector has invested in financial assets in the last years, partly reflecting the need to have a liquidity buffer. Therefore, net interest costs are now significantly lower than gross interest costs.⁶ Figure 1.5 shows that for the EU28 companies, net interest costs as a percentage of EBITDA⁷ are significantly lower than gross costs for all size classes, with the gap rising with increases in firm size. Net interests vary significantly both across countries and size classes. UK and French firms seem to have a higher propensity to invest in financial assets, thus offsetting the largest part of their interest costs. Of the three remaining big countries, Italy and Spain have the highest variance across size classes, while the behaviour of German firms seems more homogeneous. Large Spanish companies have interest revenues higher than their interest costs.

7. *There are significant differences in the financial strength of SMEs*
 The weight of debt (net financial position to EBITDA) rose over the period for the EU as a whole, for all size classes. This means that the increase of equity has been offset by a decrease of gross profitability. Differences across countries are particularly striking in this regard. The net effect of the level of gross profits, level of debt and financial assets brings France's net financial position on EBITDA to a level significantly lower than one. At the other extreme, Spain and Italy show significantly higher levels (Figure 1.6).

⁶ The Prometeia data are unconsolidated and therefore do not reflect the corporate group's financial strategy; in particular, within the same group financial assets and liabilities may be unevenly distributed, with a single company centralising most financial assets and interest revenues.

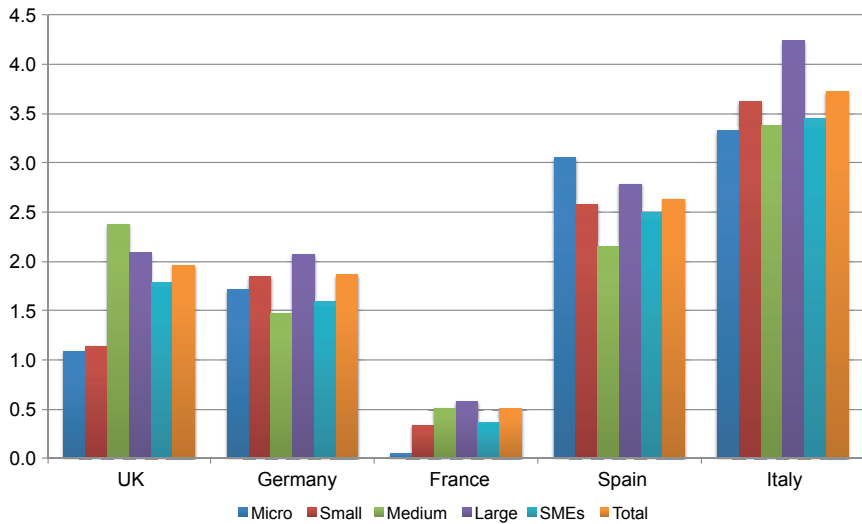
⁷ Earnings before interest tax depreciation and amortisation.

Figure 1.5 Net interest costs, 2013



Source: Prometeia sample.

Figure 1.6 NFP on EBITDA, 2013



Source: Prometeia sample.

The crisis has accentuated the dichotomy between two main groups of SMEs. On the one hand, Ferrando et al. (2014) identify a large group of “financially flexible firms” (defined as adopting a conservative financial policy for three consecutive years) that account for 34% of the total number of SMEs (17% in the UK; 23% in Germany; 40% in Italy). At the other end of the spectrum are over-stretched companies, albeit with strong differences across countries

and sectors. The IMF (2013) estimates a “persistent debt overhang” of the corporate sector in three European countries (Italy, Spain and Portugal) of 30-40% of outstanding debt.

The ECB estimates that firms with a higher level of debt and higher interest payments deleveraged (through both reducing investment and repaying debt) more than other companies. Nevertheless, further deleveraging is expected, in particular in those countries that experienced a pre-crisis boom (ECB, 2013). To this end, it is necessary to have more efficient debt restructuring and insolvency regimes, which at present vary widely across Eurozone countries (Coeuré, 2014).

8. *The collateral and guarantee requirements on SMEs are becoming more onerous*
Business Lending Surveys (BLS) and the Survey on the Access to Finance of Enterprises (SAFE) show an increase in the number of companies needing guarantees to access credit, three quarters of which were provided by owners or directors of the company (Helsen and Chmelar, 2014). This means that where guarantees were not available, the probability of being rationed was higher. Giovannini and Moran (2013) add that a potentially higher portion of SME loan portfolios (estimated at €1.7 trillion in 2010) cannot be effectively used for secured borrowing.

Credit guarantee schemes, both publicly funded and mutual, have been used extensively and have proved to be effective in mobilising large amounts of credit and easing access to finance for a larger population of enterprises (OECD, 2013). However, they seem to be less efficient in reopening the doors of credit once they have been closed (ECB, 2014). The IMF (2014a) has suggested that new types of loan contracts are needed to address the collateral issue and to open opportunities for a “fresh start.” To this end, they suggest a new “fiduciary loan contract”.

9. *Markets are replacing banks for large but not small companies*
The financial crisis has prompted new interest in alternative financing channels (Allen et al., 2012), as it created a shortage in the availability of international funds for the corporate sector (Wagenvoort and Torfs, 2013a). To offset the credit crunch, large companies tapped domestic financial markets, in particular bond markets, extensively. This trend is particularly significant in France (ECB, 2013).

The recourse of SMEs to the bond and stock market has been limited before and after the crisis. In general, there is no evidence that financially constrained firms are replacing loans with market-based instruments, grants or subsidised loans (ECB, 2014). Kraemer-Eis et al. (2013) find that securitisation for SMEs, although at the initial stage of development, has performed relatively well in terms of default rates. Various initiatives (in

particular by the Bank of England and the ECB) are aimed at reviving securitisation processes for SMEs.

10. *Trade credit is a particularly important source of finance for SMEs*

Trade credit is traditionally a large component of the working capital needs of the corporate sector: it is the third largest item of external finance (ECB, 2013). For the sector as a whole, trade credit needs increased after the crisis in all countries except France and Germany. Moreover, the disparity between large and small companies has continued to widen (ECB, 2013). Carbo-Valverde et al. (2014) analyse whether trade credit provided an alternative source of external finance to SMEs during the credit crisis. They find that credit-constrained SMEs depend on trade credit, but not bank loans, to finance capital expenditures and that the intensity of this dependence increased during the financial crisis.

11. *Private equity is a limited source of finance but new forms of direct lending are emerging*

The private equity market suffered a setback after the crisis (€37 billion after the crisis versus €73 billion in 2006) before getting back to the levels of the early 2000s. The number of operations seems to have decreased steadily since the beginning of the century (Kraemer-Eis et al., 2013). Moreover, recent empirical research on UK start-ups (Robb and Robinson, 2014) contradicts the belief that start-ups rely either on private equity or a loose coalition of family and friends. Indeed, roughly 80–90% of most firms' start-up capital is made up of equal proportions of owner equity and bank debt. Berger and Schaeck (2011) find that firms do not turn to venture capital because they cannot access bank finance; on the contrary, venture capital financing is correlated with a lesser need to use bank financing.

New sources of finance based on market instruments but with a direct relationship between borrowers and lenders, such as peer-to-peer and crowdfunding, increased in importance after the crisis, in particular for young and innovative firms (Wilson and Testoni, 2014).

12. *Conclusions*

Financial integration in the years preceding the crisis has not narrowed the structural differences in terms of the profitability and financial structure of SMEs across countries. Integration of European financial markets in this regard remains remarkably limited. In general, SMEs suffer from lack of equity and excessive reliance on bank credit. The sustainability of debt has improved only thanks to low interest rates and financial investments. The existence of a large segment of financially fragile SMEs is probably the main factor behind banks' low propensity to lend.

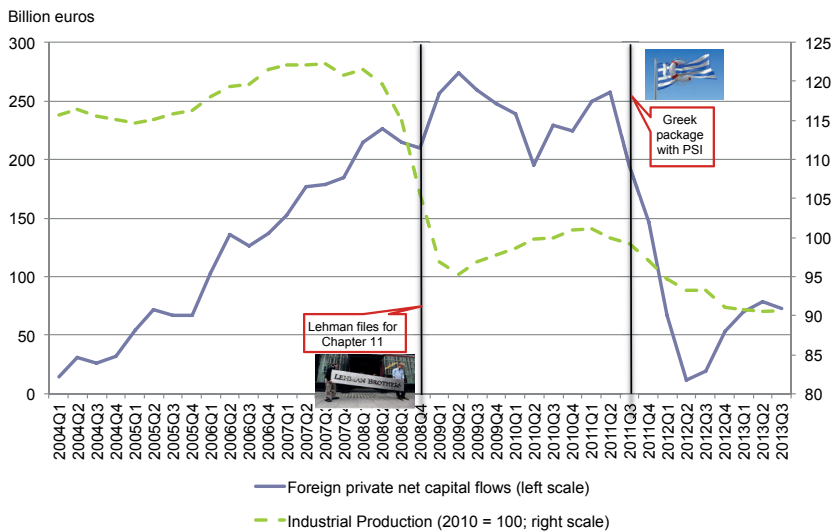
2 Long-term versus short-term debt finance

1. *There is little evidence of a shortage of long-term financing*

Recent research conducted at the Banca d'Italia (Grande and Guazzarotti, 2014) finds little evidence of a generalised drop in the availability of long-term financing after the financial crisis in either advanced or developing countries. However, it recognises significant “risks” of financing constraints for SMEs and infrastructure investment. Similar conclusions had been arrived at by the G30 Report (G30, 2013), which has concluded that the post-crisis financial system is not well structured to provide the type of financing required to support global economic growth.

Some of the mechanisms that financed long-term investment prior to the financial crisis were not sustainable, especially in the Eurozone countries, such as bank lending that relied on very short-term funding, entailing excessive maturity and risk transformation (Wolf, 2014). A specific factor determining the credit crunch in the Eurozone periphery was the collapse of cross-border interbank funding during the crisis, which was only reversed (rather gradually) after the “whatever it takes” statement by the ECB president in July 2012 (Figure 2.1).

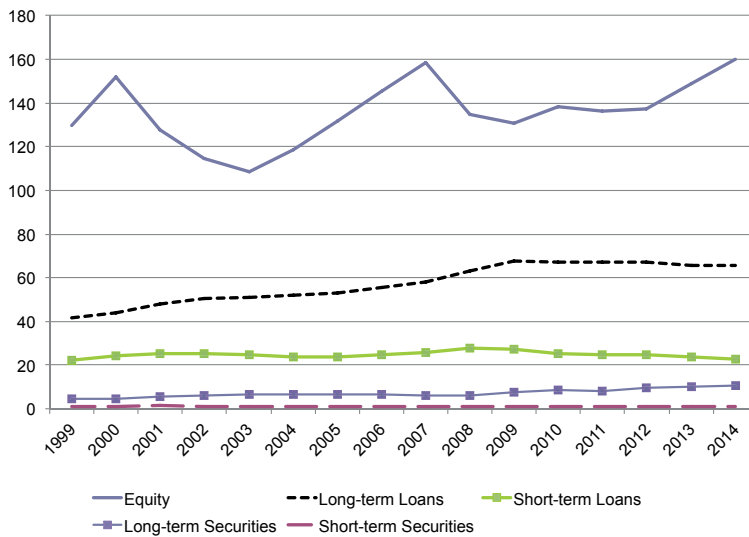
Figure 2.1 The collapse of net foreign financing in the ‘PIGS’ in 2011-2012



Source: Micossi and Peirce (2014).

Against this background, an interesting feature to investigate is whether and how over the past 15 years the structure of long- versus short-term debt finance has changed. Non-financial corporations (NFCs) were affected by the crisis in different ways. Since 1999 in the Eurozone, the value of equity followed a pronounced cycle (Figure 2.2), mainly reflecting market price changes of listed company shares. Outstanding equity of non-financial corporations (listed and non-listed) in the Eurozone currently represents about 160% of GDP, compared with about 130% in 1999.

Figure 2.2 Eurozone NFC: Outstanding liabilities by composition and maturity (% of GDP)



Source: ECB and Eurostat for GDP.

2. *The increase in long-term finance is mainly due to loans, but bonds also increased*

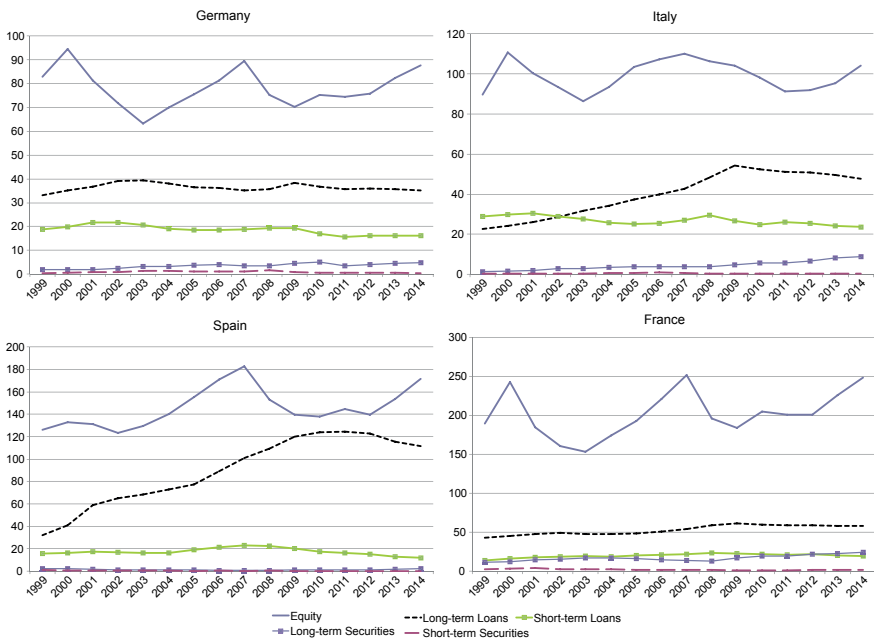
Long-term finance (including long-term loans and bonds) as a percentage of GDP increased from 46% of GDP in 1999 to 76% at the beginning of 2014. Long-term loans rose from 42% to 66% of GDP, while long-term bonds, traditionally less used by non-financial corporations, more than doubled their outstanding value, from 5% to 11% of GDP. Short-term finance (including short-term loans and bonds) has remained more or less stable (at around 25% of GDP).

3. *There are marked differences in long-term financing across countries*

Significant differences are observed at the national level over the last 15 years (Figure 2.3). Germany displays no substantial change in the composition and trends of its long-term versus short-term debt. A different trend is observed in other countries, with long-term loans (as a percentage of GDP) rising by around 35% in France, by more than 100% in Italy, and by around

250% in Spain. In Germany, France and Italy, starting from a low base, there was a significant increase in the issuance of bonds: between 1999 and the beginning of 2014, issuance rose by almost 130% in Germany, close to 80% in France and around 470% in Italy.

Figure 2.3 NFC outstanding liabilities by composition and maturity in selected countries (% of GDP)



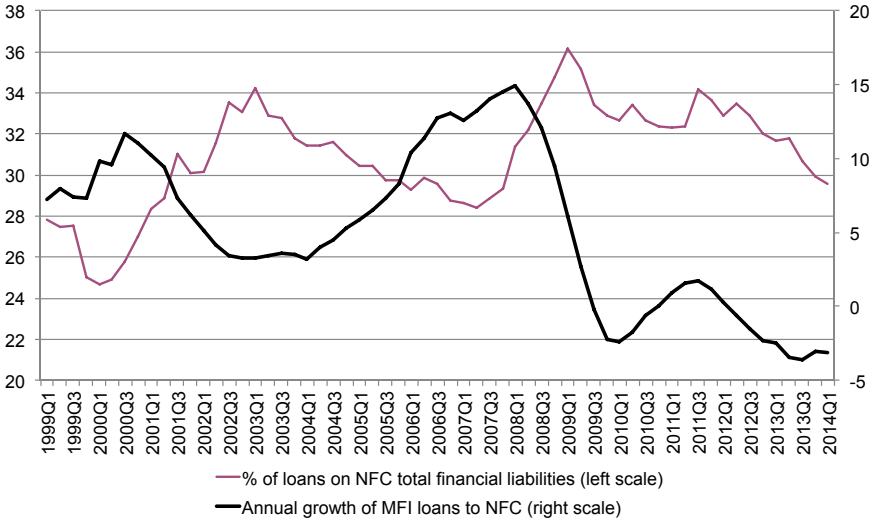
Source: ECB and Eurostat for GDP.

4. *Non-financial firms have increased their share of long-term finance relative to financial firms*

Following the financial crisis, non-financial firms’ use of corporate bonds nearly doubled in absolute terms, while issues by financial firms dropped by more than 50% (from 2006 to 2013). As a result, non-financial corporations saw their share of bond finance increase from an average 21% of all bonds issued in 2000-07 to 33% in 2008-13 (see Section 4 on “Debt versus equity”). This suggests that firms that have market access have fewer problems in raising long-term finance. Eurozone loans to non-financial corporations, as a percentage of total liabilities, rose in 2000-02 and 2007-08 and then fell, but never below the lowest point of the preceding cycle. According to the

ECB (2013), this reflects the exceptionally weak growth of monetary and financial institutions (MFIs) loans⁸ (Figure 2.4).

Figure 2.4 Loans to Eurozone NFC (%)



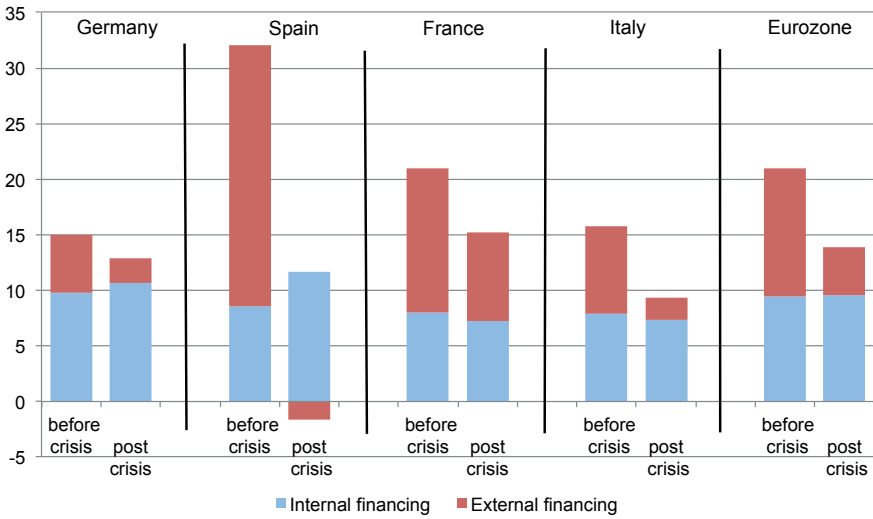
Source: ECB.

- Equity has been a relatively stable source of finance compared with debt*

Across Eurozone countries, the relative weight of external financing decreased. While firms' reliance on external financing was strong before the crisis, their reliance on internal funds has risen in the largest Eurozone countries after the crisis (Figure 2.5). Another interesting stylised fact is depicted in Figure 2.6: the Eurozone ratio of retained earnings to GDP is constant over the past 15 years, while firms' debt financing oscillates around a downward trend. It seems that at the beginning of an economic upswing, where uncertainty surrounding the business climate is high, firms often finance the bulk of their investment with retained earnings, and only later turn to debt financing (ECB, 2013).

⁸ The negative growth rate of MFI loans in the Eurozone is coherent with the broader picture depicted by Jordà et al. (2014), who show that in advanced economies there is a structural reduction of bank loans to the real economy on the asset side of banks. The only types of loan showing some growth are mortgages. In many banking systems, deleveraging and different business models by banks led to either reduced bank traditional activity or the removal of traditional loans from the balance sheet of banks through securitisation (ABS).

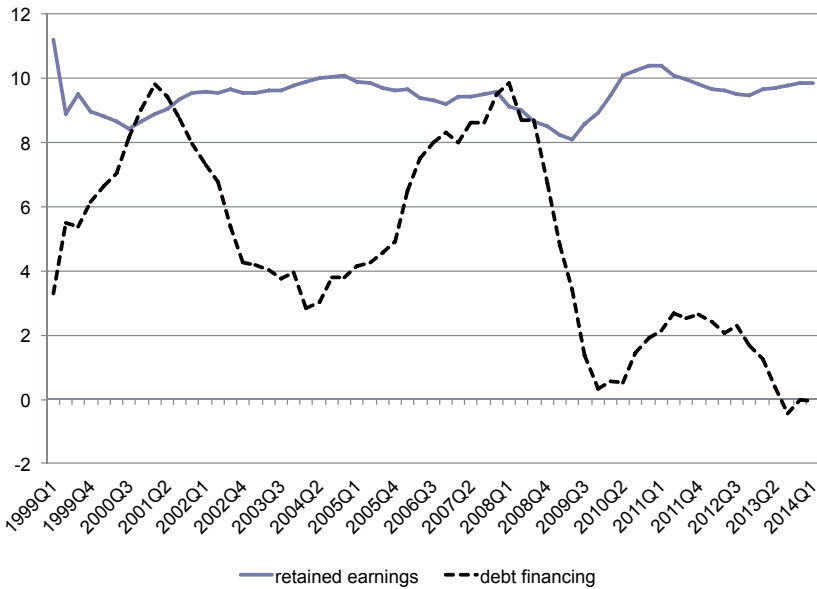
Figure 2.5 NFC internal and external financing* across Eurozone countries (% of GDP)



Notes: *Financial flows. Internal financing is defined as gross saving and external financing includes total liabilities. Before crisis: average Q1/2000-Q2/2008. Post crisis: average Q3/2008-Q4/2013.

Source: ECB and Eurostat for GDP.

Figure 2.6 Retained earnings and debt financing* of Eurozone NFC (% of GDP, moving average)

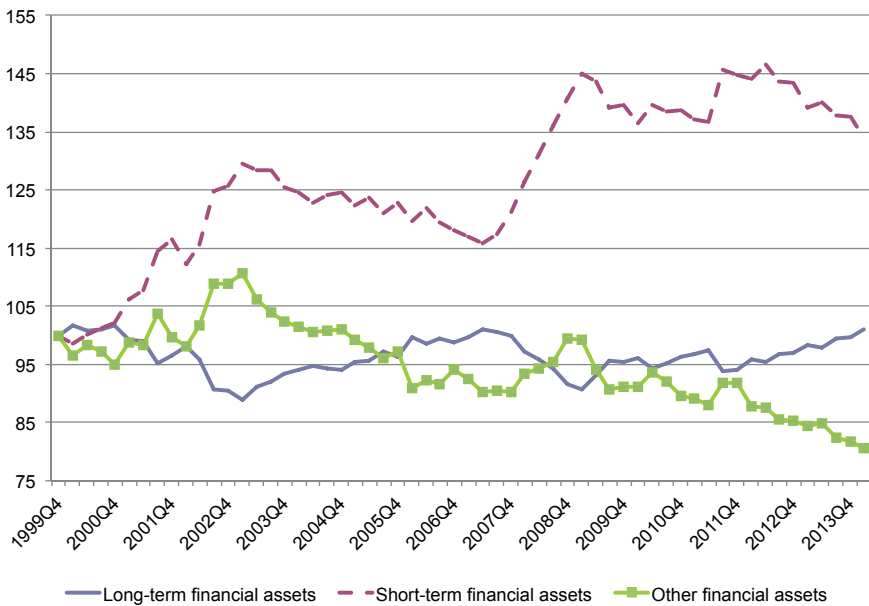


Notes: *Financial flows. Debt financing is defined as loans, debt securities and pension fund reserves.

Source: ECB and Eurostat for GDP.

6. *On the asset side, firms increased their short-term financial asset holdings*
 On the asset side, there is evidence (ECB, 2013) that, between 2007 and 2011, firms increased their holdings of short-term financial assets relative to long-term ones (Figure 2.7), probably as a precaution, and relied to a larger extent on their most liquid assets to cover short-term liabilities. Cash management generally differs according to the size of the firm, as smaller firms tend to hoard larger amounts of cash, potentially as a result of their more limited access to external financing. During the crisis, this trend became even more pronounced.

Figure 2.7 Eurozone NFC: Outstanding financial assets by composition and maturity (% of financial assets, 1999Q4=100)



Note: Long-term financial assets include: long-term loans, long-term debt securities, shares and other equity, pension fund reserves. Short-term financial assets include currency and deposits, short-term loans and short-term securities.

Source: ECB.

7. *Conclusions*

The picture that emerges is of growth in long-term corporate finance in Europe over the last decade in the form of both loans and bonds, but with marked variations in long-term financing patterns across countries. Equity finance has remained stable, with internal retained earnings rising relative to external new equity issues and firms accumulating substantial financial asset holdings.

3 Bonds versus bank finance

1. *Banks have superior monitoring capabilities compared to bond markets*

Bank finance has costs and benefits for firms, in comparison to market-based finance, obtained by issuing securities such as bonds or commercial paper. The bright side of bank finance is its superior ability to mitigate asymmetric information problems between lenders and borrowers, compared to market-based finance. Banks diminish adverse selection through the screening of the borrowers, and reduce moral hazard by monitoring the firms' ex post investment decisions. Both of these activities may improve access to finance and reduce the cost of lending, and therefore allow the funding of financially viable projects that would not be otherwise undertaken.

Security market participants do not have the same incentive to engage in these activities, since free-riding by other market participants would largely prevent them from appropriating the benefits created by screening or monitoring. The mitigation of asymmetric information problems by banks is particularly important for firms that do not yet have an established track record, as highlighted by Diamond (1991): firms that have a good record can easily access securities markets and obtain direct funding from investors, while firms that do not have such a record have the incentive to protect their reputation with banks in order to retain future access to lending.

But banks' ability to extract informational rents from their borrowers (which prompts them to engage in screening and monitoring) also has a dark side: they may end up appropriating such a sizeable share of the profits of their borrowers as to thwart the latter's incentives to perform. This hold-up problem is analysed by Rajan (1992), who shows that it can be mitigated if a borrower also has some access to market-based funding ("arms' length finance"), which provides outside competition to a firm's main bank and so reduces its bargaining power vis-à-vis the firm.

2. *Bond markets mitigate the excessive dominance of bank finance, but are not in general available to SMEs*

Unfortunately, many firms, especially SMEs, have no access to bond and commercial paper markets, and therefore cannot mitigate such hold-up problems. Santos and Winton (2008) provide evidence on this by comparing the pricing of loans to bank-dependent borrowers and to borrowers with access to public debt markets, controlling for risk factors. Firms with public debt market access pay lower spreads and their spreads rise significantly less in recessions; hence, banks with hold-up power over their borrowers raise their rates in recessions by more than warranted by their credit risk.

3. *Bank lending is more volatile than bond finance*

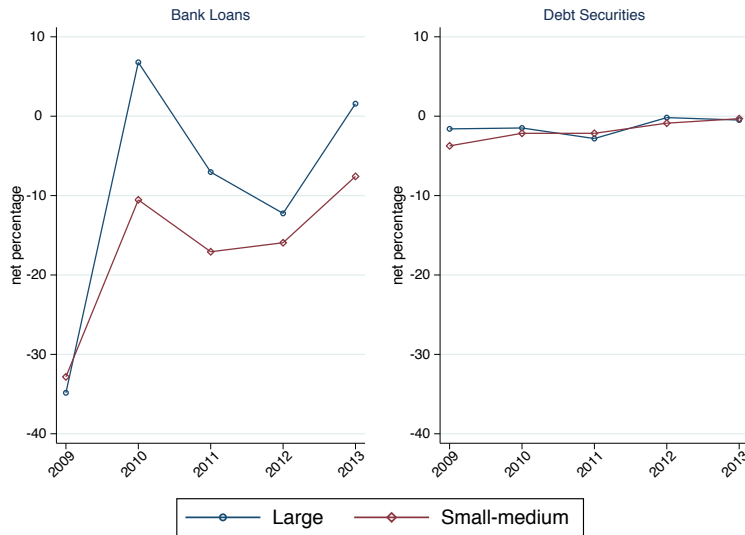
Another dark side of bank lending is that it tends to be more volatile than market-based finance, especially in the context of financial crises. A likely reason for this is the highly leveraged structure of banks; for instance, any adverse asset price drop that reduces the value of their equity forces them to deleverage by a large multiple so as to bring their asset base in line with their lower equity base. This deleveraging may induce a recessionary impulse that creates firm distress and bankruptcies and further losses for banks.

In other words, the highly leveraged nature of banks tends to set in motion a financial accelerator mechanism that amplifies the impact of asset price shocks on both lending and economic activity. In contrast, if the same initial asset price drop were to hit bondholders or shareholders, it would simply be absorbed by their wealth without inducing further deleveraging effects.

4. *The greater volatility of bank finance is evident in the Eurozone*

Figure 3.1 shows data on changes in the availability of bank loans and of bond financing drawing on firm-level survey data of the SAFE database (see Section 5 on “Supply versus demand” for details). More specifically, the figure is based on firms’ answers to the following question: “For each of the following ways of financing, would you say that their availability has improved, remained unchanged or deteriorated for your firm over the past six months?” The left-hand panel of the figure shows the fraction of firms that answer that the availability of bank loans has improved minus the fraction of firms who answer that it has worsened.

Figure 3.1 Availability of bank loans and debt security financing reported by Eurozone firms, with breakdown by size

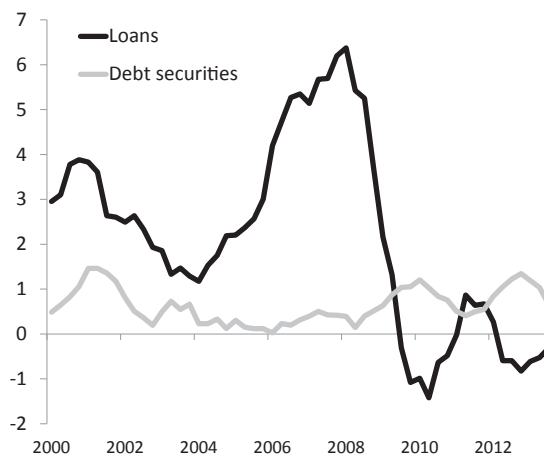


Source: ECB Survey on Access to Finance of Entreprises (SAFE).

In 2009 the net fraction of Eurozone firms that reported a decrease in loan availability was 30%, with no difference between large firms and SMEs; in 2010-13 the net fraction of firms reporting a decrease in loan availability was close to 10% for SMEs, while a smaller fraction of large firms reported a drop in loan availability. In contrast, both types of firms report almost no change in the availability of debt security financing: the net fraction is slightly below zero in 2009-11 and is zero in 2012-13. Hence, firms that were able to access debt security financing were much more insulated from the reduction in the availability of bank loan financing than firms that could access only the latter.

The greater sensitivity of the availability of bank loans to the crisis, compared to bond financing, is matched by a much greater volatility of actual bank loans than of debt security funding to European non-financial firms, as shown by Figure 3.2, where both variables are scaled by nominal GDP. Quite clearly, the volatility of bank loans greatly exceeds that of debt security funding: not only do bank loans drop more in the 2009 and in 2011 crises, but they expand much more in the pre-crisis period. Their greater pro-cyclicality is apparent both in the upswing and in the downswing of the financial cycle. Moreover, the figure shows that the two types of financing are not always positively correlated: in fact, in both the subprime crisis and the Eurozone crisis, debt security financing of Eurozone firms expanded at the same time as their bank loans dropped, relative to GDP. This suggests that firms that had access to debt security markets were buffered, at least partially, against the contraction of their bank loans by issuing more debt securities.

Figure 3.2 Bank loans and debt security funding to the European non-financial corporate sector, as a fraction of nominal GDP

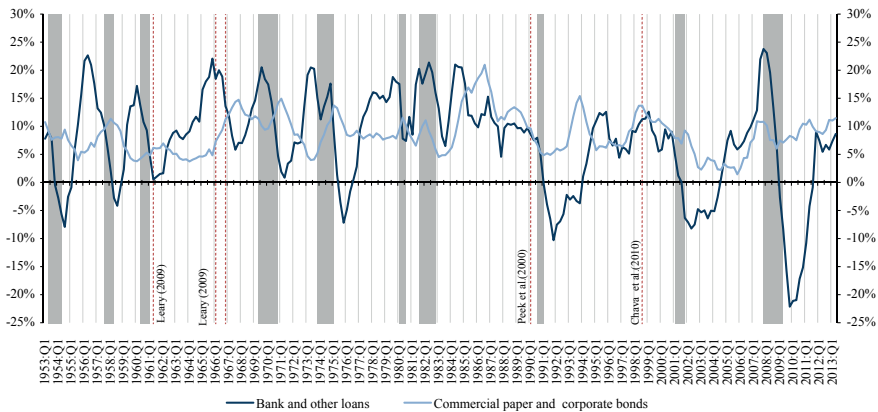


Source: ESRB (2014).

5. *The greater volatility of bank loans is also observed in the US*

Looking at US aggregate data allows us to extend the time dimension and go back to the 1950s; Figure 3.3 confirms that the loan series shows the typical pro-cyclical pattern of rising during booms and contracting sharply in recessions.⁹ Bond financing behaves very differently across the business cycle. Several recessions – notably the three most recent: 1990-91, 2001 and 2007-09 – exhibit rapidly shrinking bank debt at some point during the recession. Public debt is more stable and less affected by recessions, and appears even to rise mildly during the recent financial crisis. Indeed, Adrian et al. (2012) highlight the relatively larger role of the bond market compared to commercial paper in offsetting the contraction in bank credit. As shown in Figure 3.4, during the economic downturn of 2007-09, the total amount of new issuances of loans in the US decreased by 75%, but, at the same time, there was a two-fold increase in bonds. The probability that bonds would be issued increased by 14%. Since the costs of both types of financing show a step increase (four-fold for new loans, and three-fold for bonds), Adrian et al. take this as evidence of an increase in demand of bonds and a simultaneous contraction in banks' credit.

Figure 3.3 Corporate credit growth: Loans and bonds, 1953-2013

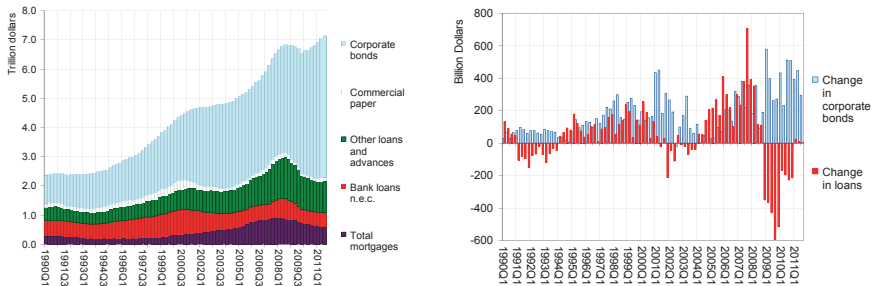


Notes: Shaded areas indicate NBER recession periods. Dashed vertical lines indicate exogenous shifts in bank credit supply documented in the existing literature. For example, (i) 1961 credit expansion following emergence of the market for deposits certificate (Leary, 2009); (ii) 1966 credit crunch (Leary, 2009); (iii) 1990 credit contraction following the burst of the Japanese real estate bubble (Peek and Rosengren, 2000); and (iv) 1998 credit contraction following the Russian debt crisis (Chava and Purnanandam, 2011).

Source: Becker and Ivashina (2014).

⁹ The massive increase in loans in the year leading up to the Subprime Crisis, has been due, among other things, to the practice of securitization of corporate bank loans which reduced the cost of capital (Nadauld and Weisbach 2012).

Figure 3.4 Credit to US non-financial corporate sector (left-hand panel) and changes in outstanding corporate bonds and loans to US non-financial corporate sector (right-hand panel)



Source: Adrian et al (2012).

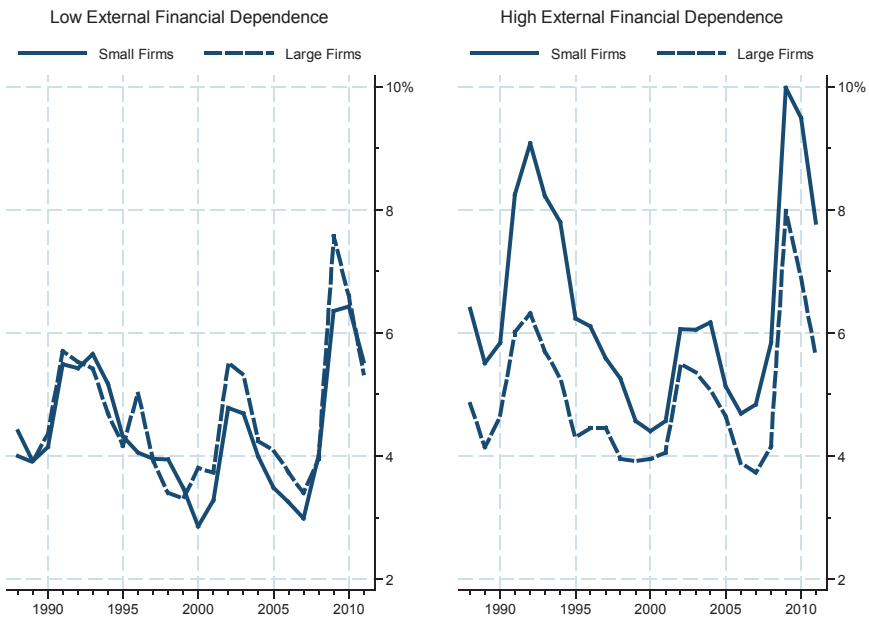
6. *There is evidence of substitution of bond finance when bank finance is scarce...*
 Evidence that firms turn to the bond market to substitute for scarce bank loans has already been reported in the study by Kashyap et al. (1996) who showed that following a monetary tightening, non-financial corporations tend to issue relatively more commercial paper. More recently, Becker and Ivashina (2014) examine new debt issuances across the business cycle. They find evidence of substitution from loans to bonds during times of tight monetary policy, tight lending standards, high levels of non-performing loans, and low bank equity prices.
7. *... but it is not available to small firms*
 Only a small minority of firms has access to the public debt markets.¹⁰ Companies accessing the bond market tend to be bigger and with higher credit quality (Denis and Mihov, 2003). They also have greater leverage, which may reflect less stringent credit constraints compared to firms that are bank-dependent.

Due to greater asymmetric information, smaller and less transparent borrowers, being less able to access alternative source of funding, should exhibit greater sensitivity to credit supply constraints. Chodorow-Reich (2014) finds evidence of this looking at the 2008-09 crisis in the US. He finds that firms associated with banks that were more affected by the crisis reduced the number of their employees more than other firms. However, while this is true for small and medium firms, the data cannot reject the hypothesis of no effect in the largest and most transparent firms.

¹⁰ Even for public companies in the US, the percentage of companies issuing bonds is small. In the sample of Faulkender and Petersen (2006), who consider all US publicly traded companies excluding the financial and public sectors and companies with assets or sales under \$1 million, only 19% of the firms have access to the public debt markets in a given year.

Duygan-Bump et al. (2011) use a different methodology but reach a similar conclusion. They exploit the differential financing needs of industrial sectors and provide strong empirical evidence that financing constraints of small businesses in the US are important in explaining unemployment dynamics. They show that workers in small firms were more likely to become unemployed during the 2007-09 financial crisis and in the 1990-91 recession if they worked in industries with high external financing needs (Figure 3.5).

Figure 3.5 Likelihood of transition from employment to unemployment in the US by industry and firm size



Source: Duygan-Bump et al (2011).

8. *The problem of the cyclicity of bank finance will be particularly serious in countries with less developed public markets*

If this is true in the US, the impact of a bank-credit tightening will be even greater in countries where public markets are less developed. Consistently, Gambacorta et al. (2014) find that, when an economic downturn is associated with a financial crisis, the real costs are three times larger in countries with bank-oriented systems than in those with a market-oriented financial structure, as shown in Table 3.1. This is confirmed by the cross-country regression analysis by Pagano and Langfield (2014), who show using 1989-2011 data that in bank-dependent countries, the GDP growth rate is more severely affected by severe housing and stock prices drops than it is in security-market-based economies.

Table 3.1 Output costs of recessions and financial structure

	Financial structure	Number of observations	Total real GDP loss (d) + (r)	Real GDP loss during downturn (d)	Real GDP loss during recovery (r)	Primary fiscal balance to GDP
	(I)	(II)	(III)	(IV)	(V)	(VI)
All downturn episodes	Bank-based	40	4.33	3.73	0.60	-2.11
	Market-based	31	3.73	3.92	-0.19	-1.62
no financial crisis	Bank-based	26	-0.09	1.70	-1.79	-1.62
	Market-based	16	3.24	3.60	-0.36	-2.02
with financial crisis	Bank-based	14	12.54	7.51	5.03	-2.99
	Market-based	15	4.24	4.25	-0.01	-1.19

Source: Gambacorta et al (2014).

9. *Equity markets are unlikely to offer an alternative source of finance for SMEs*

Can other forms of financing substitute bank credit? Leary (2009) provides some evidence of substitution towards equity markets during periods of bank lending contraction in the US. He uses two shocks: the credit expansion following the emergence of the market for deposit certificates in 1961, and the credit crunch of 1966. He shows that firms without bond market access are relatively less likely to use equity financing rather than debt following the first shock, but are relatively more likely to issue equity after the second. However, it is difficult to imagine that equity issuance can offset the impact of a credit supply shock. Firms raise much less equity than debt. For example, Erel et al. (2011) report that US non-financial firms issued ten times more in public bonds than in seasoned equity offerings over the 1971-2007 period, and even more in private debt (loans).

10. *But trade credit might be an alternative for SMEs*

Finally, trade credit could represent an alternative source of finance when banks reduce their credit to firms. In fact, Garcia-Appendini and Montoriol-Garriga (2013) find that firms with high liquidity levels before the subprime crisis subsequently increased trade credit extended to other firms. Symmetrically, trade credit taken by constrained firms increased during the same period.

11. *Conclusions*

Banks perform a particularly important financing function, but bank funding can be expensive and cyclical. Firms that have access to bond markets are less exposed to the dominance of and fluctuations in bank finance. However, bond financing is not in general available to SMEs or to companies operating in less well developed capital markets. Equity markets do not provide an alternative to debt forms of finance, and instead trade credit is an important source of finance for SMEs.

4 Debt and equity

1. *Initial public offerings have declined*

Companies use different sources when financing their investments. They can use internal sources such as retained earnings, or external financing such as bank loans, corporate bonds and public equity. When using bond and equity, companies turn to capital markets in the form of the general public and the broad spectrum of institutional investors. Access to capital market-based financing has become even more important for companies in the post-financial crisis period, when bank lending to non-financial companies decreased significantly in Europe. Non-financial companies, in particular, were therefore forced to seek new sources of financing.

Box 4.1 Methodology

The analysis in this section is based on original OECD calculations using data obtained from Thomson Reuters' Thomson ONE new issues database. IPO and secondary public offering (SPO) data exclude investment funds, Real Estate Investment Trusts (REITs) and over-the-counter (OTC) markets. The IPOs of companies that were listed in an organised market after the IPO but currently traded in OTC markets are included. The definition of SPO covers all share issues of listed companies after an IPO.

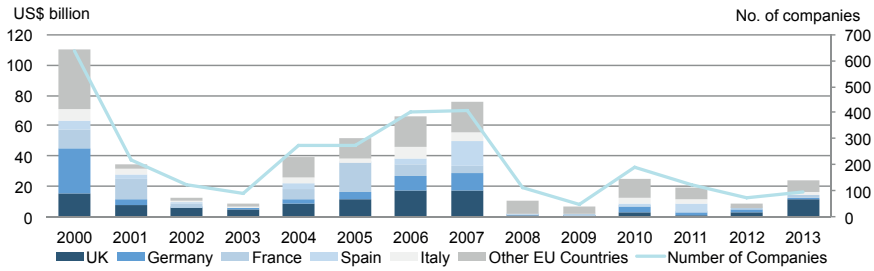
Primary corporate bond data exclude sukuk bonds, private placements (excluding Rule 144A transactions in the US), convertible bonds, preferred shares and bonds with an original maturity less than one year or an issue size less than \$1 million. Tranches under the same bond package are counted as a single issue.

The country breakdown was carried out based on the domicile country of the issuer. Issuance amounts are in 2013 US dollars adjusted by US GDP deflator.

Despite the need for greater access to capital market-based financing, initial public offerings (IPOs)¹¹ by companies in Europe have, on average, declined since 2000 and have still to rebound to their pre-crisis levels. Figure 4.1 shows the total amount of equity raised through IPOs by companies domiciled in Europe and the number of new listings during the period 2000-13. The annual average number of European companies that made an IPO in the period 2000-07 was 304. In the aftermath of the financial crisis, that number fell by about 65% to 108. The amount of capital raised via IPOs also fell quite dramatically between the two periods, from an annual average of \$51 billion to \$16 billion.

¹¹ A systemic overview of developments in primary public equity markets can be found in Isaksson and Çelik (2013).

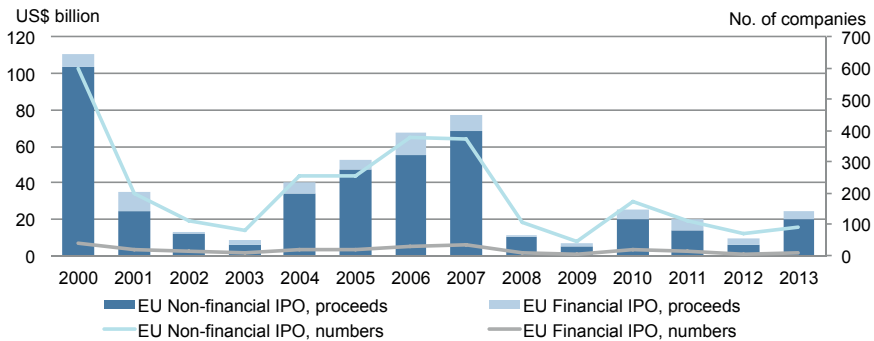
Figure 4.1 Initial public offerings (IPO) by companies in Europe



Source: OECD calculations, see Box 4.1 for details.

Figure 4.2 shows that non-financial companies in Europe have raised more money through IPOs than financial firms, despite the overall decrease in IPOs since 2000. In contrast, the total share of funds raised via IPOs by financial firms never exceeded 35% in the period 2000-2013.

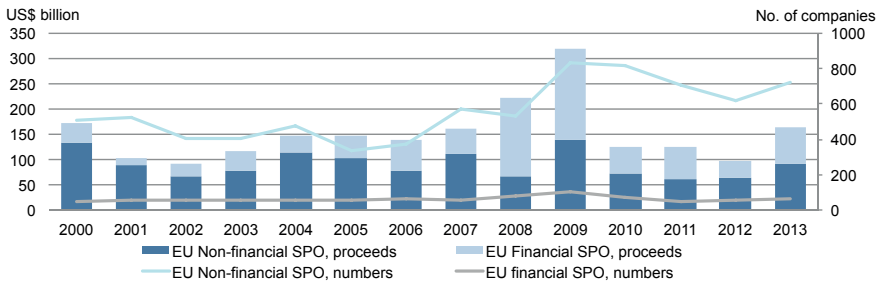
Figure 4.2 Initial public offerings (IPO) by financial and non-financial companies in Europe



Source: OECD calculations, see Box 4.1 for details.

2. *Secondary public offerings have increased*

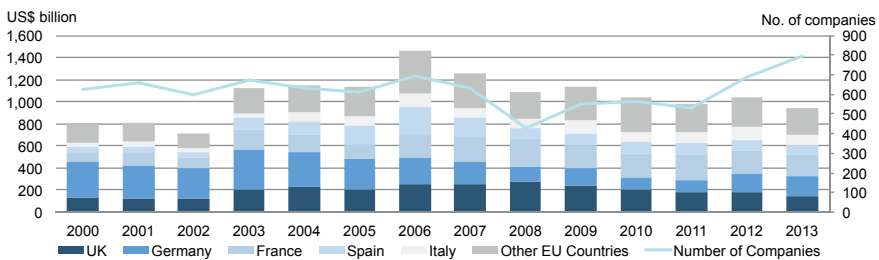
The second way in which a company can raise equity in the capital market is a secondary public offering (SPO), when an already publicly listed company turns to capital markets to raise additional equity capital. Figure 4.3 illustrates that, in contrast to IPOs, the number of SPOs by companies in Europe – particularly non-financial firms – remained steady or gradually increased between 2000 and 2013. Significantly, proceeds from SPOs by European companies exceeded those from IPOs in every year for the period 2000-2013. This is particularly true in 2008 and 2009, when access to credit was often restricted and when the amount of equity that European companies raised through SPOs reached record levels.

Figure 4.3 Secondary public offerings (SPO) by companies in Europe

Source: OECD calculations, see Box 4.1 for details.

3. Bond issuance has increased

A third source of capital for companies seeking to finance their investments is to issue corporate bonds. Figure 4.4 summarises the trend in corporate bond issuance by European companies during the period 2000 to 2013. The figure shows that, on average, the total number of bond-issuing companies, as well as the amount of money raised through bond issues, increased in the 2000 to 2013 period. From 2000 to 2006, there was an upward trend in the total annual amount of money raised through corporate bond issues, from \$797 billion in 2000 to \$1.5 trillion in 2006. After 2006, the primary corporate bond market has seen a steady decrease in the amount of funds raised and was again below \$1 trillion in 2013. This runs contrary to the developments in the rest of the world with respect to the increased use of corporate bonds after 2008.

Figure 4.4 Corporate bond issuance by companies in Europe

Source: OECD calculations, see Box 4.1 for details.

4. But there are significant differences across countries in bond market issuance

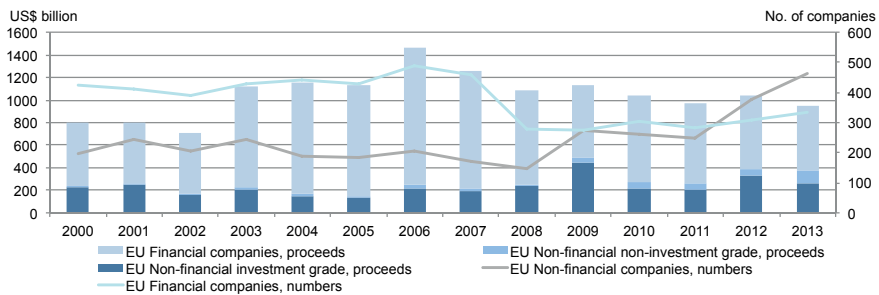
Overall, the total number of companies issuing bonds during this period increased from 623 in 2000 to 798 in 2013, despite the decrease in funds raised via bond issues. The relative per-country share of corporate bond issues by companies across Europe has changed over the period. For example, the share of German companies' corporate bond issues among the total money raised by European companies decreased from 41% in 2000 to 19%. This was mainly a result of a decrease in funds raised by German companies from

the issuing of corporate bonds from \$329 billion to \$180 billion in the same period. At the same time, however, the share of UK companies remained fairly stable, ranging between 15% and 20% of all European companies' corporate bond proceeds. The amount of money raised by companies in France, Spain, and Italy increased during this period, from 10% to 21% in France, from 6% to 9% in Spain, and from 5% to 10% in Italy.

5. *The share of bond issuance by non-financial companies has increased relative to financial institutions*

Figure 4.5 differentiates between bond issues and proceeds raised by them for financial and non-financial European companies. Following the financial crisis, non-financial firms' use of corporate bonds nearly doubled in absolute terms, while the issues by financial firms dropped by more than 50% from 2006 to 2013. As a result, non-financial companies' proceeds as a share of the total proceeds from all bond issues increased from an average 21% in the period 2000-07 to 33% in the period 2008-13. While there has been a considerable increase in the number of corporate bond issues by non-financial companies in the post-crisis period, the share of bond issues by non-financial companies is still well above the comparable share of US non-financial companies, who in 2013 received about two thirds of all money through corporate bond issues (Çelik et al., 2014).

Figure 4.5 Corporate bond issuance by financial and non-financial companies in Europe



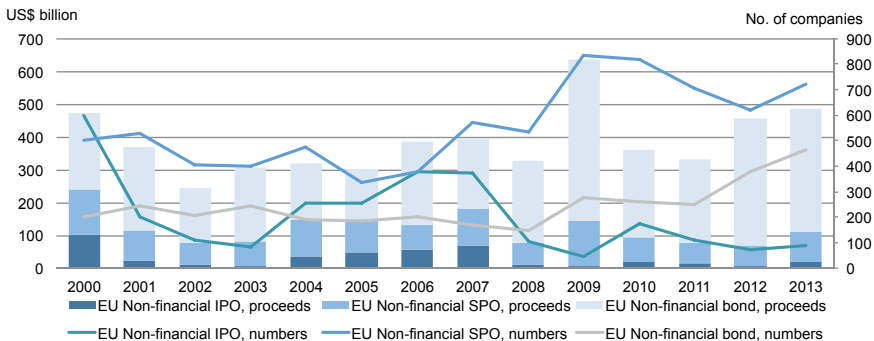
Source: OECD calculations, see Box 4.1 for details.

6. *Non-financial companies have increased their use of bond and secondary equity issuance*

The developments in terms of market-based bond and equity financing by non-financial companies in Europe are summarised in Figure 4.6. The figure illustrates that a record level in terms of external financing was reached in 2009, driven by record SPOs as well as an increase in corporate bond issues. European non-financial companies raised \$145 billion in public equity and \$492 in corporate bonds in 2009. The number of companies that raised funds by SPOs has decreased slightly but remains higher than pre-2009 levels. The number of bond issues has steadily increased. In contrast, the number of

new listings has fallen to 90 in 2013 from 598 in 2000. It is important to note the shift in the relative importance of public equity and corporate bond financing. The share of public equity in total external financing was on average 39% in the period between 2000 and 2007. However, the share of equity decreased to 15% and 23% in 2012 and 2013, respectively.

Figure 4.6 Capital market financing by non-financial companies in Europe



Source: OECD calculations, see Box 4.1 for details.

7. Conclusions

Market sources of funding for non-financial corporations have increased relative to those of financial institutions. Initial public offerings by non-financial corporations have decreased and secondary public offerings have increased in relative importance. Corporate bond issuance by non-financial corporations has increased in significance relative to equity sources.

Part 2: Causes

5 Supply versus demand

1. *Credit booms and busts can reflect demand or supply factors*

Financial frictions can manifest themselves through shocks to the demand for credit or to its supply. Financial crises are usually preceded by a large increase in debt-based financing (Schularick and Taylor, 2012). Credit booms can arise from an increase in demand for credit due to productivity or technology shocks, or from an increase in the supply of credit caused by factors such as financial innovations (e.g. securitisation) or a loose monetary policy. Symmetrically, in an economic downturn, both forces can be at play. The demand for credit can collapse because of a reduction in the creditworthiness of borrowers, due for instance to a drop in collateral values or in the expected cash flow of borrowers' projects. But the supply of credit can also drop if banks decide to tighten their lending criteria or if a monetary policy tightening leads to higher interest rates. Macroeconomists have debated the relative importance of the two channels in the credit cycle for a long time.

In this section, we start by looking at some aggregate data about changes in the supply of credit by Eurozone banks and in the demand for credit by Eurozone firms based on survey evidence. Then we survey the most common empirical strategies that have been used in the literature to identify the relative contributions of demand and supply shocks to credit, and their real effects. Finally, we highlight the research issues that are still unresolved in this area.

2. *Eurozone banks have tightened their credit standards*

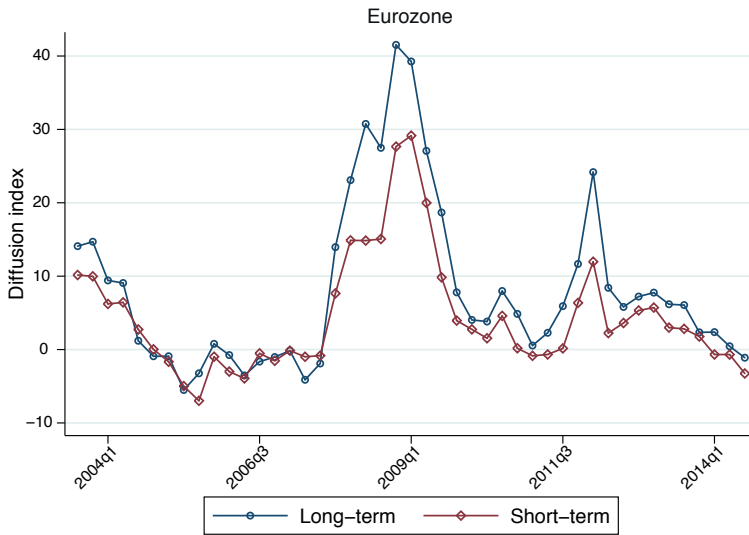
In both the 2007-09 subprime crisis and in the euro sovereign debt crisis of 2010-12, Eurozone banks have considerably tightened their credit standards relative to the pre-crisis period, especially in granting long-term loans to enterprises, as illustrated by Figure 5.1. The data shown in the figure are drawn from the Bank Lending Survey (BLS), carried out by the ECB on a quarterly basis, interviewing about 90 banks from most Eurozone countries.¹² The chart plots "diffusion indices", which measure the extent to which in each quarter Eurozone banks have on average loosened or tightened long-term and short-term credit standards relative to the previous quarter.

Figure 5.1 shows that before the subprime crisis, banks steadily lowered their credit standards, a fact that – using the BLS data – Maddaloni and Peydró (2011) relate to the lax pre-crisis monetary policy. They show that low short-

¹² The survey covers banks from Austria, Cyprus, Estonia, France, Germany, Ireland, Italy, Latvia, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia and Spain, but not from Belgium, Greece or Finland. Short-term loans are defined as those with original maturity of one year or less, while long-term loans are those with original maturity above one year.

term interest rates softened lending standards for businesses and households alike, especially when kept persistently low. Conversely, banks tightened their lending standards during both the subprime crisis and the euro debt crisis. Country-level plots of the diffusion index (not reported for brevity) indicate that such tightening has been considerably more severe in Italy and Spain than in France and Germany.

Figure 5.1 Credit standards required by Eurozone banks to firms, by loan maturity

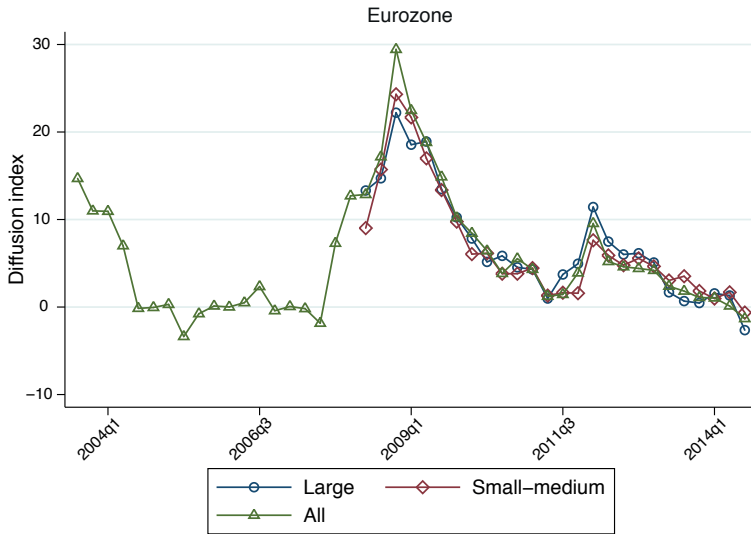


Source: ECB Bank Lending Survey, loan supply to enterprises.

The tightening of lending standards has involved an increase in the collateral requirements and a significant shortening of loan maturities, especially in 2009, as shown by Figures 5.2 and 5.3, respectively, both also based on BLS data. Country-level data show that in 2009 the tightening of collateral requirements was particularly severe in Spain, while the shortening of loan maturities was particularly strong in Italy. Disaggregating the BLS data by firm size shows that, quite surprisingly, banks report having tightened lending standards more for large than for medium and small firms. However, this is not how firms perceive their lending policies, as shown by another Eurozone survey, the Survey on the Access to Finance of Enterprises (SAFE), which samples thousands of Eurozone firms.¹³ As shown by Figure 5.4, small, medium and micro firms report a greater tightening of credit availability than large ones (left panel); the tightening is particularly severe for micro firms (right panel).

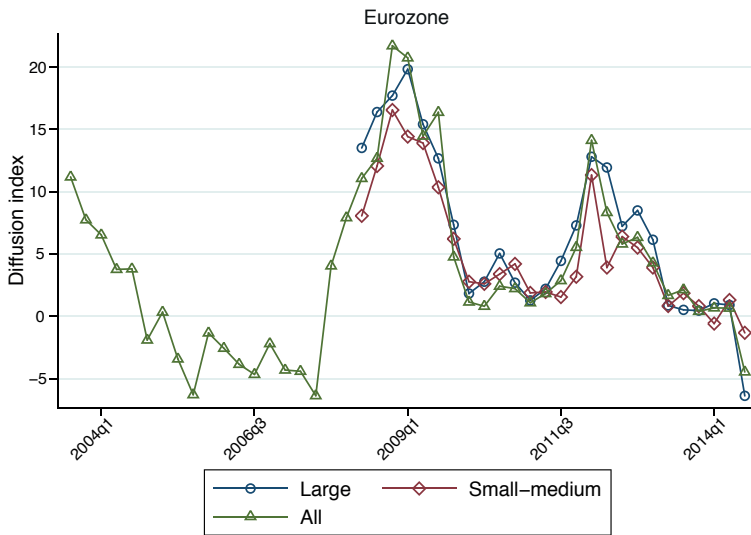
¹³ SAFE samples thousands of Eurozone firms (in Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal and Spain), and covers micro (1 to 9 employees), small (10 to 49 employees), medium-sized (50 to 249 employees) and large firms (250 or more).

Figure 5.2 Collateral requirements by Eurozone banks

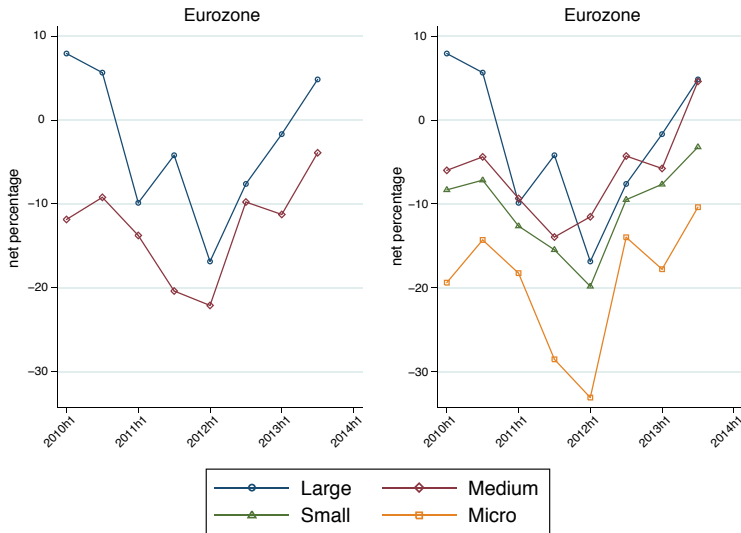


Source: ECB Bank Lending Survey, loan supply to enterprises.

Figure 5.3 Loan maturity of loans offered by Eurozone banks



Source: ECB Bank Lending Survey, loan supply to enterprises.

Figure 5.4 Credit availability reported by Eurozone firms, by size

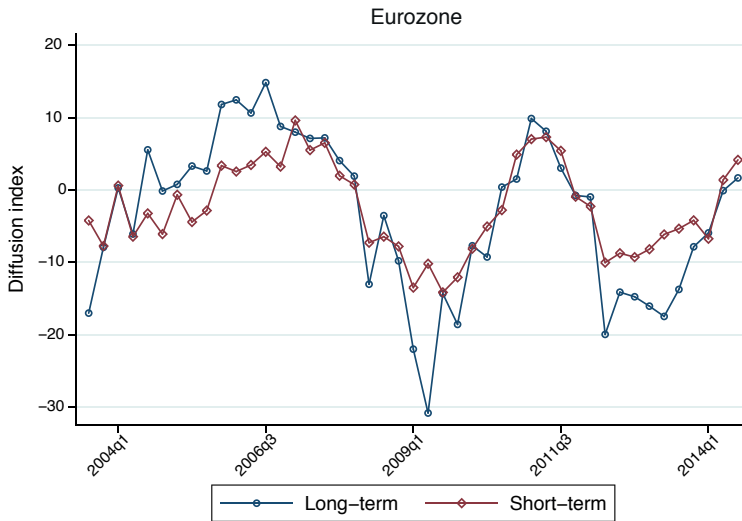
Source: ECB Survey on Access to Finance of Enterprises.

3. *Demand for bank loans has also diminished*

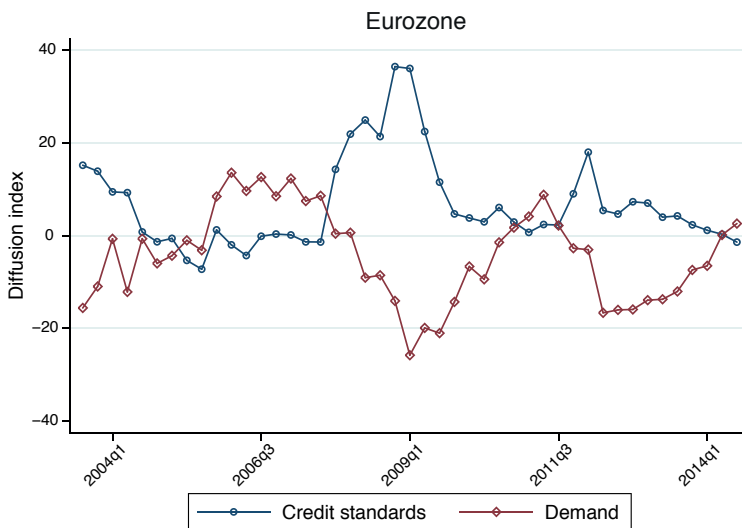
As noted above, the actual amount of bank lending observed in the economy depends not just on the credit standards chosen by banks (the supply side) but also on the demand for loans by firms, which dropped considerably, especially in the Eurozone periphery countries, at approximately the same time as banks were tightening their credit standards. As the recession induced by the crisis hit firms, it reduced their desired production levels, hence also their desired amount of loans. This emerges clearly from Figure 5.5, which is also based on BLS data.¹⁴ The figure shows a breakdown between the demand for short- and long-term loans: clearly, in both crisis episodes, there has been a sharper drop in the demand for long-term than for short-term loans.

The contemporaneous shifts in banks' credit standards and in the demand for loans obviously makes the identification problem difficult, as underscored by Figure 5.6, which plots the diffusion index for Eurozone banks' credit standards together with that for the demand for loans by their borrowers. The figure shows that the changes are largely contemporaneous: almost at the same time as banks tighten their credit standards, firms reduce their demand for bank loans.

¹⁴ The data plotted in the figure represent a diffusion index based on the answers to the following question: "Over the past three months, how has the demand for loans or credit lines to enterprises changed at your bank, apart from normal seasonal fluctuations?"

Figure 5.5 Demand for loans by Eurozone firms, by loan maturity

Source: ECB Bank Lending Survey, loan supply to enterprises.

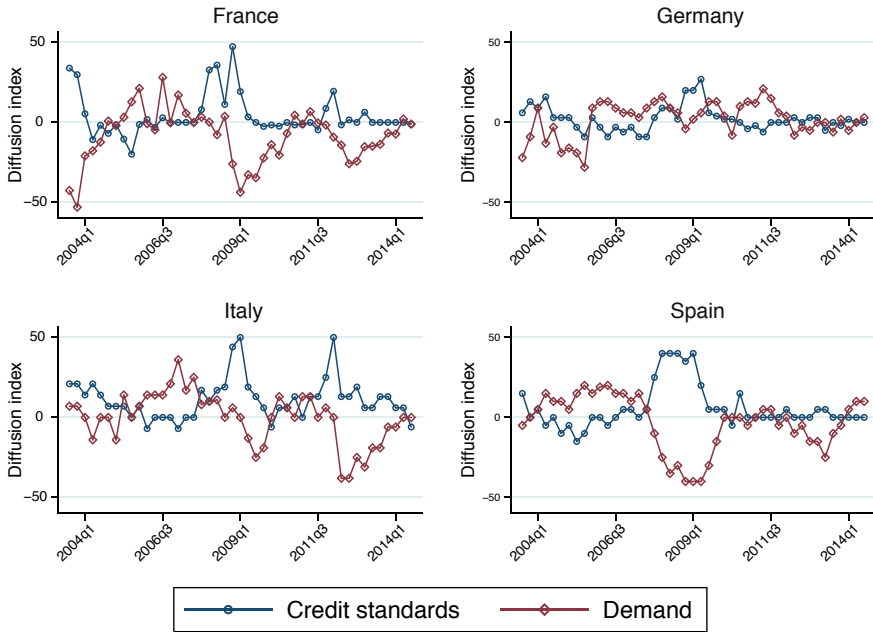
Figure 5.6 Credit availability reported by Eurozone firms, by size

Source: ECB Bank Lending Survey, credit standards and demand for loans to enterprises.

4. *There is some evidence that credit-supply tightening preceded falls in demand*
When one considers the same graph at the country level, as in Figure 5.7, a time pattern emerges for Italy and France, where the tightening of credit standards leads the drop in demand for loans by about two quarters. A possible interpretation is that in these two countries the initial shock was a credit crunch, which induced a slowdown in economic activity and therefore

a drop in the demand for credit. However, no such timing relationship is observed in Spain, where banks tighten their standards at exactly the same time as firms' demand for loans drops.

Figure 5.7 Credit standards and firms' demand for loans in selected countries



Source: ECB Bank Lending Survey, credit standards and demand for loans to enterprises.

In Germany the relationship is more complex. Until the end of 2008, credit standards appear positively correlated with the demand for loans: as firms demand more credit, banks tighten their standards, and as firms reduce their demand for credit, banks soften their standards. The two series become instead inversely correlated (as in the other three countries) during the two crises, but with an important difference: during the sovereign debt crisis of 2010-11 the demand for credit by German firms increases, while German banks soften their standards – exactly the opposite of what happens in the other three countries. A possible explanation is that, just as in the Eurozone periphery the rise in sovereign yields fed into local banks' rates, correspondingly the drop of the Bund yield induced German banks to lower lending rates, thus stimulating demand for credit by firms.

5. *There are three possible types of shocks*

Much recent literature in banking has engaged in the quest to identify the source of changes in observed credit. Most of this literature has not used aggregate data of the type illustrated above, but microeconomic data – either at the firm and bank level, or even at the loan and credit application level –

in order to find appropriate instruments or to identify suitable quasi-natural experiments. In what follows, we briefly survey some of these studies.

Before we do so, it is worth highlighting that the distinction between demand and supply, which we are used to in the context of Walrasian markets, is much less clear in the context of markets that may feature binding rationing constraints. For instance, consider a monetary policy expansion via a drop in the policy interest rate at which banks can borrow from the central bank. Insofar as banks reduce the lending rate to firms and households, one could view this as a (positive) shock to the supply of credit; yet, to the extent that the drop in the interest rate translates into a higher value of collateral, it enables credit-constrained firms and households to increase their (effective) demand for credit. The point is that in an equilibrium with rationing, the rationing constraint interacts with both supply-side variables (such as the interest rate charged by banks) and demand-side variables (such as the expected income that can be pledged to serve debt).

This suggests that a better classification might be a three-way one, namely one that distinguishes (i) (pure) demand-side shocks, such as those deriving from changes in the demand for firms' output; (ii) collateral-value shocks (whether due to changes in interest rates or, say, in the taste for owner-occupied housing); and (iii) (pure) supply-side shocks, such as those deriving from banks' lending policies, like a change in the loan-to-value ratio (LTV) required from mortgage applicants due to a change in prudential regulation.

6. *There is evidence of the impact of demand*

In an economic downturn consumers reduce their desired consumption and increase savings. Mian and Sufi (2012) show the importance of the aggregate demand collapse driven by shocks to households' balance sheets in the subprime crisis. As a consequence, firms reduce capital expenditures, as some growth opportunities are no longer valuable. Moreover, uncertainty about future prospects increases and, consequentially, the real-option value to wait increases, so firms scale back their investment plans (Bloom, 2009).

Kahle and Stulz (2013) find that a common factor, such as a drop in demand, seems to be the main driver of the reduction in investments in the subprime crisis. They find that bank-dependent firms do not decrease capital expenditures more than matching firms in the first year of the crisis or in the two quarters after Lehman Brother's bankruptcy. They also find no evidence that bank-dependent firms reduce their cash holdings more than other firms to offset the reduction in credit.

Dell'Ariccia et al. (2012) also document that in the US subprime mortgage crisis, demand-side factors contributed to the rapid expansion of the US mortgage market, in the sense that banks lowered their standards in response to a greater demand for credit. Specifically, they show that banks' denial

rates were lower in areas that experienced faster credit demand growth and that lenders in these high-growth areas attached less weight to applicants' loan-to-income ratios. The results are robust to controlling for supply-side factors, including house price appreciation, mortgage securitisation, and other economic fundamentals, and to robustness tests controlling for endogeneity.

7. *Collateral value shocks affect the borrowing capacity of firms*

When asset values fall, the value of firm collateral falls and this makes it difficult for firms to borrow as much as they had done previously. This channel is known as a collateral or balance sheet channel. Bernanke and Gertler (1989), Gertler (1992), among others, have pointed out that collateral price changes affect the investment of financially constrained firms. Kiyotaki and Moore (1997) later developed their insights about the financial accelerator into a general equilibrium theory of credit cycles. The basic idea in this line of research is that, due to asymmetric information in the credit market, firms' ability to borrow depends on the market value of their collateral, so that a drop in asset prices causes a deterioration in their borrowing capacity and forces them to cut back on investment; the resulting slowdown in economic activity reduces asset prices further. This generates a feedback loop of falling asset prices, deteriorating balance sheets, tighter credit and slowdown in real activity. Hence, even a small change in financial asset prices may produce a large recession or boom in the economy.

Recently the literature on collateral and investment has been revived by the financial crisis. Gan (2007) shows, using a difference-in-difference approach, that land-holding Japanese firms were more affected by the burst of the real estate bubble at the beginning of the 1990s than firms with no real estate. A more sophisticated study by Chaney et al. (2012) computes the sensitivity of investment of US firms to local collateral values (rather than to the aggregate price level change as in Gan, 2007), by using local variations in real estate prices as shocks to the collateral value of firms that own real estate. They find that, over the 1993-2007 period, the representative US corporation invests \$0.06 out of each \$1 of collateral. In the paper, the authors address the potential endogeneity of local real estate prices by instrumenting them with the interaction between the long-term interest rate and local housing supply elasticity, as in Mian and Sufi (2011). They also try to assess the possible bias induced by the endogeneity of the decision to own or lease real estate by firms.

8. *Credit-supply tightening leads to a reduction in investment*

An alternative view posits that the drop in corporate investment in a crisis is due to a shock to the supply of credit. Unusual or unexpected events, like the Lehman bankruptcy in September 2008, trigger flight-to-quality episodes among investors, which reduce the supply of many forms of credit and make credit more expensive in general. Caballero and Krishnamurthy (2008) and

Easley and O'Hara (2010) claim that a crisis generates Knightian uncertainty among investors who are not able to estimate probability distributions and so decide to shy away from investments. This produces the freeze-out of many security markets. This may affect firms directly, insofar as they rely on security markets – such as the bond or the commercial paper market – for their funding. The freeze-out may also affect them indirectly, insofar as they depend on banks that in turn rely on such markets (e.g. the market for securitised assets) for their funding.

Campello et al. (2010) use survey data in which they ask chief financial officers across the world questions about how the crisis affected them. They find that more financially constrained firms planned deeper cuts in spending on technology, employment, and investment. Almeida et al. (2009) show that firms with a large proportion of their long-term debt maturing right at the time of the crisis reduced investments more than otherwise similar firms that did not need to refinance their debt during the crisis. In the same spirit, Duchin et al. (2010) find that US public companies with high cash holdings at the start of the crisis experienced less of a decrease in investment during the first year of the crisis.

In the financial cycle, bond financing appears much more stable than bank credit, which tends to drop more significantly in a recession (see Section 3 on “Bonds versus bank finance”). If banks experience large losses or face a drying up of liquidity, they will tighten their lending standards (Brunnermeier, 2009). Bank-dependent firms that are not able to substitute a source of funds are forced to cut investments and employment. For instance, Acharya et al. (2014) show that the sovereign debt crisis and the resulting credit crunch in the periphery of the Eurozone led to a contraction in borrowing, investment and employment in firms with a higher exposure in the syndicated loan market to banks affected by the sovereign debt crisis. Using a firm fixed effect panel data estimation, they show that their results are not driven by country- or industry-specific macroeconomic shocks or changes in the demand for credit of borrowing firms, as they compare, say, German firms that are more dependent on Eurozone periphery banks with German firms that are less dependent on such banks.

9. *Evidence from companies that borrow from several banks points to the significance of supply factors*

In general, the empirical challenge faced by these studies is that the reduction in credit may be due to a lower demand for credit by firms, not just to a credit crunch due to banks' lending policies unrelated to borrowers' performance. Having two groups of banks affected differently by the crisis is not enough to disentangle demand and supply. Banks more affected by the crisis can be associated with riskier borrowers; hence, if one finds that weak banks reduce their credit supply, this could still be just driven by demand.

Khwaja and Mian (2008) were the first to adopt a methodology that allows one to identify convincingly the bank supply channel. They study firms' borrowing from multiple banks, where the banks differ in their exposure to a liquidity shock induced by unanticipated nuclear tests in Pakistan. Using firm fixed effects (FEs), they compare how the same firm's loan growth from one bank changes relative to that from another, more affected bank. Since they hold the demand side constant (as they consider loans to the same firm), any difference in the loan growth can convincingly be attributed to bank supply. Their within-firm estimation reveals that a one percentage point decline in bank liquidity reduces the amount lent by 0.6%.

Along similar lines, Iyer et al. (2014) use the firm fixed effect methodology to study the effect of the freeze in interbank markets in August 2007 on the credit supply by Portuguese banks. They find that banks that relied more on interbank borrowings cut lending more (compared to banks with less interbank funding) to the same borrower. Moreover, they find that firms are not able to substitute their source of credit by patronising less-affected banks. Cingano et al. (2013) use Italian data to show the real effects of the interbank market freeze of 2007. They find that the liquidity drought accounts for more than 40% of the negative trend in investments by Italian firms between 2007 and 2010. In their work, a ten percentage point fall in credit growth reduces the investment rate by 8-14 points over four years. Although detailed credit register data do not exist in the US, Chodorow-Reich (2014) applies the firm fixed effect methodology to the analysis of syndicated loans to US listed companies, and finds that firms that had pre-crisis relationships with weak banks had a lower likelihood of obtaining a loan after Lehman's bankruptcy and reduced employment by more compared to pre-crisis borrowers from stronger banks.

Finally, an even cleaner identification of the bank supply shock is provided by Jiménez et al. (2012), who analyse the credit crunch during the 2008–10 crisis in Spain. They focus on a set of loan applications made in the same month by the same borrower to different banks. Within this set of loan applications, they study how economic conditions affect the granting of loans depending on bank capital and liquidity. They find that lower economic growth reduces the probability that a loan application is granted, particularly during times of crisis. The negative effect on loan granting is larger for banks with low capital.

10. *Conclusions*

Changes in the provision of finance to the corporate sector can be motivated by supply-side or demand-side factors. There has been a tightening in the terms on which finance has been made available to European firms, but there has also been a recession-induced reduction in demand. Disentangling the two effects is made difficult by the fact that changes in demand and

supply are in general contemporaneous, though there are some instances of supply-side factors appearing to have led demand-side ones.

Distinguishing between the two effects is made even more complex by the fact that there is a third effect, namely changes in the value of collateral, that cannot readily be classified as being due to either demand or supply alone. There is evidence of all three determinants – demand, supply and collateral – in corporate-sector financing. Examining companies that simultaneously borrow from several banks points to the influence of the financial condition of banks as being a relevant factor in decisions to grant or refuse loan applications. This in turn points to the significance of the supply side.

6 Intermediation

1. *The European financial system is predominantly bank-oriented*

The European financial system is traditionally bank-oriented and, unlike other advanced countries, has accentuated this characteristic in the last decades (ESRB, 2014). As a consequence, the size of market intermediation outweighs banks intermediation only in Belgium and France (and with values more than three times lower than in the US). The UK also has a low value, due to the modest dimension of its bond market (ESRB, 2014). While the European banking system incorporates a wide array of banks – with different sizes, strategy and ownership – publicly owned joint-stock banks dominate the national markets, with the notable exception of Germany.

The size of the European banking system (as measured by total assets) grew significantly in the run-up to the financial crisis, particularly after the introduction of the euro. The total assets of the EU banking sector amounted to 334% of GDP, compared with 192% in Japan and 145% in the US (ESRB, 2014). Both in the UK and in several small European countries, the ratio surpasses 400% (ECB, 2014c).

2. *The European market is dominated by large banks*

The nine largest European banks (belonging to UK, Germany, France and Spain) have total assets exceeding €1 trillion each (as at the end of 2011). For some, total assets are well in excess of the national GDP of the country in which they are headquartered (HLEG, 2012). In the last decades, large banks grew faster than small banks, predominantly as a consequence of mergers and acquisitions. The near doubling in the size of the EU banking system since 1996 is entirely attributable to the growth of the largest 20 banks (ESRB, 2014). Therefore, concentration ratios are now fairly high and have grown as a consequence of the financial crisis.

While the EU banking system is made up of 7,726 banks, including 5,2480 in the Eurozone (ECB, 2014c), the structure is now polarised between a few very large financial institutions that focus on a broad range of activities and a large number of smaller, more specialised institutions with different ownership structures (Liikanen, 2011). The growth of assets has been particularly dramatic for the banks that are now at the top of the FSB list of systemically relevant institutions (IMF, 2014b).

3. *Universal banking is commonplace in Europe*

Since the 1980s, deregulation and the European Directive allowed banks to offer all services, including securities services, and this prompted banks to expand their range of activities, diversifying from the traditional deposit/loans business. Loans to the private sector now account for one third of total

assets (18% to households and 15% to non-financial corporations). Around 40% is represented by claims on other financial institutions and securities held for trading, including derivatives (ESRB, 2014). The weight of trading activity depends crucially on banks' size, varying from 25% for large banks to less than 5% for medium banks and practically nil for small ones.

Empirical research (Ayad et al., 2011; BIS, 2014) traditionally identifies three business models, according to the weight of loans (and conversely of trading activities) and sources of funding: retail banks, wholesale banks and investment (or trading) banks. The first fared better than the other two during the crisis, prompting a shift away from the other two business models. In the BIS sample, one third of the banks that entered the crisis in 2007 as wholesale-funded or trading banks (19 out of 54 institutions) ended up in 2014 with a retail model.

4. *Lending to households exceeds lending to non-financial corporations*

Overall, loans to households greatly exceed loans to non-financial corporations (€5,193 billion versus €4,283 as of August 2014), mainly because of the rapid growth of mortgages. The intermediation from households to the business sector — the standard textbook representation — constitutes only a minor share of the business of banking today (Jordà et al, 2014).

One possible reason lies in the wider possibilities for large firms to tap financial markets and non-bank sources, and long-term macro developments such as the shift in the distribution of income from wages to profits and the decline of investment.¹⁵ There were also regulatory incentives for banks to lend to households rather than non-financial companies. Banks willing to adopt internal rating models (which were particularly convenient from the point of view of capital absorbed) had to make long-term forecasts on probabilities of default, exposure to default, recovery rates, and so on, on a case-by-case basis. This has significantly increased the cost of assessing the borrowers' credit worthiness and has created incentives to extend credit to sectors, such as property loans or consumer loans, where these valuations are statistically easier and cheaper.

5. *There is a funding gap*

The financial crisis has highlighted the vulnerability of European banks' funding of their loan portfolios, compared to their international peers (Le Leslé, 2012). Eurozone banks have loan-to-deposit ratios significantly greater than one, and financed the expansion in loans to the real economy half from core deposits and half from other sources (European Commission, 2014b), in particular short-term wholesale funding (which is highly volatile and highly systemic) and bonds (commanding higher rates).

¹⁵ Another possible explanation is the securitisation of housing loans.

After the crisis, banks strengthened their capital positions, and in particular reduced their leverage (BIS, 2014; ECB, 2014b; IMF, 2014c). Although the 2014 ECB-EBA stress tests found a limited shortfall of capital for the European banks (ECB, 2014d; EBA, 2014), there is a wide body of literature that considers the present level of capital far from safe (Admati et al., 2011; Miles et al., 2011). Acharya and Steffen (2014) estimate, on the basis of a volatility model, a shortfall for the ECB group of listed banks of €450 billion. It has been argued by the banking profession that the recapitalisation of the banking sector would come at the expense of more lending to the private sector, but this view has been rejected by others (e.g. Admati et al., 2011).

6. *The financial position of European banks is weak*

European banks were first hit by losses on their securities portfolios (the ABS issued mainly by US banks), then by the sovereign crisis (which reinforced the sovereign-banks vicious circle) and then by the increasing volume of non-performing loans. Although deleveraging of the public and private sector is still modest (Buttiglione et al., 2014), the adjustment of the European banking sector has been accelerating in the past two years. Deleveraging has taken three forms: recapitalisation, disposal of assets and de-risking (reduction of RWAs/TA). According to the ECB (2014b), significant banking groups in the Eurozone have reduced the size of their balance sheets by over €5 trillion – a 20% decline – since their respective peak values. Banks in particular shrank their trading books (IMF, 2014c).

In the run-up to the crisis, trading activities and one-off gains from interest rate reductions boosted the profitability (RoA) of banks, while RoE was boosted by increased leverage. After the crisis, profitability declined in all countries (albeit with varying intensity), both in terms of margin of interest and RoA (BIS, 2014). As the interest margin is crucially dependent on the level of interest rates, in many countries it is at a historical low (Lusignani and Onado, 2014). The decline of RoA was compounded on RoE by the decrease of leverage. As a consequence, there are a large number of banks whose RoE is significantly lower than their cost of capital (IMF 2014c).

European banks' profitability (RoA) is hampered by heavy structural and staff costs, and restructuring is required. European authorities seem to believe that mergers and acquisitions (particularly cross-border) should be an important tool (Asmussen 2013a; Constâncio, 2013), some prompted by the European supervisor drawing on the experience of the Federal Deposit Insurance Corporation (FDIC) (Asmussen, 2013b). This will profoundly reshape the structure of the European banking system, potentially concentrating it further.

7. *There is a significant implicit subsidy of banks*

Banks benefited from an implicit subsidy, through lower costs of liabilities, because providers of funds assumed that they would not be allowed to fail.

The European Commission estimates the subsidy to be in the range of €131-187 billion for 2011 and 2012, or 0.5-0.8% of annual EU GDP and between a third and a half of the banks' profits (European Commission, 2014d). For a sample of global banks, IMF estimates for the same years (IMF, 2014b) are even higher: \$20-\$110 billion in the UK, and \$90-\$300 billion in the Eurozone.

Between 1 October 2008 and 1 October 2013, the European Commission took more than 400 decisions authorising state aid measures for the financial sector. In the period 2008-12, the overall volume of state aid used for capital support measures alone (recapitalisation and asset relief measures) amounted to €591.9 billion, which equals to 4.6% of 2012 EU GDP (European Commission, 2014d).

8. *European banking markets have become more fragmented*

The crisis has reversed the integration of European banking markets. In particular, there has been a decline, and in some cases a reversal, of cross-border credit flows and banks have increasingly focused on their home markets. The situation has only slightly improved recently (ECB, 2014a,d). The net effect has been the impairment of the transmission mechanism of monetary policy, as the still fragmented Eurozone money markets are not completely and effectively allocating central bank's liquidity.

9. *The regulation of European banks has been strengthened*

There were major weaknesses in the capital and liquidity positions of European banks, i.e. the two pillars of bank micro-stability (Revell, 1975) and risk management proved to be inadequate because of fatal flaws in corporate governance (Walker, 2009; Berger et al., 2014; IMF, 2014c), as discussed in Section 9. Banks' capital was inadequate to absorb the losses originating from the financial crisis. It has been estimated that 29% of risk-weighted assets would have been required to absorb cumulative losses fully (Independent Commission on Banking, 2011a). The Basel requirements allowed banks, in particular those using advanced internal rating models, to arbitrage between asset classes with different capital weights, increasing leverage while complying with the ratio of capital to risk-weighted assets (Alessandri and Haldane, 2009; Haldane and Madouros, 2012; Mariathasan and Marrouche, 2013; Behn and Vig, 2014).

The financial crisis revealed the 'financial trilemma' of financial stability, financial integration and national regulatory policies (Schoenmaker, 2011). Any two of the three objectives can be combined, but not all three; one has to give. The response has been the Banking Union with its three pillars (a Single Supervisory Mechanism; a Single Resolution Mechanism; and a common safety net, including deposit insurance, albeit still national in scope). Although far from optimal (particularly in the resolution of ailing banks, where the procedure fails to replicate the FDIC's *modus operandi*

(Bruzzone et al., 2013)), it will overcome many of the weaknesses of the past when national supervisors were too lenient with their banks.

The Financial Stability Board has recommended that 'bail-in' of private creditors (in accordance to the hierarchy of their claim) be explicitly included among resolution tools in all jurisdictions (FSB, 2011). In 2012-13, bank rescues were characterised by the increasing involvement of subordinated and junior creditors. In the new European framework, both national support and the involvement of the Resolution Fund will be conditional on bail-in.

The impact of regulatory changes is considered in Section 8.

10. Conclusions

The European financial system is characterised by the predominance of banks and by the presence of a substantial number of universal banks. It remains fragmented along national lines and has been significantly weakened since the onset of the financial crisis. The response to the crisis has been heavy subsidies of the banking system and intensified regulation. A high proportion of bank lending is to the household rather than the corporate sector, potentially creating a significant gap in the funding of SMEs by banks, in particular.

7 Information

1. *Information is critical in the functioning of the financial system*

Information is one of the fundamental inputs of the financial business. Robert Merton's catalogue of the functions of a financial system (Merton, 1995, pp. 23-41) includes:

- ii. The provision of payments systems;
- iii. The pooling of funds to undertake large-scale indivisible enterprises;
- iv. The transfer of economic resources through time and across geographic regions and industries;
- v. The trading of risk;
- vi. The supply of price and other information to help coordinate decentralised decision-making in various sectors of the economy; and
- vii. The development of contractual mechanisms to deal with asymmetric information and incentive problems when one party to a financial transaction has information that the other party does not.

Though the types of information are different, in the list above every function performed by the financial system requires appropriate provision of information to the parties involved. Presently, information technologies (together with communication technologies) are experiencing unprecedented rates of progress. The way information technology is used today differs dramatically from how it was used ten or 20 years ago.

2. *There is a serious information deficiency in financial markets*

The financial system has a chronic problem of information inadequacy. A great part of this is due to the fact that technical standards, conventions, regulations and laws display very significant inertia, and therefore do not respond to the benefits of technological progress at a satisfactory rate, and incentives of private actors to innovate run encounter adverse response. In some cases, information is not made sufficiently widely available, and in other cases rules and contractual norms have proven inadequate (for example, in recent cases of accounting disclosure failures by public companies).

Is there a better information structure? One of the main challenges in this regard is the small size of a majority of corporate borrowers. Size imposes constraints determined by the fixed costs of setting up information flows that are needed from the perspective of investors.

3. *Banks play a critical role in addressing information deficiencies*

Banks play a central role in the financial system, offering payments services, issuing near-safe assets to support such payment services, and at the same time extending credit to private- and public-sector borrowers. A key feature of the business model of banks is the complementarity between transactions

banking and credit business (e.g. Garber and Weisbrod, 1992): the flow of payments of a bank's client contains information about that client's economic health. This information is invaluable for the purpose of managing the bank's credit business. As a result, in Europe banks are currently by far the biggest repository of information on corporate borrowers.

4. *Information problems are particularly acute for small borrowers*

These synergies are greater the smaller the size of a borrower. Larger borrowers, typically public companies, are subject to a host of disclosure requirements that, together with governance rules, make the collection of information and the assessment of their credit worthiness an easier exercise.

As far as equity financing is concerned, the difficulties of information access for small companies are compounded. The desire of founders, or managers, to maintain corporate control has a powerful influence on the way they release information to minority shareholders, to other stakeholders and to potential new shareholders.

5. *Bank-centred systems have serious fragilities*

It may be not very efficient to advocate more supply of information in general. The recent global financial crisis has shown that a bank-centred financial system has serious fragilities. Such fragilities are caused by the fact that banks have entered into businesses other than payments and lending that in the past have been lucrative, but are also associated with higher risk. First and foremost, the securities and derivatives business in its various guises – capital markets, broker-dealership, proprietary trading – has been a major source of revenue, and of risk, for banks. The development of the securities business within banks mirrors the developments in information and communication technologies (ICT) that provide the infrastructure for securities trading.

Now, however, and especially in Europe, there is growing concern that despite the presence of banks in securities trading, securities markets are not sufficiently developed. This concern stems from the comparison of the size of bank intermediation versus securities intermediation with the US, and from the observation that large parts of the economy, especially medium and small enterprises, are excluded from securities financing. At the same time, a banking system that is undergoing profound transformations as a result of the recent overhaul of the regulatory system currently appears to be unable to provide that financing either.

6. *Potential areas for improvement in information provision*

Starting from these observations, and from the current state of information provision for the purpose of financing of corporations, we want to explore potential avenues of improvements, and opportunities for innovation. The effects of these improvements and innovations could be to support a market

for corporate financing that complements the traditional banking channel. We should point out at the outset, however, that the ideas discussed will work best if an active role for the banking system is maintained; in other words, we think it would be a waste to throw out the information that banks have on corporate borrowers from their physical and business proximity. This is confirmed by a recent opinion survey undertaken by Allen and Overy in which firms (with more than 50 employees and based in Germany, France, the UK, Spain, Italy and Benelux) were asked for their preference between direct market access and market access intermediated by banks: 53% of the respondents preferred an intermediated system, while 33% had a preference for direct market access (Allen and Overy, 2014).

Securities markets perform their role only when investors can rely on liquidity – that is, only when trading in secondary markets is always available as an option and is efficient and low cost. Here lies the biggest challenge of any attempt to increase access of small borrowers to securities markets. The only way to address this challenge is to aggregate loans to different borrowers in pools that are large enough to sustain an acceptable volume of transactions every day. The aggregation exercise requires reliable and detailed risk information about each individual loan. In addition, only when investors are confident that they possess enough information about the underlying assets can an efficient secondary market develop.

A number of reforms have been suggested to improve the quality of information needed to securitise loans (e.g. Giovannini and Moran, 2013). These include:

- i. Aggregation of business registers.* A European directive (2012/17/EU) requires business registers to aggregate and provide single access to uniform information. Business registers typically examine and store information on the company's legal form, its seat and its legal representatives, and make it available to the public.
- ii. Creation of a unique company identifier.* Along the lines of the Legal Entity Identifier (LEI) utilised to organise databases of financial transactions, the role of a company identifier, similar to that of a unified business register, is to eliminate all ambiguity over the identity of a given corporation. Tools of this kind become essential in the analysis and construction of portfolios of small loans to numerous small companies.
- iii. Enlarged access and more widespread use of credit scoring.* Credit scoring is a statistical technique that relates a company's creditworthiness to observable characteristics of the firm. The benchmark appears the system developed by the Banque de France, though other central banks and industry associations are using this method. The problem is that this information is available only to selected institutions; in the case of the Banque de France, for example, banks and insurance companies.

- iv. *Standardised loan-level information on asset backed securities.* This is a service provided by the European Data Warehouse, created in 2012 following the establishment of Eurosystem loan-level reporting requirements.
- v. *A rating system that properly accounts for country factors.* One issue that still stands in the way of the creation of EU-wide portfolios of loans for the asset-backed securities market is the way credit-rating agencies operate. They still rate borrowers in each country subject to the rating ceiling of the country's sovereign issuer. This is basically equivalent to imposing a fixed factor loading on sovereign risk in every country, for every corporate issuer. By contrast, the exposure to sovereign risk is different for companies in different industries, operating in different markets. So, the application of sovereign ceilings induces distortions of ratings across countries. With these distortions, the task of issuing securities backed by EU-wide portfolios of loans is even more difficult.

7. *Minibonds as a potential source of finance for SMEs*

In addition, regulatory initiatives have been undertaken to increase the channels of financing to SMEs; minibonds are one example, and funds of loans another. Minibonds are worth discussing because in countries like Italy, they have been well received. The key feature is a series of lighter requirements for issuers and discounts on services like rating. But individual issues are so small that they cannot possibly be considered as instruments tradable in the market. Most vehicles investing in minibonds as a policy hold them until maturity; hence minibonds become just another legal form for arranging private placements.

8. *There is the possibility of regulation catalysing new markets and initiatives*

Much of the debate on improving access of corporations to finance has focused on regulatory initiatives. The creation of new markets requires a proper regulatory framework and sometimes initiatives need a public catalyst to overcome coordination failures.

Yet, one of the most successful innovations in the financing of SMEs, though not through securities markets, is a set of private initiatives that rely on a novel way to gather and manage information: the phenomenon of eFinance, or crowdfunding. Crowdfunding combines some of the techniques of social networks with the ease of dissemination of information through the web. Crowdfunding businesses offer both debt and equity finance, typically (but not always) to very small projects that are distributed to large numbers of (typically) very small investors. The success of these initiatives demonstrates that they are filling a real gap in the marketplace.

9. *Conclusions*

Information is critical to the functioning of financial systems and the provision of corporate financing. It is particularly important in relation to SMEs, and banks play an important role in overcoming information deficiencies. There have been a number of public-sector initiatives to improve

information flows and facilitate the access of SMEs to capital markets. However, private-sector initiatives are also important in this regard, and the emergence of new forms of funding – such as eFinance and crowdfunding – are examples of this.

8 Financial regulation

1. *Capital requirements and risk management models may affect bank lending behaviour*

Since the financial crisis, the rules governing world financial markets have undergone a major overhaul, in the main following the regulatory agenda set by the G20 (and FSB).¹⁶ The impact of regulatory reform on the economy has been seen as benign, since reform would “promote a safer, sounder and more resilient financial system [...], rebuilding confidence and reducing pro-cyclicality [...], which will enhance the system’s ability to intermediate financial flows through the cycle and for different investment horizons” (FSB, 2014b). However, over time some aspects of regulatory reform have come to the fore for their possibly adverse direct impact on incentives to lend and borrow over the long term.

In Europe, given the significant weight of banks in the financing of the economy, these concerns relate first and foremost to the strengthened capital requirements of the Basel III Accords. Two issues requiring separate examination – and further research – are the impact on banks and banks’ business models of higher capital requirements, on the one hand, and the continuing reliance on banks’ risk management models for the determination of regulatory capital, on the other. On this, bankers have argued that higher capital requirements will inevitably constrain the supply of credit. Others – most prominently, Admati and Hellwig (2013) – have denied that forcing banks to hold more equity will necessarily raise the cost of credit to the economy, as the reduction of the risk premia paid by banks for their (non-deposit) funding could well compensate for forgone interest-rate tax deductions on their debts. The supply of credit to the real economy would be less affected if more stringent regulatory requirements led to a reduction in ‘financialisation’ rather than lending to the real economy.¹⁷

2. *Risk-weighted assets may discourage bank lending to the corporate sector*

A separate question concerns the continuing reference, in determining capital ratios, to risk-weighted assets determined on the basis of ratings and internal risk-management models. These are often logically flawed, unable to distinguish empirically between a strong bank and a weak bank, and open to manipulation. They underestimate by construction those systemic shocks (‘tail’ risks) against which we would like to strengthen regulatory defences

¹⁶ The main initiatives have included: (i) new global capital standards for banks (Basel III) and insurance companies; (ii) heightened prudential standards for systemically important banks and insurers; (iii) new tools and procedures for the orderly resolution of large complex financial institutions; (iv) measures to address the risk posed by the shadow banking system; (v) a new framework for OTC derivatives trades; and (vi) regulatory constraints on managers’ compensation. European Commission (2014c) contains a comprehensive review of all reform initiatives undertaken at the EU level.

¹⁷ Some evidence on this effect is in IMF (2014c).

(Danielsson et al., 2001; IMF, 2009; Dewatripont et al., 2010; Calomiris and Herring, 2012; Carmassi and Micossi, 2012).¹⁸ More important, they likely entail a systematic bias against financing of the economy while favouring government debt (the ‘safe’ asset), mortgages and securities trading portfolios.

3. *Hedging requirements may have discouraged risky lending*

Three pieces of legislation have purported to reduce systemic risks associated with over-the-counter trading and create common rules for systematically important securities infrastructures: the revision of the Markets in Financial Instruments Directive (MiFID), the new rules for central clearing of OTC derivatives contained in the European Market Infrastructure Regulation (EMIR),¹⁹ and the provisions on central securities depositories, or CSDs.²⁰ The FSB survey of members on the consequences of over-the-counter derivative market regulatory tightening (FSB, 2014b) has called attention to the possibility of higher costs of hedging and, more importantly, to the fact that the increased demand for high-quality collateral may encourage investors to liquidate riskier, higher-return assets – perhaps including equity and infrastructure-related bonds.

4. *There have been subsidies to banks from bailouts of too big-to-fail banks*

Large cross-border banks have enjoyed substantial implicit public subsidies due to the ‘promise’ that they would not be allowed to fail for fear of systemic consequences (‘too big to fail’, or TBTF).²¹ The European Commission (2014d) finds that this subsidy may have actually increased for a number of countries after the crisis. The regulatory response has been, on the one hand, to establish resolution procedures, and on the other hand to introduce measures for the structural separation of riskier activities – typically securities trading, in one form or another – from ordinary banking business. Resolution rules are meant to remove from the system the promise of bailout and firmly establish that shareholders and creditors will have to take the losses resulting from reckless risk-taking (bail-in, both for going concern and gone

18 Basel II and III and Solvency II are based on the VAR methodology, which treats risk as a fixed exogenous process. However, as underlined by Danielsson et al. (2001), “market volatility is, in part at least, the outcome of interaction between market players and is thus endogenous. This endogeneity may matter enormously in times of crisis. By failing to recognise it, existing models produce inaccurate risk predictions ...”. Taking account of this endogeneity requires the introduction of a macro-prudential dimension, in parallel with the traditional bank-by-bank micro-prudential dimension of risk assessment, which has been one of the main changes in the post-crisis banking and markets framework worldwide.

19 See Regulation (EU) 648/2012 on OTC derivatives, central counterparties and trade repositories.

20 See Regulation (EU) 909/2014 on improving securities settlement in the European Union and on central securities depositories.

21 The European Commission (2014d) has estimated this subsidy to amount to between 0.5 and 0.8 percentage points of annual GDP and between one third and one half of annual profits (from a sample of 112 EU banks representing about 70% of total bank assets in 2011-13).

concern entities).²² Structural separation is meant to eliminate altogether any cross-subsidy flowing from banking charter privileges to riskier trading activities. By curtailing incentives for 'speculative' securities trading, these measures would presumably reduce 'financialisation' and make room for greater lending to the real economy.²³

5. *Bank lending in the Eurozone may have been more affected by regulation than elsewhere*

A review of changing bank capital ratios and their effects since the financial crisis, undertaken by the BIS (Cohen and Scatigna, 2014), concludes the following:

- i. Common equity risk-weighted capital ratios for large internationally active banks increased from 5.7% at the end of 2009 to 9.2% at end of 2012 (from 7.8% to 9.4% for other banks), their 'absolute' (unweighted) leverage ratios increased from 2.8% to 3.7% (from 3.8% to 4.2%). Focusing on a sample of 85 large banks in advanced (and emerging) economies, for which more detailed balance sheet data were available, it emerges that retained earnings accounted for most of the increase (2.5 percentage points out of the 3.9 point increase in the capital ratio, in spite of declining profitability); in advanced countries (notably in the US and EU), a shift to assets with lower capital ratios also contributed (a 0.4% decline for every percentage point increase in the capital ratio).
- ii. In general, banks do not appear to have cut asset and lending growth as a consequence of higher capital; however, European banks reduced lending (by 9% in 2009-12) and accumulated cash and interbank assets. Banks that had higher capital and stronger profitability at the beginning did grow more than weaker banks.
- iii. Most lending spreads – banking and non-banking – have been stable or narrower since the crisis, but in the Eurozone bank lending spreads (between 1-5 year business loans and 3-month Euribor) widened from 260 basis points at the beginning of 2009 to more than 300 basis points at the end of 2013.
- iv. Surveys of bank lending officers in different economies do not point to a sustained tightening of lending standards, again with the exception of the Eurozone, where the survey found "an ongoing tightness".

²² The new resolution rules in the EU have been established by the Bank Recovery and Resolution Directive (BRRD, 2014/59/EU), setting up a uniform legal system for administrative (out of court) resolution requiring all member states to have certain resolution tools, and Regulation (EU) 806/2014 establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms in the framework of a Single Resolution Mechanism and a Single Resolution Fund to manage the crises of large cross-border banks at EU level.

²³ On this, different jurisdictions have adopted different solutions on 'ring-fencing' risky activities: the Volcker rule prohibiting proprietary trading in the US; the Vickers separation of utility banking from all investment banking activities in the UK; and the Liikanen Report (HLEG, 2012) proposal segregating proprietary trading as well as market making activities. A proposal for a new regulation implementing the Liikanen Report has been sent by the Commission to Parliament and Council (COM/2014/043). For further discussion on this, see FSB (2014c) and SUERF (2014).

- v. Banks in Europe reduced their holdings of trading assets, while banks elsewhere increased them.

In sum, banks do not seem to have cut back on lending and asset growth except for in the Eurozone, notably in connection with the sovereign debt and banking crisis after 2011. It also appears to be the case that banks with higher capital ratios at the beginning of the process and stronger profitability lent more than other banks.

6. *Some of the effects of regulation on bank lending might be transitional*

In assessing the impact on banks and the economy of a more restrictive banking regulatory environment, it is important to distinguish between the phase of transition to a new equilibrium and the conditions that will prevail in the new equilibrium. The transition phase may yet be characterised for some time by funding and profitability constraints limiting the supply of bank credit. Funding constraints played a large role in determining the credit crunch in the Eurozone periphery in 2011-12, as cross-border interbank financing flows almost came to a halt, but they have since been gradually fading away as peripheral banks have regained full market access. More persistent constraints on credit supply may be linked to the ongoing deleveraging process economy-wide, and the required changes in the banks' business models (as described in IMF, 2014c) necessary to restore impaired profitability and adapt to the new regulation. IMF (2014c) finds that these transitional effects on the supply of credit are stronger in the Eurozone.

On the other hand, once the deleveraging process is completed in the financial and the non-financial sector, more stringent regulatory and capital requirements may not necessarily adversely affect the cost of bank funding and the availability of credit. Risk premia on bank funding are likely to come down, on the one hand, and restored company growth and profitability can also be expected to generate fresh opportunities for profitable lending for the banks, on the other.

7. *Shadow banking may be an important alternative source of funding or regulatory arbitrage*

Shadow banking is unregulated credit intermediation funded with 'demandable debt' involving risk and maturity transformation, with no official (lending of last resort) back-up (Perotti, 2013, Claessens and Ratnovski, 2014).²⁴ Shadow banking played a central role in the events leading to the financial crisis, which essentially started as a run on Wall Street investment banks and three types of activity: repos, asset-backed commercial paper (ABCP) and Money Market Mutual Funds (MMF) (Gorton, 2012). The liquidity back-up is typically provided by commercial banks, for example with broker-dealer accounts for hedge funds, liquidity services for exchange traded funds, or large backstops for leverage financing and

²⁴ For a full description of activities and entities involved in shadow banking, see IMF (2014c).

buyouts. This explains why regulatory measures for shadow banking have mainly concentrated on reducing banks' counterparty risk by limiting large exposures, raising capital requirements for banks' equity investment in funds, and setting minimum haircuts for security financing transactions. In addition, the International Organization of Securities Commissions (IOSCO) has developed several recommendations regarding MMF and incentive alignment schemes for securitisation. The relevance of this is that shadow banking can represent an innovative and significant source of liquidity and financing for the real economy, which is to be further researched and understood; however, since a main cost advantage of these activities is that they are not covered by capital and liquidity rules for regulated intermediaries, they may also pose significant systemic risks, owing to their size and interconnectedness with the banking system.

8. *Conclusions*

There is an active debate on whether capital requirements are benign in terms of their effect on bank lending and are necessary to protect the financial system and offset subsidies associated with too-big-to-fail, or whether, in combination with risk-asset ratios and hedging requirements on banks, they have discouraged lending to the corporate sector. Europe appears to have been particularly adversely affected by recent developments in terms of the scale of bank lending and spreads on loans. One of the consequences of tougher regulation of the formal banking system may be to divert activities to less regulated shadow banking.

9 Corporate governance

1. *Corporate governance may lie behind many of Europe's investment problems*

Corporate governance is traditionally associated with two sets of issues: agency and minority investor protection. However, corporate governance may be a more pervasive problem affecting both the financial system and the corporate sector, and may contribute to many of the issues discussed in this paper. This section will begin by describing the conventional corporate governance debate, and then it will consider some of the wider ramifications of inappropriate ownership and poor governance for the financial system and the corporate sector.

2. *It is widely thought that there is an agency problem in corporations and financial institutions*

The first line of thinking about corporate governance is that it is concerned with achieving alignment between the incentives of management and the interests of shareholders. It is thought that corporate governance failures are a reflection of an agency problem in which there is insufficient oversight of management by dispersed shareholders.

This has given rise to a series of policy prescriptions of corporate governance and stewardship codes in several countries²⁵ and Green Papers and a Shareholder Engagement Directive from the European Commission (European Commission, 2010, 2011, 2012). These are designed to enhance the quality of boards, auditing, risk management, and communication between companies and shareholders. They emphasise transparency in executive remuneration policy and pay related to performance. They seek to give financial institutions more 'say on pay' and make them more responsible for discharging their duties as stewards of the companies in which they invest.

3. *Evidence from the financial crisis is not supportive of an agency explanation*

Evidence from the financial crisis raises questions about the appropriateness of these proposals (Becht et al., 2012). Several studies report that it was the financial institutions with the best corporate governance standards according to conventional criteria which failed the most during the crisis (Beltratti and Stulz, 2012; Erkens et al., 2012; Ferreira et al., 2013; Anginer et al., 2014). Furthermore, financial institutions with the highest-powered incentives were the ones that took the greatest risk (Bebchuk et al., 2010; Cheng et al., 2010; Fortin et al., 2010; Fahlenbrach and Stulz, 2011; Acharya et al., 2013). A possible explanation for these seemingly paradoxical results is that, as discussed below, in the presence of high levels of leverage in corporations

²⁵ See, for example, the 2012 UK Corporate Governance Code and the 2013 Financial Reporting Council Stewardship Code.

such as banks,²⁶ there is a conflict between the interests of shareholders and the creditors to the firm. Shareholders benefit from upside positive performance, but creditors (or ultimately taxpayers) bear the downside losses when banks fail. When managers' incentives are well aligned with those of shareholders, they will pursue the latter's interests to the detriment of those of creditors.

While this problem was recently most in evidence in financial institutions, it may not be restricted to them. It could be associated with any stakeholder that dedicates capital (in the form of human, customer, supplier or social capital) that is specific to the firm with which they are transacting. Stakeholders are exposed to risks to the continuing viability of their partner organisations.

4. *There are conflicts between large and small shareholders*

The second set of issues conventionally discussed under corporate governance concerns conflicts between different classes of shareholders, and in particular between large concentrated and small minority shareholders. In most continental European companies, ownership remains concentrated in the hands of predominantly family owners, even in the largest companies listed on stock markets. This creates potential conflicts between the interests of the dominant shareholders, who might derive private benefits of control, and those of minority shareholders, who are restricted to financial returns.

This concern has given rise to listing rules of stock exchanges that require companies to have minimum proportions of 'free float' of shares that are freely traded on exchanges and prohibitions on dual-class shares that confer disproportionate voting rights on particular classes of shareholders.²⁷ It has also prompted proposals for rules by the European Commission regarding the treatment of transactions between related parties.

On the other hand, it has been suggested that such rules are a violation of principles of freedom of contracting and inhibit the structuring of firms in forms that might be suited to their particular activities. While some stock exchanges, such as the London (LSE) and the Hong Kong (HKEx) stock exchanges, emphasise such rules to promote the functioning of their markets, others, such as the New York Stock Exchange (NYSE), do not. Alibaba listed on the NYSE when HKEx listing rules prevented it from retaining control in the hands of its founding partners. Proposals from the European Commission to introduce restrictions on dual-class shares were withdrawn in the face of strong opposition from some member states.

²⁶ See DeAngelo and Stulz (2014).

²⁷ See the LSE Listing Rules and the 2014 EU Directive on Shareholder Engagement.

5. *There are conflicts between short- and long-term shareholders*

Recently, the debate on conflicts between different classes of shareholders has been extended to the duration as well as the size of shareholdings, with proposals in some countries (e.g. France and Italy) for the introduction of loyalty shares that reward shareholders through enhanced dividends or voting rights in relation to the period for which they hold shares (Bolton and Samama, 2012). These are designed to offset the problem of short-termism that is thought to afflict financial markets and to encourage the participation of longer-term shareholders.

Evidence on the impact of dual-class shares on the earnings of companies is mixed and it is not clear whether financial performance is the appropriate measure, at least in the short run (Adams and Ferreira, 2008). In particular it is suggested that long-term concentrations of ownership and control may be required to address inadequate engagement by dispersed short-term shareholders and to reflect the interests of stakeholders, communities and future generations, as well as shareholders.

Recently, several studies have looked at the performance of firms over long periods of time – in some cases decades rather than days or months – in relation not just to financial returns but also to broader measures of their growth, survival and stakeholder interests (e.g. Clark et al., 2014). Many of these studies report superior long-run performance of companies that emphasise longer-term ownership and incentive arrangements that reflect broader measures of performance, including returns on human, natural and social capital, as well as financial capital.

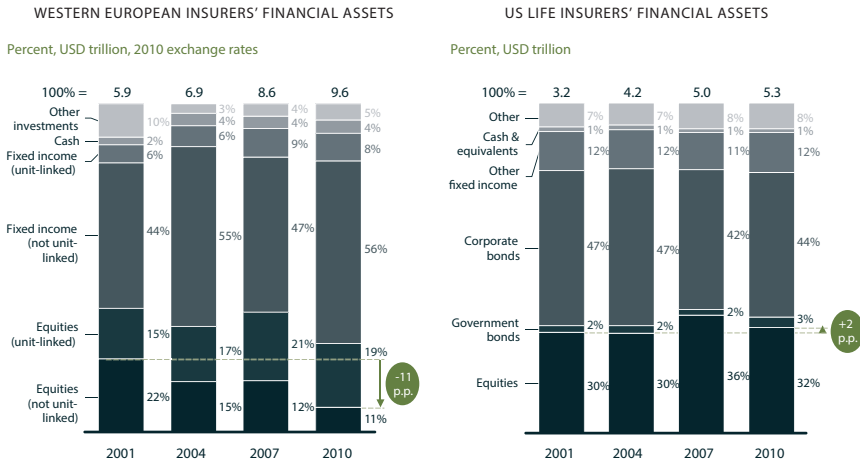
6. *The public corporation is in decline and institutional investors are withdrawing from equity markets*

There is another piece of evidence that points to the failure of conventional corporate governance prescriptions. Twenty-five years ago, Professor Michael Jensen predicted the “eclipse of the public corporation” (Jensen, 1989). It has happened, at least in the UK and the US. Over the last 20 years, the number of companies listed on the main market of the London Stock Exchange has declined from over 2,000 to fewer than 1,000. Over the same period, the number of listed companies in the US has declined by approximately 40%. The OECD records a much broader set of measures of the decline of public equity across a larger number of markets that relate to the withdrawal of equity through share buybacks, declining initial public offerings and delistings (Isaksson and Celik, 2013).

The proportion of pension funds’ and insurance companies’ assets allocated to equity investments dramatically decreased from 2001 to 2010 (see Figure 9.1). It is particularly striking to observe that while European insurers reduced their allocation to equities by 11 percentage points (almost €1 trillion investment given that their total assets currently amount to €8.4

trillion), in the US the share of equities in insurance portfolios remained almost flat. Figure 9.2 shows that there has been an equally striking decline in the equity holdings of European pension funds.

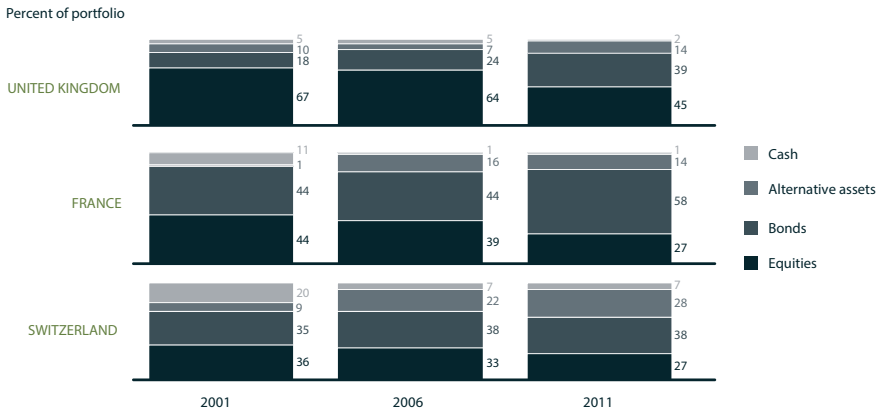
Figure 9.1 Western European and US life insurers' financial assets



Note: Numbers may not sum due to rounding.

Source: McKinsey (2011).

Figure 9.2 European pension funds asset allocation



Source: McKinsey (2011).

7. *This may be a reflection of short-termism in the investment chain*

One explanation is that the presence of fund managers in the investment chain and their evaluation against short-term measures of performance have come at the expense of long-term engaged participation by institutional investors (Kay, 2012). Pension funds in particular have long-term liabilities to their beneficiaries, and in principle one might have expected that they

would have an active interest in the long-term performance of their equity investments.

However, in practice because they hold widely diversified portfolios, they delegate investment decisions to fund managers. The performance of the fund managers is regularly monitored on a comparative basis to evaluate how well they have done against each other and relative to certain benchmarks, such as stock market indices. As a consequence, long-term horizons of beneficiaries are converted into short-term investments through the investment chain.

8. *The problem may have been made more acute by regulation*

In Europe, there has been a growing shift within the insurance industry towards the use of market values to measure available capital in the insurers' balance sheets coupled with a one-year horizon value at risk (VAR) to assess required solvency. This started as an internal risk management approach in a number of European insurance groups after the collapse of Equitable Life in 2000, a UK company that invested a disproportionate amount of fixed return policyholder assets in equities and failed in the dot-com crash.

Solvency II, the new regulatory framework that will determine solvency requirements for all European insurers from 2016, will potentially exaggerate the market risk faced by insurers, especially in relation to their long-term business, and could threaten their traditional long-term business model. This arises because the use of market values together with a one-year VAR overestimates the risk of a long-term insurance business, forcing it to be excessively capital-intensive. Using market values to assess available capital may therefore exaggerate the true exposure of the balance sheet of insurers to temporary market volatility, and so drive them to hold excessive capital buffers.

9. *Recent changes may be a reflection of the emergence of a new form of corporate governance*

An alternative explanation is that it has become easier and less costly for companies to raise private capital, and governance by private investors has improved relative to that of public markets. So some have argued that new institutions, such as hedge funds and private equity, are replacing the traditional equity owners such as life assurance firms, mutual funds and pension funds as the main activists (Gordon and Gilson, 2013). They provide more effective governance and engagement than the individual and institutional investors of the past. Far from being a source of short-termism, the potential for investors to exit through the sale of shares on liquid stock markets might be an important source of governance of companies (Edmans et al., 2013). With more direct engagement of hedge funds and private investors, market mechanisms, such as hostile takeovers, have progressively declined in significance.

10. *Governance problems are particularly acute in banks*

Corporate governance problems may underlie the failure of the banking system to respond to the financing needs of the corporate sector and may have encouraged banks to divert their activities to higher risk investment banking. There is a conflict between the two main investors in a bank – the shareholders and the creditors. Shareholders do well when the bank is earning high returns; they benefit from the upside benefits of increased profitability. However, when the bank is doing so badly that it is in bankruptcy, then it is the creditors – the depositors, the bondholders and ultimately the taxpayer – who bear the cost of failure.

Shareholders have a call option on the firm, which increases in value with greater risk at higher levels of leverage. They therefore incentivise management to undertake risky investments and distribute capital in the form of dividends and buybacks. The stronger the corporate governance and remuneration in aligning the interests of management with shareholders, the more acute the problem. As a result, from the point of view of shareholders, there are benefits to risk-taking because they gain from the upside and do not bear all the costs of the downside.

The problem is particularly acute in highly leveraged institutions such as banks, and it is made worse by strong governance that aligns the interests of management more closely with shareholders. This may be an explanation for the observation above that it was the banks with the best corporate governance standards, according to conventional measures, that failed the most. It may also be the reason why banks have devoted so many resources to relatively low social benefit, but high risk, trading activities in comparison to higher social value traditional commercial bank lending to SMEs. Shareholder interests have encouraged them to move in this direction.

Governance and risk management systems of banks, institutional investors, asset managers and corporations can play a central role in offsetting short termism and fostering a ‘long’ view of investment (European Commission, 2014a). Under mandate by the G20, the FSB has issued “Principles and Standards for Sound Compensation Practices” with the goal of aligning pay with performance as well as risk. The EU has adopted rules on remuneration policies that, among other provisions, require at least 40% to 60% of variable compensation to be deferred over a 3 to 5-year period, and at least 50% of the variable compensation to be paid in non-cash instruments. Furthermore, 100% of variable remuneration is subject to claw-back clauses.²⁸

²⁸ Whether claw-back for an extended period (five years) is really a good idea has been questioned by Persaud (2104). He argues, convincingly, that rapid turnover of positions in financial centres makes claw-back of dubious applicability and, at all events, may not affect management incentives as hoped.

11. *Corporate governance problems may also be the cause of SMEs' financing problems*

Poor governance of SMEs may also explain why they face particularly difficult financing conditions. For example, mentoring and networking may be critical to the development of high-tech SMEs so that knowledge transfer can take place between those who have successfully developed new businesses and those who are just starting them. General partners of private equity firms can play this role in relation to firms, and Silicon Valley illustrates how this can develop into a vibrant SME sector. But entrepreneurs may be unwilling to cede control to outside equity investors, and it is by no means the only model. In Germany and some other European countries, banks play a critical role in the nurturing of SMEs. They have long-term relationships with companies that involves them providing development finance for growing firms on a substantial scale. The result is again a vibrant SME sector, in this case in the form of the German *Mittelstand*.

12. *The distinction between demand-side and supply-side factors may be opaque*

What this discussion of corporate governance suggests is that the distinction between supply-side and demand-side factors may not be easy or possible to disentangle. A well performing financial system may help to provide the governance that is required to promote the development of successful new firms and to ensure that well-established firms remain innovative and dynamic. The level of investment demand may therefore be a function of the performance of financial institutions and markets in governing SMEs, large companies, banks and providers of equity capital effectively. Improving corporate governance of firms and financial institutions may therefore be a key component to unlocking higher levels of investment, growth and productivity in Europe.

13. *Conclusions*

The traditional view of corporate governance has focused on two sets of issues: agency problems and minority investor protection. This led to a set of policy prescriptions that focus on aligning the interests of management with shareholders and strengthening investor protection. However, evidence from the financial crisis suggests that this was not the main cause of failure of banks. Instead, it points to other problems relating to the conflict of interests between short- and long-term shareholders and between shareholders and other stakeholders, in particular creditors, in relation to banks.

There has been a marked decline in public equity markets and equity investments by some institutional investors. Failures in the investment chain between institutional investors and companies may have contributed to this, as may have inappropriate regulation of financial institutions and markets. On the other hand, the changes may also reflect the emergence of new forms of financing, particularly through credit rather than equity

markets, and new forms of governance of corporations, in particular in the form of hedge funds and private equity firms.

Governance issues may lie at the heart of many of the topics that have emerged as central to this paper, most notably the financing of SMEs and the conduct of financial institutions, and they suggest that the distinction between demand and supply factors that have been emphasised elsewhere in the paper may be more opaque than previously thought.

Summary

1. Small and medium-sized enterprises (SMEs)

- SMEs are important and vulnerable.
- Investment and innovation by SMEs are sensitive to finance.
- SMEs are particularly dependent on external finance and there are pronounced differences in this across European countries.
- There are significant differences in the circumstances of different companies.
- SMEs are particularly dependent on bank finance and face adverse financing terms.
- The collateral and guarantee requirements on SMEs are becoming more onerous.
- Markets are replacing banks for large, but not small, companies.
- Trade credit is a particularly important source of finance for SMEs.
- Private equity is a limited source of finance, but new forms of direct lending are emerging.

2. Long-term versus short-term debt finance

- There is little evidence of a shortage of long-term financing.
- The increase in long-term finance is mainly due to loans, but bonds also increased.
- There are marked differences in long-term financing across countries.
- Non-financial firms have increased their share of long-term finance relative to financial firms.
- Equity has been a relatively stable source of finance relative to debt.
- On the asset side, firms increased their short-term financial asset holdings.

3. Bonds versus bank finance

- Banks have superior monitoring capabilities to bond markets.
- Bond markets mitigate the excessive dominance of bank finance, but are not in general available to SMEs.
- Bank lending is more volatile than bond finance. The greater volatility of bank finance is evident in the Eurozone.
- The greater volatility of bank loans is also observed in the US.
- There is evidence of substitution of bond finance when bank finance is scarce, but it is not available to small firms.

- The problem of the cyclicity of bank finance will be particularly serious in countries with less developed public markets.
- Equity markets are unlikely to offer an alternative source of finance for SMEs, but trade credit might be an alternative for SMEs.

4. Debt versus equity

- Initial public offerings have declined.
- Secondary public offerings have increased.
- Bond issuance has increased, but there are significant differences across countries in bond market issuance.
- The share of bond issuance by non-financial companies has increased relative to financial institutions.
- Non-financial companies have increased their use of bond and secondary equity issuance.

5. Supply versus demand

- Credit booms and busts can reflect demand or supply factors.
- Eurozone banks have tightened their credit standards.
- Demand for bank loans has also diminished.
- There is some evidence that credit-supply tightening preceded falls in demand.
- There are three possible types of shock.
- There is evidence of the impact of demand.
- Collateral value shocks affect the borrowing capacity of firms.
- Credit-supply tightening leads to a reduction in investment.
- Evidence from companies that borrow from several banks points to the significance of supply factors.

6. Intermediation

- The European financial system is predominantly bank-oriented.
- The European market is dominated by large banks.
- Universal banking is commonplace in Europe.
- Lending to households exceeded non-financial corporations.
- There is a funding gap.
- The financial position of European banks is weak.
- There is a significant implicit subsidy of banks.
- European banking markets have become more fragmented.

7. Information

- Information is critical to the functioning of the financial system.
- There is a serious information deficiency in financial markets.

- Banks play a critical role in addressing information deficiencies.
- Information problems are particularly acute for small borrowers.
- Bank-centred systems have serious fragilities.
- There are potential areas for improvement in information provision.
- Minibonds are a potential source of finance for SMEs.
- There is the possibility of regulation catalysing new markets and initiatives.

8. Financial regulation

- The regulation of European banks has been strengthened.
- Capital requirements and risk management models may affect bank lending behaviour.
- Risk-weighted assets may discourage bank lending to the corporate sector.
- Hedging requirements may have discouraged risky lending.
- There may have been subsidies to banks from bailouts of 'too big to fail' banks.
- Bank lending in the Eurozone may have been more affected by regulation than elsewhere.
- Some of the effects of regulation on bank lending might be transitional.
- Shadow banking may be an important alternative source of funding or regulatory arbitrage.

9. Corporate governance

- Corporate governance may lie behind many of Europe's investment problems.
- It is widely thought that there is an agency problem in corporations and financial institutions.
- Evidence from the financial crisis is not supportive of an agency explanation.
- There are conflicts between large and small shareholders.
- There are conflicts between short- and long-term shareholders.
- The public corporation is in decline and institutional investors are withdrawing from equity markets.
- This may be a reflection of short-termism in the investment chain.
- The problem may have been made more acute by regulation.
- Recent changes may be a reflection of an emergence of a new form of corporate governance.
- Governance problems are particularly acute in banks.

- Corporate governance may also be the cause of SMEs' financing problems.
- The distinction between demand-side and supply-side factors may be opaque.

Research Questions

SMEs

- How much do SMEs contribute to different European economies and sectors?
- What are the primary sources of finance of SMEs?
- Do some SMEs have access to market sources and if so, in what form?
- Are SMEs net recipients or providers of trade credit and does this vary across sectors and economies?
- Has the financing of SMEs become more acute since the financial crisis?
- Do we need new forms of contracts (with different risk-sharing) for the corporate sector in general and SMEs in particular?
- Has the maturity of finance available to SMEs shortened or lengthened?
- Is there evidence that the governance of SMEs contribute to their financing problems?

Long-term versus short-term, bond versus bank, and debt versus equity finance

- How significant a shift has there been between long- and short-term finance?
- Is the provision of long-term finance particularly associated with some types of companies?
- Is it associated with both bank and bond finance?
- To what extent does the shift between bank and bond finance differ across countries, companies and sectors?
- Has there been a shift between debt and equity finance?
- Is the change restricted to certain types of companies?
- Are the changes cyclical or structural in nature?
- What are the changes in the terms of available forms of finance?

Demand versus supply

- What evidence is there of supply shortages versus insufficient demand for funds?
- Does this vary across different types of firms, sectors and countries?
- Is collateral a major determinant of the provision of finance and if so, how does this affect the financing of different types of companies?
- Does the significance of demand and supply factors vary over time?
- How influential is monetary policy by the ECB and central banks on the provision of corporate finance?

- Do companies respond to the greater availability of finance during periods of relaxed monetary policy and quantitative easing?

Intermediation, regulation and information

- Do banks play a particularly important role in the financing of European companies?
- Does this vary across countries?
- Has the European banking sector been subject to particular deficiencies since the financial crisis?
- Has this had a detrimental impact on the financing of particular companies and projects?
- What are the long-term prospects for the profitability of traditional intermediation business?
- Has regulation corrected or exacerbated the deficiencies of bank lending in Europe?
- Is regulation encouraging the development of shadow banking markets?
- Do innovations in financing offer the prospect of providing new forms of market finance for SMEs in Europe?
- Are there ways in which information deficiencies in financial markets can be alleviated?
- Do these require public sector initiatives, or can the private sector address information deficiencies?

Corporate governance

- To what extent has corporate governance in the corporate sector contributed to problems of funding investment?
- Are the problems associated with management, conflicts between different types of shareholders, or excessive short-termism or long-termism in equity markets?
- Are corporate governance problems particularly acute in small or large companies?
- Are the deficiencies in corporate governance more acute in financial institutions?
- Are policies to improve corporate governance alleviating or exacerbating the problems?
- Are the governance problems associated with regulatory institutions?

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This Green Paper is the first output of the RELTIF project and sets the stage for its future research. The paper describes the significant changes in financing of corporations that have occurred in Europe over the last few years and the reasons for them. It considers the extent to which low levels of investment are attributable to deficient demand by companies or inadequate supply of finance by financial institutions and markets. It observes marked variations in the nature and extent of problems across companies and countries and suggests that the correct formulation of policy requires a better understanding of the underlying causes of them than has existed to date.

Led by Professor Colin Mayer of the University of Oxford and CEPR, the RELTIF project seeks to encourage debate about the downturn in long-term investment finance in Europe. Authored by leading economists, the Green Paper invites suggestions from readers about the issues raised in the paper to help define the next phase of research of the RELTIF project.

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