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CORPORATE FINANCE IN THE EURO AREA

MAY 2007

STRUCTURAL ISSUES REPORT

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Address
Kaiserstrasse 29
60311 Frankfurt am Main
Germany

Postal address
Postfach 16 03 19
60066 Frankfurt am Main
Germany

Telephone
+49 69 1344 0

Website
http://www.ecb.int

Fax
+49 69 1344 6000

Telex
411 144 ecb d

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EXECUTIVE SUMMARY

RATIONALE AND MAIN OBJECTIVE OF THE REPORT

This report analyses the financial position of non-financial enterprises in the euro area, in particular the amount of external financing, the choice between debt and equity and the composition and maturity structure of debt. It aims at identifying the main features of the euro area, as well as the peculiarities that depend on the country of origin and the sector of activity. Attention is also devoted to assessing whether a country's institutional features are correlated with different financial structures by firms. In light of the particular interest in the access of small and medium-sized enterprises (SMEs) to financing, the report also analyses how financing patterns differ across large, medium and small enterprises. Finally, the report discusses the recent trends observed in the corporate finance landscape of the euro area over the past few years. Although it is still too early to pass final judgement, vast structural changes are underway that could have already influenced in a positive way in the availability of external funds for firms.

All in all, a comprehensive understanding of corporate finance in the euro area is important from a monetary policy perspective, given its impact on the transmission mechanism and for productivity and economic growth. Moreover, such an understanding is also relevant from a financial stability perspective. A first assessment is now possible eight years into the third stage of Economic and Monetary Union (EMU), given that sufficient data have been accumulated during this period. This assessment is particularly important as the introduction of the single currency has had significant structural effects on the working of financial markets, increasing their size and liquidity, and fostering cross-border competition.

The data available for this report generally cover the period 1995-2005, and the cut-off date for the statistics included is 10 March 2007.

MAIN FINDINGS

STYLISED FACTS ON COUNTRIES AND SECTORS:

– The financial position of corporations in the euro area has to a certain degree evolved over the last ten years. On the liabilities side, shares and other equity remain the most important item, followed by loans. While debt in relation to GDP has increased in all countries, the ratio of debt-to-total liabilities (assets) has decreased in most countries. On the asset side, the most remarkable development has been the rise in the share of financial instruments, mostly equity, in total assets owned by firms.

– Firms' financial structures are relatively homogeneous across euro area countries. Still, even after taking into account the average firm size and sectoral composition across countries, some cross-country differences remain, particularly in terms of leverage ratios and in the intensity of recourse to the bond market as opposed to bank lending. Legal and institutional frameworks may help explain these differences: although the level of investor protection and financial development is generally high and relatively homogeneous among euro area countries, firms in countries with better creditor protection tend to have a higher ratio of debt over equity. Moreover, a more widespread recourse to bond financing also seems associated with an institutional set-up which provides more transparency and wider dissemination of information about firms.

– Differences in financial structure across sectors are to some extent the natural reflection of differences in the degree of capital intensity which are inherent in their activity. The construction and trade sectors, for example, which are less capital-intensive, have a financial structure mainly characterised by short-term liabilities; by contrast, the energy or transport and communications sectors, which are more asset-intensive, rely more on long-term

liabilities. Levels of indebtedness also vary considerably across sectors, even though some convergence has taken place over the period considered, with debt reduction most pronounced in the more indebted sectors.

SMALL AND MEDIUM-SIZED FIRMS:

– An assessment of the differences between the financial position of SMEs and larger firms requires sectoral composition and country effects to be controlled for. Once this has been done, some of the differences detected in previous studies tend to disappear, although others then emerge more clearly. Differences remain regarding the degree of reliance on bonds and the share of financial to total assets (all of which are positively related to the size of the firm), and in terms of the degree of reliance on cash and bank loans (all of which are negatively related to the size of the firm). SMEs also tend to be in a somewhat weaker financial situation, as indicated, for example, by their higher level of indebtedness or their lower gross operating profit-to-value added ratio.

– An econometric analysis based on firm-level data confirms that investment decisions are affected by the financial position of firms. In particular, firms facing a higher degree of financial pressure are found to have on average lower investment rates. The empirical results also show that the role of financial variables does not seem to differ across size classes. However, as SMEs tend to be in a weaker financial situation than larger firms, their investment decisions might be more affected.

Concerning the existence of financing constraints for SMEs, i.e. their inability to obtain sufficient financing to fund their investment needs at current, or even higher, interest rates, the empirical evidence is mixed:

– Several surveys conducted at the European level by the European Commission signal that around 10% of firms believe that financing constraints exist, although these results vary across countries. These findings are similarly reflected in some national surveys.

– A review of econometric studies shows that the evidence is mixed, with some studies pointing to the existence of financing constraints for small firms, while others identify other factors as being more relevant in influencing the access to finance. It needs to be stressed that these results, along with those derived from surveys, should be interpreted with caution due to the lack of homogeneity in the definition of SMEs and in the formulation of the questions; the lack of control for other variables such as the age of the firm; and finally sample bias, whereby the firms covered tend to be those in a better financial situation.

CHANGES IN THE CORPORATE FINANCE LANDSCAPE:

– During the first few years of the third stage of EMU, non-financial corporations have benefited from increased availability of market-based financing in the context of booming stock markets, with a strong surge in the net issuance of corporate bonds and shares. The robust recourse to these instruments has been used to finance higher levels of real investment as well as to fund the very large increases in merger and acquisition (M&A) activity. More recently, innovations in credit markets have had a significant impact on corporate financing, and have also modified the role of financial intermediaries. In this respect, a two-tier process can be identified. Firstly, bank lending has become even more prominent in the last two or three years. Secondly, the link between the banking sector and the markets has been strengthened significantly, with commercial banks shifting from acting as traditional financial intermediaries to functioning as credit risk originators and sellers, as a result of securitisation processes and the increasing use of credit derivatives.

– At the same time, the relevance of non-bank intermediaries has increased across the board, from insurance companies and pension funds to hedge funds. The role of private equity funds in providing finance and management services to non-financial corporations has also substantially expanded in the last few years. The increased importance of hedge funds and private equity funds has affected the governance of euro area corporations. The importance of venture capital funds, by contrast, remains overall limited.

– All in all, it is important to bear in mind that recent developments in corporate finance in the euro area have also been driven by more conjunctural factors such as ample liquidity, low levels of interest rates, low credit risk spreads and the demand for leveraged transactions. It is still too early to disentangle to what extent these recent dynamics are of a structural nature, and to what extent they could be reversed in the future.

CONCLUSIONS

From the point of view of monetary policy, three main conclusions can be drawn.

First, the new role of banks in originating, pooling and distributing credit risk outside the banking system in the context of increased competition among banks and between banks and other financial intermediaries may provide corporations, under most economic scenarios, with easier and cheaper access to external finance.

Second, as credit granted is evaluated on a more mark-to-market basis and the banking sector becomes more competitive, the speed of transmission of monetary impulses to bank interest rates across the whole maturity is expected, ceteris paribus, to quicken.

Third, the report indicates that it is likely that credit risk will be less concentrated on banks, thereby making them less vulnerable in the event of shocks. However, it cannot be ruled out that episodes of mispricing of credit risk may be followed by abrupt adjustments that could pose new challenges for the stability of the financial system as a whole. Such patterns may be relevant for monetary policy and financial stability considerations alike, noting that even in normal circumstances, a different distribution of credit risk in the economy may affect the way the transmission mechanism operates.

It can additionally be concluded that the recent trends in financial innovation have contributed to the overall financial development of the euro area and can thus be expected to foster productivity and long-term economic growth. While differences across countries that could be partly related to institutional features still remain, these trends may well accelerate the financial integration process in the euro area.

1 MOTIVATION AND MAIN CONCEPTS

1.1 INTRODUCTION

The aim of this report is to review the structural factors that are likely to have a direct influence on the financial position of non-financial enterprises in the euro area.[1] Indeed, the ability of non-financial enterprises to obtain external financing has an impact on their investment and employment decisions as well as on their growth prospects. Monetary policy influences the investment demand of enterprises via various channels (i.e. the interest rate, credit and balance sheet channels). As these transmission mechanisms depend to a certain degree on the financing behaviour and balance sheet structures of firms, a detailed understanding of corporate financing decisions is important for monetary policy in the context of an assessment of financial and economic development.

The availability of finance can be influenced by a number of factors, such as the size of the firm and the sector it chiefly operates in, and the country it operates from (in particular, that country's institutions). The level of economic and financial development might also play a relevant role in determining firms' financing decisions and their access to finance. As the access of SMEs to financing is of particular interest to policymakers, this report analyses in depth how financing patterns differ across dimensional classes, and reviews the available evidence on the existence of financing constraints.

Another important aspect is related to the changing corporate finance landscape of the euro area. Significant changes have occurred in the financial sector since the start of Monetary Union that have increased the choice of financial products available to non-financial enterprises.

The remainder of the report contains three chapters that reflect the main factors which have been identified. Chapter 2 analyses cross-country and cross-sectoral differences in enterprises' financial positions. It also investigates the degree to which differences in institutions across euro area Member States coincide with differences in firms' financial choices. Institutional features that have been identified in the literature to be important for corporate finance are related to various financial variables such as leverage, the use of debt or equity, or the maturity structure of debt. Chapter 3 then examines the degree to which SMEs exhibit different financial positions from large-scale enterprises. It is commonly believed that small firms pay a higher price for finance, or may even be financially constrained. Hence, the chapter analyses SMEs' financial positions to establish whether there are any systematic differences in their financing patterns with respect to large firms, as this might point to potential financing constraints. Finally, Chapter 4 describes the development of the various sources of external financing available to non-financial corporations in the euro area, and provides an overview of some of the most recent and important changes in the corporate finance landscape.

1.2 MAIN CONCEPTS

The various dimensions of the financial positions of firms include, first of all, the degree of choice regarding the proportion of their activities which is financed from internally generated cash flows. However, firms may not have sufficient funds to finance projects they expect to be profitable, and in such cases will seek external funding, typically in the form of debt or equity.

Firms' financial structures vary greatly owing to differences in their financing and investment decisions. Against this background, Chapter 2 analyses differences in firms' financial positions across countries and sectors, leading in particular to different financial structures. In this respect, the degree to which asymmetries of information affect financial decisions, such

1 This report refers to the financial position of a firm as the status of a firm's assets, liabilities and equity accounts as of a certain time; and to the financial structure as the liability side of a company balance sheet, which includes all the ways its assets are financed. Financial structure is distinguished from capital structure, which includes only long-term debt and equity.

as how much and which type of debt to choose, may depend on institutional features. The findings in the general literature suggest that country-specific effects have a direct and significant impact on leverage, but also magnify the impact of firm-specific characteristics on the choice of financial structure.

Furthermore, firm size and age may affect the quality and quantity of information available on a firm's projects and its collateral, or its relationship with the markets and banks. As a consequence, small firms are often believed to face more severe financing problems than large firms, and it would therefore be reasonable to expect the financing patterns of SMEs to differ from those of large firms. Some of these a priori behaviours will be reviewed in Chapter 3, which focuses on euro area firms by using balance sheet information. The existence of differences in the financing patterns between small and large firms and of financial constraints (which is an extreme case of market imperfection) may suggest that monetary policy has a different impact on firms of a different size and on the transmission mechanism itself. The issue of identifying whether a financing constraint actually exists has not yet been satisfactorily addressed, either econometrically or by use of surveys. There is however a large literature on this which this chapter reviews.

As mentioned in the introduction, major changes have occurred in the corporate finance landscape of the euro area over the past few years that have affected the flow of external financing to non-financial corporations. In particular, Chapter 4 distinguishes between two phases. During a first phase, which lasted approximately until 2001, access to market financing in the euro area increased significantly, with corporations benefiting from the development of corporate bond and equity markets. The removal of currency risk in 1999 and the trend toward financial market integration also acted as catalysts for the development of market-based financing sources.

In a second, more recent phase, after the decline in stock prices following the bursting of the so-called high-tech bubble, innovation in financial and credit markets contributed to new patterns of financing for enterprises, where banks again gained ground and gradually changed their role. These innovations represent major structural changes, and include the development and diffusion of securitisation, credit derivatives, structured finance and the syndicated loans markets. Contributing factors to these structural developments include the very low interest rate environment, the further international integration of financial markets, regulatory developments such as the Basel II accords, and technological developments, all of which have greatly enhanced the quality and timeliness of information.

In both phases, the enhanced role of institutional investors and other new players (such as private equity and hedge funds) in the financial markets played a role in the development of the markets. Changes in the funding patterns of firms may affect the transmission of monetary policy. The increased importance of market-based finance in the first few years of Monetary Union and, more recently, the decision by commercial banks to shift from acting as balance sheet intermediaries to becoming credit risk originators and sellers could have an impact on the channels of the transmission of monetary policy.

Recent trends in financial innovation in the euro area have modified the role of intermediaries and broadened the set of financial instruments that are used in corporate finance, thereby contributing to the overall efficiency of the financial system (i.e. improving the set of institutions and markets through which firms, households and other economic agents obtain financing for their projects and invest their savings). This can be expected to foster productivity growth, as well-developed financial markets are likely to accelerate the reallocation of capital from declining industries to industries with better growth prospects.[2]

2 See Hartmann et al. (2007a).

2 THE FINANCIAL POSITION OF NON-FINANCIAL ENTERPRISES

This chapter provides some stylised facts on the financial position of non-financial corporations in the euro area and in the euro area countries, including an analysis of the main economic sectors in the period 1995-2005. It also analyses the degree to which cross-country differences in firms' financial choices and financial positions are related to institutional and market features. In addition, the chapter also compares the financial situation of euro area enterprises with that of firms in the major industrialised countries, and in the ten new Member States (NMS-10).

The analysis is based on two main data sources: the national financial accounts for the non-financial corporate sector, and the BACH database of the European Commission.[3] The former covers the whole corporate sector, while the latter provides data on a sample of company balance sheets and profit and loss accounts of non-financial corporations, which have been aggregated into countries and sectors. It should be noted that differences in the compilation of the two sources, mainly due to their coverage and valuation principles, mean that it is not always possible to compare statistics. For instance, BACH data are based on accounting figures which mainly rely on book-value, although some assets are valued at market prices, following national accounting rules and/or international financial reporting standards. National financial accounts, on the other hand, tend to privilege market values, but sometimes estimate values for missing information, such as non-marketable securities. The report will take into consideration these discrepancies wherever necessary.

With respect to coverage, the balance sheet analysis examines data from ten of the 12 euro area countries (excluding Ireland and Luxembourg).[4] However, Greek data have not been included in the euro area aggregates based on BACH data since they were taken from a different database.[5] For the sectoral analysis, six main industry groupings have been considered.[6]

The indicators in this chapter[7] are first presented at euro area level, and then the sectoral and country-specific dimensions are investigated. This chapter focuses on the financial position, with an emphasis on the existing structural differences across sectors and countries. In order to assess cross-country differences in the financial position of firms and to make best use of the information contained in the BACH database, sub-section 2.1 aggregates a subset of indicators at the country level, correcting as much as possible for differences in size and sectoral composition. Sub-section 2.2 briefly reviews the theory and empirical evidence on country differences that affect firms' financing structures, while some stylised facts on financial and institutional features in the euro area are presented in a box. This chapter also contains two other boxes, the first comparing the financial position of non-financial corporations in the euro area and in the major industrialised countries and their evolution, and the second considering the financial position of non-financial corporations in the NMS-10. Sub-section 2.3 briefly concludes.

2.1 FINANCIAL POSITION

NATIONAL ACCOUNTS: EURO AREA

As a result of financing and investment decisions by euro area non-financial corporations, there have been some remarkable shifts in the shares of assets and liabilities over the last decade (see Table 1 and Box 1). According to the financial accounts (i.e. based on market valuation), the boom in stock markets led to an increase in the share of equity in total liabilities (own funds ratio) from 43% in 1995

3 BACH stands for the Bank for the Accounts of Companies Harmonised. For a detailed description of the two data sources, see Annex 1.
4 Slovenia is not considered because it joined the euro area after the period under consideration in this report.
5 Data on Greek corporations are taken from ICAP, see Annex 1.
6 The sectors are: "manufacturing", "electricity, gas and water supply", "construction", "wholesale and retail trade", "transport, storage and communication" as well as "other services" (including hotels and restaurants, real estate, renting and business activities).
7 Annex 1 contains a list of all indicators constructed from the BACH database.

Table 1 Liability composition of non-financial corporations' balance sheets

(percentage of total liabilities)

		Loans	Debt securities (excluding financial derivatives)	Shares and other equity (own funds ratio)	Other accounts payable and financial derivatives	Insurance technical reserves	Short-term debt	Long-term debt	Total debt to GDP (percent)
Euro area	**1995**	**35.3**	**3.4**	**42.8**	**15.3**	**2.7**	**-**	**-**	**48.3**
	2005	**29.1**	**3.5**	**53.7**	**11.9**	**1.7**	**10.6**	**22.0**	**78.1**
Belgium	1995	36.8	2.4	53.7	6.8	0.3	17.3	21.9	77.9
	2005	36.7	3.0	59.4	0.8	0.0	20.5	19.3	147.2
Germany	1995	39.7	2.7	42.2	8.8	6.6	12.0	30.3	53.9
	2005	34.7	2.9	47.4	9.3	5.7	9.6	28.0	70.2
Ireland	1995	-	-	-	-	-	-	-	-
	2005	35.5	1.6	47.0	16.0	-	-	-	-
Greece	1995	36.5	1.1	52.7	9.7	-	15.5	22.1	31.4
	2005	32.9	4.3	58.5	4.3	-	14.0	23.2	55.3
Spain	1995	24.7	3.0	44.5	27.0	0.8	8.2	19.5	46.4
	2005	27.9	0.4	49.5	22.1	0.0	6.7	21.7	90.1
France	1995	30.6	6.4	41.1	21.9	-	8.0	-	69.5
	2005	19.8	5.5	62.4	12.2	-	9.1	-	87.7
Italy	1995	40.3	1.3	35.9	18.0	4.4	24.1	17.6	64.5
	2005	31.6	2.3	49.3	13.0	3.9	14.9	18.9	71.3
The Netherlands	1995	39.0	2.1	45.3	13.6	-	10.3	30.7	82.1
	2005	35.3	2.7	50.7	11.4	-	11.1	26.8	97.0
Austria	1995	61.3	4.9	29.9	3.9	-	20.8	45.4	57.8
	2005	46.7	7.5	42.4	3.4	-	12.3	41.9	78.1
Portugal	1995	26.3	3.6	46.1	22.5	1.4	11.9	18.0	60.7
	2005	33.1	5.8	48.7	12.0	0.4	13.9	25.0	106.7
Finland	1995	40.6	3.9	35.4	20.1	-	-	-	70.7
	2005	27.8	4.7	58.8	8.7	-	2.7	29.9	94.0

Sources: ECB annual national and financial accounts. Euro area data for 2005 are preliminary estimates.
Notes: Unconsolidated financial accounts include inter-company loans. Total debt is defined as the sum of loans, debt securities (excluding financial derivatives) and insurance technical reserves.

to 54% in 2005, with this category representing by far the largest means of financing. Although loans remain the second most important source of corporate liabilities, their share has diminished, dropping from around 35% in 1995 to 29% in 2005. The share of debt securities by contrast has not changed in the meantime, remaining at less than 4% of total liabilities. While the item "other accounts payable and financial derivatives", which includes trade credit, plays some role in corporate liabilities, it is of minor importance when netted against the corresponding item on the asset side of the balance sheet ("other accounts receivable"). It is interesting to note that while total debt (defined as the sum of loans, debt securities and insurance technical reserves) in relation to GDP has increased in all countries, the total debt-to-total liabilities ratio has decreased in most countries, implying that corporate liabilities (assets) have increased at a far faster rate than nominal GDP.

Regarding corporate financial assets, equity accounts for the largest share, rising from 41% in 1995 to 52% in 2005, and indicating the degree of financial linkages between euro area corporations. The relevant role of trade credit and loans in the financial assets of euro area non-financial corporations is another indicator of the strong financial linkages within the corporate sector. Again, debt securities are of minor importance in the financial assets held by euro area non-financial corporations. Finally, very liquid assets, such as currency and deposits, represent about 12% of all

Table 2 Financial asset composition of non-financial corporations' balance sheets

(percentage of total financial assets)

		Loans	Currency and deposits	Debt securities excluding financial derivatives	Insurance technical reserves	Other accounts and financial derivatives	Shares and other equity	Total financial asset/GDP (percent)
Euro area	**1995**	**9.0**	**14.9**	**5.1**	**1.5**	**28.5**	**41.3**	**88.7**
	2005	**12.4**	**11.5**	**3.1**	**1.1**	**19.7**	**51.9**	**147.3**
Belgium	1995	26.6	14.0	2.7	1.5	9.5	45.7	127.1
	2005	41.6	9.4	2.0	0.8	-1.8	48.0	277.5
Germany	1995	3.8	20.8	9.8	2.1	14.8	48.7	64.2
	2005	6.1	19.2	3.1	2.0	18.3	51.2	91.8
Ireland	1995	-	-	-	-	-	-	-
	2005	34.0	13.1	-	-	26.4	26.0	152.2
Greece	1995	0.1	40.8	1.6	0.2	5.6	51.8	38.5
	2005	0.4	37.3	2.6	0.4	3.3	56.0	57.4
Spain	1995	1.0	14.7	2.5	1.8	51.4	28.6	92.0
	2005	3.1	10.4	2.0	1.2	35.3	47.9	203.0
France	1995	10.9	7.0	6.0	0.7	28.8	46.6	131.4
	2005	13.4	4.5	3.6	0.4	18.2	59.9	252.8
Italy	1995	2.0	16.7	5.2	2.0	43.8	30.4	68.9
	2005	5.4	12.8	4.6	1.3	26.3	49.6	101.2
The Netherlands	1995	20.1	18.7	2.8	1.1	24.5	32.9	97.4
	2005	28.6	23.0	3.9	0.8	18.7	25.0	156.3
Austria	1995	2.9	29.5	13.0	4.1	10.2	40.3	43.0
	2005	9.4	19.8	6.7	2.7	4.2	57.2	76.7
Portugal	1995	8.2	24.0	0.3	1.0	49.7	16.9	86.5
	2005	10.7	17.9	4.1	1.1	25.6	40.5	153.6
Finland	1995	17.2	9.6	10.3	2.0	34.6	26.3	93.1
	2005	29.8	7.5	2.0	1.0	22.4	37.3	141.4

Sources: ECB annual national and financial accounts. Euro area data for 2005 are preliminary estimates.
Note: Unconsolidated financial accounts include inter-company loans.

corporate assets in 2005, down slightly from 15% in 1995.

Several indicators can be used to assess the overall level of corporate indebtedness. As shown in Table 1 and Chart C in Box 1, based on national and financial accounts, the total debt-to-GDP ratio of euro area corporations has stabilised or moderated since 2001, after recording a sharp increase at the end of the 1990s, to stand at 78% in 2005, up from 48% in 1995. However, the ratio of debt to equity, as well as the ratio of debt to assets, increased only moderately from 2000 to 2002, and shows an overall decline over the period considered.[8]

8 Based on company accounts using the BACH database, the debt-to-equity ratio also shows an overall decline from 1995 to 2005 (see Table 3). This ratio is defined as the sum of loans from credit institutions, payments received on accounts of orders, trade creditors, loans from other creditors and other financial and non-financial creditors, bonds and provisions for pensions and similar obligations.

Box 1

THE FINANCIAL SITUATION OF NON-FINANCIAL CORPORATIONS IN THE EURO AREA, THE UNITED STATES, JAPAN AND THE UNITED KINGDOM

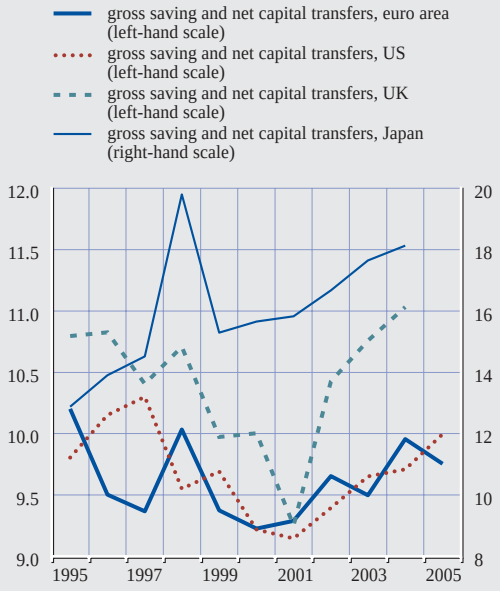
Saving, fixed capital formation and the financing need of non-financial corporations[1]

Starting from a position of relatively low saving ratios in 2000 and 2001, enterprises in the euro area, the US and the UK have considerably increased their gross saving, including net capital transfers, as a percentage of GDP between 2002 and 2004 [2005] (see Chart A). This mainly reflects the strong increase in corporate profitability in recent years. In Japan, corporations have increased their saving as a percentage of GDP continuously over the last decade.[2] In parallel with low levels of saving, non-financial corporations in the euro area, the US and the UK strongly increased their fixed capital formation from the late-1990s until 2000, leading to a high need for external financing as indicated by the significant widening of the financing deficit in this period (see Chart B).

1 The data applied in Box 1 are based on national and financial accounts. The euro area, the UK and Japan follow the System of National Accounts 1993 (SNA 1993), whereas the US statistical accounting system uses in part different definitions. With respect to the delineation of the sectors, the US non-financial business sector broadly corresponds to the non-financial corporations defined according to SNA 1993, including both incorporated and unincorporated businesses. By contrast, the US non-financial business sector also includes sole proprietorships.
2 The peak in 1998 resulted from net capital transfers received by Japanese non-financial corporations. This was probably related to the domestic banking crisis and the Asian crisis.

Chart A Saving and capital transfers of non-financial corporations

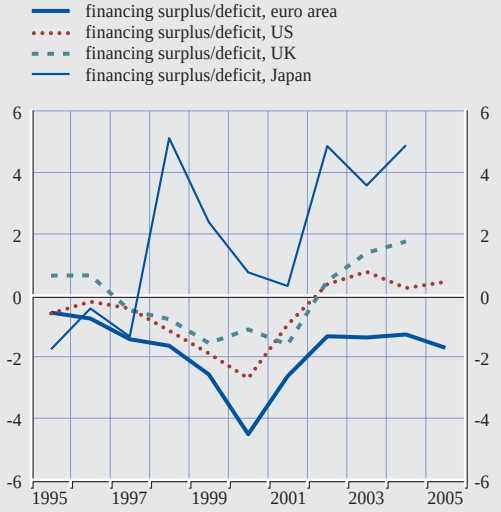
(in percentages of GDP)



Sources: ECB, US Federal Reserve Board, Japan Economic and Social Research Institute Cabinet Office and the UK Office for National Statistics.
Notes: Euro area figures in 1995 have been corrected for the assumption of the Treuhand agency's debt by the Redemption Fund for Inherited Liabilities in Germany. 2005 data for the euro area are preliminary estimates.

Chart B Financing surplus/deficit of non-financial corporations

(in percentages of GDP)



Sources: ECB, US Federal Reserve Board, Japan Economic and Social Research Institute Cabinet Office and the UK Office for National Statistics.
Notes: The financing surplus/deficit is defined as net lending/net borrowing as a percentage of GDP. Euro area figures in 1995 have been corrected for the assumption of the Treuhand agency's debt by the Redemption Fund for Inherited Liabilities in Germany. 2005 data for the euro area are preliminary estimates.

At the beginning of 2000, the financing deficit started to narrow in the three economies. In the euro area, this continued until 2002, mainly owing to a decline in fixed investment. This was even more pronounced in the US during this period. By contrast, in the UK the movement from a financing deficit to a financing surplus was relatively evenly spread between a rise in saving and a decline in fixed investment. Japanese corporations enjoyed a financing surplus from 1998 to 2004, mainly related to an increase in gross saving (with the exception of the large financing surplus in 1998 that resulted from high net capital transfers), and only to a smaller extent to a decline in gross capital formation.

Financing of non-financial corporations

Between 1995 and 2005, loans were on average by far the most important source of debt financing of non-financial corporations in the euro area (96%), compared to the issuance of debt securities, which accounted for only a fraction (4%) (see Table A). Only in the period 1999-2001 did debt securities start to play a larger role in the debt financing of euro area enterprises, a trend that was to a large extent related to the high level of M&As at that time. By contrast, in the more recent past, high levels of financial investment have been financed mainly by loans, while the issuance of debt securities has remained relatively modest. Accordingly, the importance of debt securities in the amount outstanding of debt liabilities of corporations is relatively low in the euro area (9.5% on average from 1995 to 2005), compared with a share of loans of 91%. In the UK and in particular in the US, the share of loans in the debt liabilities of corporations has been less important, accounting for 75% in the UK and 59% in the US on average in the period 1995-2005. In these two countries, market-based debt financing of enterprises has played a much larger role than in the euro area. At the same time, however, the share of loans in annual debt financing transactions increased markedly in the UK in 2004 and in the US in 2004 and 2005. Compared to the strong annual growth rate of loans to non-financial corporations, the annual growth rate of debt securities issued by this sector has remained rather modest over the past few years in all four economic areas. In Japan, enterprises reduced their debt liabilities during most of the period under review (from 1996 to 2005), implying negative debt financing transactions related to substantial corporate reorganisation and balance sheet restructuring. Most of this reduction resulted from a reduction in loans, which accounted for 80% of outstanding debt liabilities on average between 1995 and 2005.

Compared with the relatively strong level of debt financing, the issuance of quoted and unquoted equity by non-financial corporations accounted for a lower share in the annual debt and equity financing transactions in the euro area, and even more so in the US and the UK. Moreover, the composition of equity is quite different. For instance, in the US the vast majority of medium-size and nearly all large US corporations have publicly traded shares, with unquoted shares at the end of 2003 estimated at around 12% of the total market value of equity of domestic corporations. In the euro area, by contrast, this share stood at than 60%, well above the average from 1995 to 2005 of 42% (compared to an average of 31% in the UK). In both economic areas, the annual growth rate of equity issued by corporations was relatively strong in 1999 and 2000, related to the New Economy boom, but dropped considerably thereafter and remained relatively weak until 2005. By contrast, the net issuance of equity by US corporations remained negative throughout the entire period under review, owing to share buybacks and equity retirements following mergers. The situation in Japan differs from that of the other three economies: net equity issuance remained positive throughout the entire period and higher than the (negative)

Debt and equity liabilities of non-financial corporations

(amounts outstanding, in percentages)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Euro area											
in percentages of debt liabilities											
Loans	91.3	91.2	91.4	91.5	91.3	91.1	89.9	90.3	89.5	89.5	89.2
Debt securities	8.7	8.8	8.6	8.5	8.7	8.9	10.1	9.7	10.5	10.5	10.8
in percentages of debt and equity liabilities											
Debt	47.4	43.0	39.9	35.7	30.8	33.7	38.1	42.9	41.1	39.9	37.7
Equity	52.6	57.0	60.1	64.3	69.2	66.3	61.9	57.1	58.9	60.1	62.3
Debt to equity	90.3	75.3	66.4	55.5	44.4	50.8	61.6	75.1	69.9	66.4	60.6
United States											
in percentages of debt liabilities											
Loans	60.3	59.9	59.7	59.1	58.9	59.1	57.8	57.8	57.3	58.4	60.7
Debt securities	39.7	40.1	40.3	40.9	41.1	40.9	42.2	42.2	42.7	41.6	39.3
in percentages of debt and equity liabilities											
Debt	39.1	36.4	32.8	31.6	28.2	33.9	39.0	47.5	42.1	41.6	43.4
Equity	60.9	63.6	67.2	68.4	71.8	66.1	61.0	52.5	57.9	58.4	56.6
Debt to equity	64.3	57.2	48.8	46.2	39.3	51.4	63.8	90.4	72.7	71.2	76.6
Japan											
in percentages of debt liabilities											
Loans	81.4	80.0	80.5	80.9	81.3	80.3	80.9	80.0	79.9	79.4	79.5
Debt securities	18.6	20.0	19.5	19.1	18.7	19.7	19.1	20.0	20.1	20.6	20.5
in percentages of debt and equity liabilities											
Debt	62.0	64.5	64.2	63.9	53.1	57.2	60.0	64.6	54.9	53.4	44.5
Equity	38.0	35.5	35.8	36.1	46.9	42.8	40.0	35.4	45.1	46.6	55.5
Debt to equity	163.3	182.1	179.3	176.8	113.3	133.5	150.0	182.2	121.9	114.8	80.3
United Kingdom											
in percentages of debt liabilities											
Loans	78.7	78.8	77.9	76.4	74.7	72.9	74.1	74.0	73.8	74.6	73.5
Debt securities	21.3	21.2	22.1	23.6	25.3	27.1	25.9	26.0	26.2	25.4	26.5
in percentages of debt and equity liabilities											
Debt	31.9	30.9	29.4	29.7	27.5	30.5	36.1	44.9	42.8	42.6	41.3
Equity	68.1	69.1	70.6	70.3	72.5	69.5	63.9	55.1	57.2	57.4	58.7
Debt to equity	46.9	44.8	41.6	42.3	37.9	43.8	56.5	81.6	74.9	74.3	70.3

Sources: ECB, US Federal Reserve Board, Bank of Japan and the UK Office for National Statistics.
Notes: Debt liabilities are defined as the sum of loans and debt securities (excluding financial derivatives). 2005 data for the euro area are preliminary estimates.

debt financing transactions, dropping considerably from the peak reached in 1999, similar to the euro area and the UK, but recovering somewhat in 2004 and 2005.

The financial position of non-financial corporations

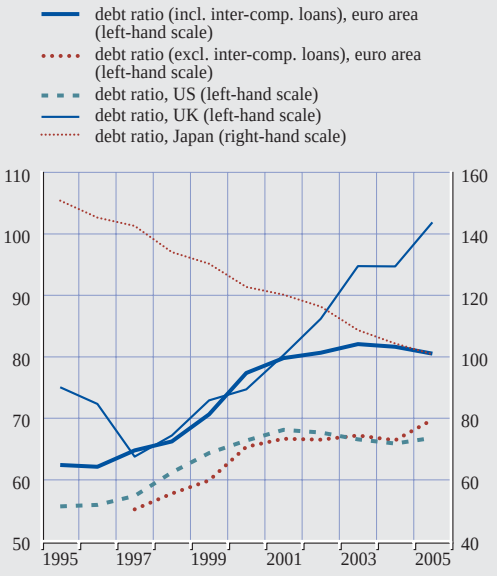
From relatively similar levels in 1997, the total debt-to-GDP ratios of corporations in the euro area, the US and the UK have all increased to a different extent during the past decade (see Chart C). For the euro area, this ratio is most comparable with that of the US, although it excludes inter-company loans, which are consolidated in the US data. Both the euro area and the US ratios have developed broadly in line at similar levels since the mid-1990s. After increasing between the second half of the 1990s and 2001, debt ratios stabilised or moderated slightly thereafter, standing at 70% in the euro area in 2005 and at 67% in the US in 2005. When

looking at the total debt-to-GDP ratio of euro area corporations based on unconsolidated data, however, the picture differs in two main ways. First, the increase in the debt ratio in the second half of the 1990s was more pronounced, and second, the ratio continued to increase slightly until 2003, before rising to 80% in 2005. The ratio including inter-company loans can be compared to the total debt-to-GDP ratio of UK corporations, as both refer to unconsolidated accounts. Non-financial corporations in the UK markedly increased their total debt-to-GDP ratios from 64% in 1997 to 102% in 2005. This development deviated from that in the euro area and the US in particular between 2002 and 2005, linked to a slightly less marked decline in the annual rate of change of debt in the UK during that period. In contrast with the other three economies, Japanese corporations significantly reduced their total debt-to-GDP ratios in the period under review, in line with their reduction of outstanding debt liabilities.

The development of the ratio of debt to debt plus equity was influenced by large swings in the valuation of equity at market prices in all four economies, which declined considerably from 1995 to 1999 and rose strongly from 2000 to 2002, two trends that are related to the rise and subsequent fall in stock market prices (see table). From 2003 to 2005, the ratio declined moderately in the euro area, the US and the UK, and more strongly in Japan, in parallel with the recovery in stock market prices. Overall, over the period 1995-2004/2005, the ratio declined somewhat for the euro area and to a larger extent for Japan, while it increased in the US and rose significantly in the UK. The repurchases of equity by US corporations and the stronger

Chart C Total debt-to-GDP ratios of non-financial corporations

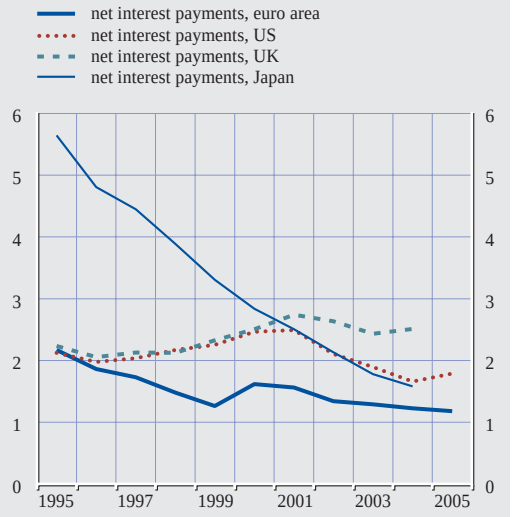
(in percentages)



Sources: ECB, US Federal Reserve Board, Bank of Japan and the UK Office for National Statistics.
Notes: Total debt is defined as the sum of the amount outstanding of loans and debt securities and, for the euro area, pension fund reserves. The ratio for the euro area including inter-company loans is based on unconsolidated annual financial accounts data. The ratio for the euro area is based on the quarterly financial accounts, which do not include inter-company loans, and an estimate of loans granted by non-euro area banks. 2005 data for the euro area are preliminary estimates

Chart D Net interest burden of non-financial corporations

(in percentages of GDP)



Sources: ECB, US Bureau of Economic Analysis, Japan Economic and Social Research Institute Cabinet Office and the UK Office for National Statistics.
Notes: The net interest burden is defined as the amount of interest paid minus the amount of interest received. 2005 data for the euro area are preliminary estimates.

increase in the debt of corporations in the UK over this period have all contributed to the increasing ratios in these two economies. Overall, while there were considerable differences in the level of this ratio over the period under review, the level was relatively similar in all four economies in 2005, even though the composition of equity is rather different, with non-quoted shares more important in the euro area than in the US and the UK.

The development of the net interest burden of corporations has been driven partly by the developments in money market interest rates, which explain the considerable differences between the four economic areas (see Chart D).[3] In the euro area, the net interest burden declined in the second half of the 1990s, related to the interest rate convergence before the start of EMU in 1999. After a temporary rise in 2000, it dropped to historically low levels in 2004, in the context of low market interest rates. The higher US and UK market interest rates from 1996 to early 2001 contributed to explaining the higher level of the US and UK net interest burden compared with the euro area from 1998 onwards. From 2001 to 2004, the net interest burden of US corporations approached the net interest burden of euro area corporations, owing to the significant easing of US monetary policy. Finally, extremely low money market rates in Japan starting in the mid-1990s led to a steep decline in the net interest burden of Japanese corporations over the period under review.

3 In addition, the exclusion of financial institutions' implicit service charges (FISIM) from the euro area interest data from 1999 onwards partly contributed to the difference between the interest burden of euro area corporations compared with that of corporations in the US and the UK.

NATIONAL ACCOUNTS: COUNTRY DIMENSIONS

Between 1995 and 2005, the debt-to-GDP ratio increased in all euro area countries, particularly in Belgium, Portugal and Spain. However, the own funds ratio also increased in most cases, reflecting the increase in share prices, and stood at between 40% and 60% of total liabilities (see Table 1).

Analysing the structure of debt in more detail, bank loans remained the largest item in most countries, although loans by other financial intermediaries (OFIs) have gained in importance. The share of debt securities issued remained relatively small in most countries. Only in Austria, France and Portugal did the stock of debt securities reach a significant level of about 5-8% of total liabilities. Other positions within the capital structure (such as insurance technical reserves) were either limited to certain countries or of minor importance. The outstanding amount of other accounts and financial derivatives was very important in a few countries (e.g. accounting for 22% of total liabilities in Spain in 2005), but on a net basis, the corresponding figures were small or negative, and thus so far cannot be considered a relevant additional financing source.[9]

Turning to the structure of financial assets, the holding of shares and other equity was ranked first in most countries, underlying the high degree of connections between enterprises. Dutch and Irish enterprises constituted an exception, however, where loans granted (either to other firms or other sectors) exceeded shares and other equities in 2005. For a few countries (e.g. the Netherlands, Austria, Germany and above all Greece) the holdings of deposits were relatively high, but nevertheless lower than shares and other equity as a percentage of total financial assets.

In most countries, the interest burden[10] of non-financial enterprises declined between 1995 and 2005, in line with euro area market interest

9 At the same time, a short-term mismatch was reported for Austria, Greece, Italy and Portugal. Here the ratio of short-term financial assets to short-term debt was less than 100%, meaning that liquid assets were not sufficiently high to cover short-term liabilities. There was one positive outlier in Finland which had a value of nearly 200%.

10 Measured by net interest expenditure as a percentage of gross operating profit.

rates. However, significant differences in the level of this burden remained: the indicator was higher than the 2005 euro area average in France and Italy, and much lower in the Netherlands and Greece. This can be explained by the fact that in the latter two countries the holding of deposits and the amount of interest receipts reducing the net burden were relatively high.

BALANCE SHEET DATA: COUNTRY AND SECTORAL DIMENSIONS

This section analyses the cross-country and sectoral features of the financial position of non-financial corporations in the euro area based on the BACH database. The format of the analysis is slightly different from the previous section, given the differences in the compilation methods used in the BACH database and in the annual financial accounts. The advantage of using balance sheet data, however, is that such data enable differences in sectoral and size composition to be taken into account. This section aims to answer the following four questions. (1) What are the main stylised facts on individual countries' financial position, and (2) how do they compare with the evidence from financial accounts? (3) Are the main stylised facts identified above really country-specific, or do they depend on different size and sectoral characteristics of firms? (4) To the extent that they are country-specific, what can explain the differences, and what might these differences imply?

To start with, this section considers the sectoral characteristics of non-financial corporations in the euro area, before focusing on cross-country differences. The dimension of size will be dealt with in detail in the next chapter.

SECTORAL DIMENSION

Balance sheet structures differ across sectors, mainly due to the nature of firms' activities. When debt is compared to equity or to total assets, two sectors show a much higher level of indebtedness: "construction" and "wholesale and retail trade" (see Table 3). On the other hand, the "electricity,

Table 3 Asset composition, maturity matches and debt structure of non-financial corporations across sectors in the euro area

		Balance sheet composition *(percentage of total assets)*					Maturity matches		Debt structure	
		Current assets	Financial fixed assets	Intangible fixed assets	Tangible fixed assets	Other	Short-term assets to short-term debt	Fixed assets to total assets	Debt to equity	Debt to assets
All sectors	1995	50.5	16.0	2.2	30.1	1.2	134.0	48.4	190.8	60.2
	2005	45.3	27.1	3.9	22.9	0.9	137.3	51.5	148.9	55.4
Manufacturing	1995	56.3	19.6	2.1	21.4	0.6	143.0	43.1	170.4	57.7
	2005	51.4	28.0	3.7	16.3	0.7	137.5	44.8	148.2	55.2
Electricity, gas and water supply	1995	18.4	10.0	4.5	64.0	3.0	121.5	78.6	193.3	53.3
	2005	25.8	23.3	3.9	45.7	1.4	121.6	68.5	138.2	48.9
Construction	1995	77.2	9.7	0.9	11.6	0.6	124.1	22.2	379.7	73.6
	2005	76.4	9.4	2.0	11.2	1.0	144.9	21.5	276.5	69.1
Wholesale and retail trade	1995	69.5	11.6	2.4	15.6	0.8	124.5	29.7	272.5	69.9
	2005	67.1	13.5	4.6	14.0	0.8	130.1	30.9	210.1	65.0
Transport, storage and communication	1995	22.5	10.4	1.7	63.2	2.2	107.9	75.3	163.4	57.0
	2005	25.3	24.0	6.4	43.5	0.9	112.6	72.1	160.0	54.8
Other services	1995	46.6	22.8	1.7	27.7	1.3	147.8	52.1	166.7	59.6
	2005	36.7	39.9	2.6	19.8	1.0	162.6	60.8	112.0	50.7

Sources: ECCBSO, BACH database and own calculations.
Note: For the definition of debt, see footnote 8.

gas and water supply" and "manufacturing" sectors feature comparatively low debt ratios over the period considered.[11] One should however be cautious when interpreting these figures, as relating debt to turnover yields contradictory results: the "electricity, gas and water supply" sector then appears highly indebted (as would "other services" and "transport, storage and communication"), while the indebtedness of the "wholesale and retail trade" sector appears much lower. This reflects large differences across sectors regarding the size of their balance sheet assets.

In terms of the maturity structure, two main groups can be distinguished. The first comprises the "construction", "wholesale and retail trade" and, to a lesser extent, also "manufacturing" sectors. These all have financial structures mainly biased towards short-term liabilities, as indicated by a large percentage of current assets in relation to total assets. This can be attributed to specific characteristics in the financing of these sectors: in the construction sector, customers typically pay part of the contract upfront, thus providing "free" external finance to match the borrowing requirement. In the trade sector, financing needs are to a very large extent covered by trade credit. In the manufacturing sector, long-term finance is usually needed, but high profitability levels have enabled firms to cover investment costs and moreover to repay remaining long-term debt. Therefore the existing financing pattern can largely be characterised as a transitory phenomenon.

The second group comprises "electricity, gas and water supply", "transport, storage and communication" and "other services", and displays a financial structure that has been influenced by high long-term borrowing requirements in recent years. These sectors have a negative financing gap but considerable tangible fixed assets, so that short-term assets are small in relation to total assets. At the same time, their share of short-term debt in total debt is also below the average.

Despite differences in the composition of debt and assets, the ratio which compares short-term assets to short-term debt, i.e. liquidity in the broad sense, has exceeded 100% in every sector throughout the last decade. Broadly in line with the rise in debt, the interest burden[12] has remained above the overall sectoral average of all sectors in the "other services" and "transport, storage and communication" sectors for most of the period.

COUNTRY DIMENSION AND INDICATORS ADJUSTED FOR SIZE AND SECTORAL DIMENSIONS

This section first considers the country-level variables that describe the financial structure as derived directly from the BACH database (see Table 4). Since the main focus is on recent structural aspects rather than their evolution over time, averages were computed over the period 1999-2005. Then the same indicators were recalculated by aggregating the size/sector-level variables using a common weighting scheme (see Table 5). A comparison on the basis of adjusted indicators is made to assess whether the differences reflect country effects, or whether they are due to the different characteristics of the corporate sector, in particular in terms of size of firms and sectoral composition.

Table 4 reports average values for selected unadjusted balance sheet indicators, grouped into three main categories: the amount of external finance, the choice of debt versus equity, and the choice of the type of debt. The amount of external finance collected by firms is proxied by the amount of debt and external equity, the latter taking into consideration subscribed capital and share premium accounts. While the amount of debt to turnover is quite similar for non-financial corporations across the euro area, the dispersion is higher in the case of the recourse to external equity. For instance, firms in Austria make much smaller

11 The debt-to-cash flow ratio provides a similar picture of indebtedness, indicating a possible lack of reimbursement capacity of these sectors.

12 Measured as the ratio of gross interest payments to gross operating profit.

use of equity relative to their turnover (less than 6%) than firms in Portugal and Spain (more than 27%) or in Belgium (more than 50%).

For a given amount of external financing, the trade-off between debt and equity depends on firms' specific needs and on the relative cost and availability of the two; this in turn varies across countries, depending on institutional and market factors.

The measures of indebtedness based on BACH data may differ from those obtained by the national accounts because of two factors: i) in the former, equity is not valued at market prices; and ii) the BACH sample only includes a sample of firms, typically of larger size. Indeed, owing to the effect of changes in market valuation, the own funds ratio based on enterprise balance sheet data is typically lower than the ratios based on national accounts presented in Table 1 above. In Table 4, the debt-to-equity ratio varies considerably across countries, with France, Italy and Germany being the most leveraged. This ranking does not reflect the same ranking obtained from national accounts in Table 1.[13]

13 When calculating broadly corresponding ratios based on the financial accounts, different results can be obtained. The level (and volatility) of debt-to-equity ratios defined on the basis of market values is of course mainly influenced by the outstanding amounts of equity and only to a minor extent by debt. Huge country differences exist in terms of levels: in Austria, the indicator ranged between 130% and 220% over the period considered, while in Spain and other countries (Belgium, France and Portugal) it stood at between 40% and 90%.

Table 4 Selected indicators and size of capital markets across countries

(averages 1999-2005)

	Austria	Belgium	Germany	Spain	Finland	France	Greece	Italy	Netherlands	Portugal	Euro area	Coefficient of variation
Debt to turnover	69.9	80.0	50.0	69.6	52.8	56.1	71.9	67.9	59.0	73.2	60.4	0.15
External equity to turnover	5.4	55.3	16.4	27.5	21.8	16.5		17.9	18.2	28.3	21.1	0.60
Debt to equity	192.8	106.6	195.9	141.5	109.0	210.7	142.9	209.7	123.5	168.1	166.3	0.25
Short-term debt to total debt	49.7	66.9	57.5	60.0	53.4	59.6	69.0	73.2	57.8	59.0	62.2	0.12
Long-term debt to total debt	50.3	33.1	42.5	40.0	46.6	40.4	31.4	26.8	42.2	41.0	37.8	0.18
Bank loans to total debt	25.5	23.6	21.7	23.9	26.1	16.9		26.4	20.2	35.4	22.2	0.21
Bonds to total debt	9.6	6.9	2.8	2.1	7.2	7.7		3.2	9.5	3.7	4.7	0.50
Size of capital markets	157.1	196.2	225.5	201.9	273.2	217.3	146.9	161.1	302.0	192.0	210.6	0.24

Sources: ECCBSO, BACH database, ICAP, Bank for International Settlements (BIS), Eurostat, International Monetary Fund (IMF) International Financial Statistics, World Federation of Exchanges, and own calculations.
Notes: For Belgium, data for the bond-to-total debt ratio are derived from annual financial accounts. Data for Greece are averages of the period 2001-2005. For the definition of debt, see footnote 9. External equity is defined as subscribed capital and share premium account divided by turnover.

Table 5 Selected adjusted indicators

(averages 1999-2005)

	Austria	Belgium	Germany	Spain	Finland	France	Greece	Italy	Netherlands	Portugal	Euro area	Coefficient of variation
Debt to turnover	111.0	92.2	66.0	78.8	66.1	76.4	85.5	80.2	66.6	91.2	76.3	0.2
External equity to turnover	9.5	61.7	18.9	31.6	29.3	22.2		23.5	19.5	41.4	29.6	0.5
Debt to equity	232.0	156.6	245.0	147.6	119.4	240.3	86.4	242.4	145.6	186.3	181.1	0.3
Short-term debt to total debt	53.8	64.8	60.8	66.9	54.8	63.1	66.9	73.3	58.3	65.5	63.5	0.1
Long-term debt to total debt	46.2	35.2	39.2	33.1	45.2	36.9	33.1	26.7	41.6	34.5	36.5	0.2
Bank loans to total debt	23.0	22.1	24.0	27.5	26.7	16.1		26.2	14.0	31.3	22.3	0.2
Bonds to total debt	8.1		2.4	0.9	6.9	6.0		2.7	7.6	3.1	4.2	0.6

Sources: ECCBSO, BACH database, ICAP and own calculations.
Notes: Data for Greece are averages of the period 2001-2005. For the definition of debt, see footnote 9. External equity is defined as subscribed capital and share premium account divided by turnover. Since the weighting scheme is the same for all variables and is based on value added, the values of the indicators for the euro area change as well. This is because the implicit weighting scheme for the unadjusted indicators is different for each variable and is based on the variable used as denominator for each ratio.

For a given amount of debt, firms can choose between loan and bond financing, and between short and long-term credit. The choice again depends on firms' characteristics (for example, faced with high fixed issuing costs, bonds are better suited for larger firms) and on the relative cost and availability of specific financial products. In the euro area, the share of bank loans to total debt is on average around 22% of total debt, and bonds are fairly unimportant in all countries except in the Netherlands, Austria and France. This information broadly confirms the indications derived from the financial accounts on the heterogeneous use of sources of finance by non-financial corporations in the euro area. Some differences can be seen in the use of loans by German firms, which seems to be comparatively lower when balance sheet indicators are used, or in the recourse to bonds by Dutch firms, which is much higher according to BACH information.

The last line reports a measure of the degree of development of the financial markets, calculated as the sum of bank credit to the private sector, stock market capitalisation and the stock of domestic debt securities issued by the private sector as a percentage of GDP. The size of the financial markets has increased since the beginning of the 1990s in all euro area countries, although there is still considerable dispersion within the euro area.

Table 5 reports the adjusted values of the same variables illustrated in Table 4. The indicators are adjusted to control for the different size and sectoral specialisation of firms in each country, by imposing the same size/sectoral composition on each country (here, that of the euro area as derived from the BACH database).[14] The indicators obtained in this way are a better

14 See Annex 2 for an explanation of the weighting scheme.

measure of the cross-country differences that derive from institutional factors or other national peculiarities apart from differences in size or sectoral composition.[15]

After adjusting for size and sector, the overall picture does not greatly change. Cross-country differences remain relevant for the recourse to equity or to the bond market (the difference between the maximum and minimum value, as a percentage of the average value of the indicator, amounts to more than 100% for the ratio of equity over turnover and for the ratio of bonds to total debt), whereas they are minor for the share of short term over total debt or for the debt-to-turnover ratio.

Nevertheless, there are some differences in certain variables and in the ordering of countries. For instance, firms in Belgium have an unadjusted level of leverage that is at the lower end of the sample, but after adjusting for size and sectoral composition, they are ranked somewhere in the middle. This means that taking into account the size and sectoral composition of the Belgian economy, Belgian firms have in fact a level of debt to equity that is close to the average. Another example is the ratio of bonds to total debt of Spanish firms, which is halved by the adjustment, indicating that this ratio is mainly affected by sectoral composition and size.

Reducing the distortions owing to differences in size and sectoral composition shows that there are significant cross-country differences in the financial structure of firms in the euro area, particularly with respect to the choice of debt vs. equity and the choice of bonds vs. loans. The next section therefore discusses the possible determinants according to the existing literature.

2.2 EXPLAINING COUNTRY DIFFERENCES IN FINANCING CHOICES: THEORY AND EMPIRICAL EVIDENCE

The discussion presented in the previous section indicates that even after controlling for heterogeneity in terms of sectoral composition and size, euro area countries continue to differ in terms of their financial structure. The literature on corporate finance has highlighted a few factors that could explain the most relevant of these differences: legal protection of investors (shareholders and creditors), the quality of enforcement regarding the legal framework, transparency and dissemination of information, the market structure of the financial industry (in particular the banking sector), and taxation.

This section reviews the influence that these factors may have on the level of external financing, the choice of debt vs. equity financing, the choice of bank or capital market-based debt financing and the maturity structure of debt, based on the conclusions of the theoretical and empirical literature. The conclusions that can be distilled from the literature regarding the expected signs in the relationships between financial structure indicators and institutional variables are summarised in Table 6.

Box 2 then presents some stylised facts on the relationship between institutional factors and the financial structure of firms in the euro area countries.

AMOUNT OF EXTERNAL FINANCING

The *legal system's ability to enforce the law and its efficiency and integrity* in doing so are important factors that affect the availability of external financing for firms. There is evidence that the enforcement of creditor and shareholder

15 This correction is far from perfect: in particular, the size classes in BACH do not differentiate between large and very large firms, and sectors are only roughly defined. However, the adjustment performed on the BACH data does correct at least for some distortions induced by differences in size and sectoral composition across countries.

rights is more important than the actual existence of these rights (Bhattacharya and Daouk, 2002). An efficient and reliable legal system ensures that financial contracts are enforced, thus supporting the development of markets for external finance and, as a result, increasing the level of external financing available to firms.

The *transparency* of a financial system, in terms of availability of firm-level information as well as its dissemination and use, is expected to affect positively the amount of external financing used by firms. The quantity and quality of information on firms that is available reduces information asymmetries between insider and outsider firms and mitigates the agency problems between these two groups, thereby reducing the cost of capital (Holmström and Tirole, 1993) and increasing firms' recourse to external funding.

Competition within the financial (and banking) system is expected to be related to higher levels of external financing for firms (bank loans in particular). Lack of competition leads to inefficiencies, which means that less financing is supplied to firms at a higher cost (Berger and Hannan, 1989). Conversely, increased competition can encourage intermediaries to engage in financial innovation, introducing new products better tailored to fit firms' financing requirements, and possibly at a lower cost. There are also some countervailing arguments, according to which increased competition may reduce the privileged access of banks to firms' information, thereby raising the cost of capital and reducing the amount of loans available (Petersen and Rajan, 1994); however, empirical evidence suggests that the former arguments prevail (Beck, Demirgüç-Kunt and Maksimovic, 2004; Claessens and Laeven, 2005).

DEBT VS. EQUITY

The effect of both *creditor rights and shareholder rights* is not clear-cut from a theoretical standpoint.[16, 17] The arguments outlined previously for the influence of competition in the banking system on the amount of external finance used also apply in the case of the debt vs. equity (financial leverage) question. More specifically, the lower financing costs associated with loans in a competitive banking system imply a positive relationship between the level of competition in the system and the debt-to-equity ratio.

The overall implications of the tax system on firms' leverage are less clear-cut, as the impact is brought about through various channels, with possibly conflicting results.[18] In principle, it has been argued (Modigliani and Miller, 1963) that the tax deductibility of interest creates an incentive for firms to favour debt over equity, and hence firms' leverage should increase with the corporate marginal tax rate. However, the incentive for firms to issue debt is reduced by higher personal income taxes on interest (Miller, 1977). Moreover, the existence of a dividend imputation tax system[19] or a dividend

16 Increased creditor rights reduce the discretion afforded to firms in times of financial distress, forcing them into bankruptcy. As a result, firms may be reluctant to take on debt. However, improved creditor rights increase the supply of credit, thus lowering the cost of debt and rendering the overall effect of better creditor rights on leverage ambiguous (see, for example, de Jong, Kabir and Nguyen, 2006). Moreover, improved creditor rights may entail spillovers that compound this ambiguity. For example, the strengthening of creditor rights induces financial institutions to improve their overall monitoring of firms, thereby increasing the information they possess on them and rendering equity investments in these firms more attractive (Demirgüç-Kunt and Maksimovic, 1999).

17 In principle, strong shareholder rights are expected to be related to increased recourse to equity financing and, as a result, lower leverage. If investors are well protected, they can influence firms' management, for example through the threat of dismissal, and are more likely to receive the stream of payments promised. This increases investors' willingness to acquire equity and reduces the risk premium demanded on the investment. Nevertheless, it can be envisaged that under certain circumstances (e.g. family or management ownership), strong shareholder rights may act as a deterrent, making firms reluctant to issue equity for fear of losing control. Moreover, relatively stronger shareholder rights, compared to creditor rights, may suggest that firms can avoid bankruptcy for longer when in financial distress, thus inducing them to take on more debt and increasing leverage, although in this case creditors are likely to demand higher premia.

18 A comprehensive review of the literature regarding the influence of taxes on corporate finance is provided in Graham (2003).

19 Under a dividend imputation system, shareholders receive a tax credit for taxes paid at firm level. This tax credit may be as high as the entire amount of tax paid at the corporate level. In the euro area, a dividend imputation system exists in Finland, France, Germany, Ireland, Italy and Spain (Fan, Titman and Twite, 2006).

Table 6 Conclusions from the literature regarding the relationship between institutional and financial structure variables

	Shareholder protection	Creditor protection	Enforcement of law	Transparency and Information	Degree of competition in the banking system	Tax system
Amount of external finance used (debt/turnover)			+	+	+	
Debt vs. equity (debt/equity)	+/-	+/-			+	+ (?)
Bonds vs. loans (bank loans/total debt)				-	+	
Debt maturity (long-term debt/total debt)		+	+			

tax relief system[20] (which make returns on equity investments partly tax deductible) further reduces firms' preference for debt over equity (Graham, 2003).

BONDS VS. LOANS

Regarding the composition of debt, given that banks may enjoy privileged or less costly access to information on firms (see for example Diamond, 1984), improved transparency and information should in principle be related to increased recourse to market-based sources of funding (i.e. equity and corporate bonds). This notwithstanding, the availability of particular types of information, such as credit register coverage, is expected to facilitate firms' access to bank lending. Moreover, to the extent that increased competition in the banking system leads to increased availability of bank loans at lower cost, it is expected to be related to increased preference on the part of firms for bank loans compared to bonds.

DEBT MATURITY

When the legal system is efficient and reliable and contract enforcement is not costly, providers of funds are less inclined to employ alternative methods to ensure that their rights are not expropriated by opportunistic behaviour on the part of firms. Such methods include granting short-term debt so as to limit the period during which such behaviour can be exhibited, and to use the implicit threat of withdrawing credit as a disciplining device. As a result, the efficiency of a legal system is expected to be positively related to the use of long-term debt. Moreover, better creditor protection reduces the incentive of lenders to provide only short-term debt as a mechanism to control borrowers' opportunistic

20 Under a dividend tax relief system, dividends paid to shareholders are taxed at a reduced rate at the personal level (which can be as low as zero percent). Among the euro area countries, a dividend tax relief system exists in Austria, Belgium, Greece and Portugal (Fan, Titman and Twite, 2006).

Box 2

STYLISED FACTS ON FINANCIAL STRUCTURE AND INSTITUTIONAL FEATURES IN THE EURO AREA COUNTRIES

This Box presents some stylised facts on various institutional characteristics and the (size and sector-adjusted) financial structure variables examined in sub-section 2.3. It should be kept in mind, however, that the appropriate choice of the indicators of institutional characteristics is quite difficult and, to a large extent, arbitrary, not least because these characteristics may change through time, and the way the indicator is aggregated may make a difference.

For illustrative purposes, the following indicators are used (see Annex 2): protection of investors' rights (shareholder and creditor rights protection, La Porta et al., 1997, 1998 and 2000); enforcement of laws (rule of law: Kaufmann et al., 2006); transparency and the

Table A Financial and institutional indicators

(averages 1999-2005)

	Analysts coverage		Accounting transparency		Shareholders rights		Creditors rights	
	below median	above median	below median	above median	below median	above median	below median	above median
Debt to turnover	84.0	78.5	88.1	72.0	79.2	83.1	80.8	81.2
External equity to turnover	20.9	34.8	31.0	25.7	33.0	23.1	35.0	16.0
Debt to equity	190.7	169.7	191.5	163.2	177.1	184.8	168.4	207.6
Short-term debt to total debt	64.3	61.3	64.2	60.8	64.9	59.6	65.0	57.6
Long-term debt to total debt	35.7	38.7	35.9	39.2	35.1	40.4	35.0	42.3
Bank loans to total debt	25.2	22.1	25.3	21.1	23.5	23.3	25.0	20.4
Bonds to total debt	3.5	5.9	4.1	5.4	3.9	5.5	3.9	6.0

	Shareholder over creditor rights		Taxation		Rule of law		Banking competition	
	below median	above median	below median	above median	below median	above median	below median	above median
Debt to turnover	82.1	78.7	83.7	78.7	83.8	77.4	79.7	82.5
External equity to turnover	25.9	34.1	24.9	31.6	36.1	19.3	22.3	36.6
Debt to equity	210.3	134.9	170.8	186.4	176.6	185.5	196.9	163.5
Short-term debt to total debt	62.3	63.5	58.1	66.0	66.8	56.9	59.9	65.8
Long-term debt to total debt	37.6	36.5	41.9	34.1	33.3	43.1	40.1	34.3
Bank loans to total debt	20.9	28.5	23.8	23.2	24.6	21.9	23.5	23.4
Bonds to total debt	5.4	3.7	6.4	3.0	3.2	6.3	4.9	4.5

Sources: ECCBSO, BACH database and own calculations.
Note: Figures are the averages of the BACH adjusted indicators (see Table 2.4b) in the period 1999-2005 for those countries which are below (above) the median value of each institutional indicator.

dissemination of information (index of accounting transparency from CIFAR, analyst coverage: Hartmann et al. (2007b)); bank market structure (H-statistic: Hartmann et al., op. cit., 2007b); taxation (corporate income tax rates applicable to small business: OECD, 2005). These indicators are commonly used in the cross-country empirical literature, particularly in the field of finance and growth, although the reader should be aware that analysts and researchers disagree on the actual measures to be used.

A simple average of the financial structure indicators is calculated for the countries that, according to each institutional indicator, are respectively above or below the median. Given the limited number of observations, no statistical significance can be attributed to the differences in size; the sign of the difference is used as a stylised fact on the correlation of financial choices with investor protection, information dissemination, bank market structure and taxation in firms' financial decisions.

The results are reported in the table above.

Amount of external financing

The relationship between external financing and investor rights, law enforcement, transparency and information is weak. All indicators are relatively favourable for the euro area countries, and deviations from the median are therefore likely to be less relevant.

In contrast, above-median competition in the banking industry tends to be related to a higher use of both debt and equity financing by firms. The relationship with taxation shows that firms in countries with lower levels of taxation have more external financing in terms of debt, but less in terms of equity.

Debt vs. equity

Firms in countries with better creditor protection also have a higher ratio of debt over equity. However, in countries where the protection of shareholder rights is stronger than that of creditor rights, firms tend to have on average more equity relative to debt. There is also a negative relationship between leverage and the amount of available information.

In countries where competition in the banking market is higher, leverage is lower, i.e. firms have more equity relative to debt. As for taxation, the data show that the higher the level of taxation, the higher the level of the tax shield of debt and, as expected, the higher the level of firms' leverage.

Choice of debt: bonds vs. loans

Firms in countries with better investor protection (either shareholders' or creditors' rights) make more use of bonds as opposed to loans; the quality of enforcement has the same effect. This fact is consistent with the idea that a "good" legal infrastructure helps enforce bondholders' rights in case of default. More transparency and availability of information is associated with greater usage of market-based debt. Firms in countries with more competitive banking markets report on average slightly lower levels of bond finance.

Debt maturity

The share of long-term loans is higher in countries with better protection of creditor rights, where law enforcement is above the median and where there is more accounting transparency.

It should be noted that these stylised facts are too sketchy to warrant drawing any conclusions on causal links. Moreover, when comparing these findings to the existing literature, it should also be considered that existing studies cover a much larger range of countries, with much more variance in their institutional characteristics, ranging from poor institutions and much less developed financial systems, to well-designed and properly enforced legal frameworks and a large set of financial options. Compared to these studies, euro area countries' institutional characteristics mostly fall within the range of "average" to "good". Hence, the facts described in this Box may shed some light on the correlation of the differences between "good" and "better" institutions, but it remains open to question whether this is of first-order relevance.

behaviour, through the threat that credit will not be renewed (Giannetti, 2003).

When analysing the state of corporate finance in the euro area, it is also important to consider the situation of enterprises in the NMS-10 owing to their interlinkages with euro area corporations. Box 3 describes the financing and the financial situation of non-financial corporations in the NMS-10, and compares this with the status quo in the euro area. Generally, it should be highlighted that the analysis is limited by the lack of data availability.[21]

21 On financial accounts – both stocks and transactions – of non-financial corporations, 2005 data were used for Hungary and Slovenia, 2004 data for Estonia, Latvia, Lithuania and Poland, and 2003 data for the Czech Republic and Cyprus. No data were provided for Malta and Slovakia. Regarding the other sector national accounts of the non-financial corporations, 2005 data were not available for any of the NMS-10, but 2004 data were available for Latvia, Lithuania and Poland, and 2003 data for the Czech Republic, Estonia and Slovakia. No data were provided for Cyprus, Hungary, Malta and Slovenia. Thus, both data sets were available for just five of the NMS-10 (the Czech Republic, Estonia, Latvia, Lithuania and Poland). Moreover, only a small number of indicators are common to both datasets. For the euro area countries (apart from Ireland and Luxembourg), financial accounts data were generally available for 2005, except for Germany, France and Finland (2004 data). Sector national accounts data were available for 2004, except for Portugal (2003 data). As the data in this paper relate to the period prior to 1 January 2007, the euro area does not include Slovenia. Moreover, as most data for the NMS-10 relate to 2004 (or 2003), euro area data for 2004 (instead of 2005) are shown as reference values.

Box 3

FINANCIAL POSITION OF NON-FINANCIAL CORPORATIONS IN THE TEN NEW EU MEMBER STATES (NMS-10)

Concerning the structure of non-financial corporations' liabilities and financial assets at the most recent available year-end, the ratios in the NMS-10 were generally within the range of the ratios in the euro area countries. However, five main differences may be identified between the majority of NMS-10 countries and the euro area aggregate (or median) (see Tables A and B). First, the share of total loans in total liabilities tends to be lower in the NMS-10, indicating that there is room for relatively high further growth of (domestic) credit to non-financial corporations in these economies. Over the last three years,[1] the share of other accounts payable

1 For Latvia and Estonia, all the changes in stocks indicated in this box refer to a two-year and a one-year period, respectively, owing to the lack of available data.

declined in most of the NMS-10, and the change in the structure of liabilities constituted a deepening of financial intermediation via an increase in the share of loans or in the share of equity. The relatively high share of cross-border loans (bank and inter-company loans) in total loans suggests an already significant degree of international financial integration of non-financial corporations in the NMS-10 as a result of – inter alia – high levels of inward foreign direct investment (FDI). Second, the share of debt securities was considerably lower in all NMS-10 than in nearly all euro area countries, signalling that there is a largely untapped potential for the corporate bond market. Third, while total equity financing constituted a more important source of financing than total debt financing (both in the NMS-10 and in the euro area), quoted shares play a less important role in most NMS-10 than in all euro area countries. This again reflects, among other things, the more prominent role played by inward FDI in the NMS-10.

Table A Liabilities of non-financial corporations in the NMS-10

		Stock items in % of total liabilities at year-end					In % of GDP at year-end	
Country	Year	Loans	Debt securities (excl. financial derivatives)	Shares and other equity	o/w (in % of shares & equity): quoted shares	Other accounts payable (incl. fin. deriv.)	Net other acc. payable (incl. fin. deriv.)	Total financial liabilities
Czech Republic	2003	19.3	1.9	43.3	12.4	35.5	-0.2	180.0
Estonia	2004	29.8	1.4	47.8	15.4	21.1	3.3	264.5
Cyprus	2003	30.0	0.8	53.4	9.9	15.8	-1.9	277.4
Lithuania	2004	20.6	0.1	60.7	32.9	18.6	5.1	157.9
Latvia	2004	32.4	0.1	42.8	n/a	24.7	3.5	154.4
Hungary	2005	23.7	0.5	55.2	18.4	20.5	-0.2	210.5
Malta	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Poland	2004	19.5	2.4	47.3	16.8	30.8	4.8	154.6
Slovenia	2005	29.0	0.8	51.0	19.7	19.2	-0.4	228.8
Slovakia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Memorandum items:								
EU-12	2004	30.4	3.6	51.2	33.1	12.9	-0.3	227.6
EU-12 median		32.6	3.7	50.2	30.4	10.3	-0.2	261.4
EU-12 minimum		21.6	0.4	42.3	17.4	3.1	-3.2	143.1
EU-12 maximum		47.0	7.6	59.2	63.9	22.2	4.9	387.7

Sources: ECB, Eurostat and own calculations.

Fourth, on the financial assets side, non-financial corporations in the NMS-10 tend to have a higher share of deposits and hence a higher short-term liquidity ratio than those in the euro area. Over the last three years for which data were available, the decline in the share of other accounts receivable in most of the NMS-10 was accompanied by an increase in the share of equity financing or in the share of deposits.

Fifth, the ratio of liabilities and (net) financial assets to GDP in the NMS-10 also remained within the euro area range. However, while the ratios of liabilities and financial assets to GDP were typically below the euro area average, the ratio of financial net wealth to GDP was (somewhat) more negative than the corresponding ratio in the euro area aggregate in more than half of the NMS-10. Over the last three years for which data were available, both the financial assets ratio and the liabilities ratio increased in all the NMS-10 with the exception of the Czech Republic and Cyprus, where they declined somewhat. At the same time, the financial net wealth ratio became more negative in half of the NMS-10, remained stable in Estonia and Poland, and became less negative in the Czech Republic and Cyprus.

Table B Financial assets of non-financial corporations in the NMS-10 and the short-term liquidity ratio

Country	Year	Stock items in % of total financial assets at year-end					In % of GDP at year-end		Short-term assets to short-term debt
		Deposits	Debt securities (excl. financial derivatives)	Loans	Shares and other equity	Other accounts receivable (incl. fin. deriv.)	Total financial assets	Net financial assets	
Czech Republic	2003	17.5	2.6	5.4	12.0	61.7	104.3	-75.6	2.2
Estonia	2004	15.9	0.3	17.5	23.6	42.0	112.2	-152.3	1.9
Cyprus	2003	21.7	1.2	0.0	50.5	26.3	185.9	-91.5	n/a
Lithuania	2004	27.2	0.3	1.7	29.2	41.0	52.0	-105.9	2.9
Latvia	2004	18.8	0.6	8.8	24.6	46.5	70.3	-84.1	n/a
Hungary	2005	14.7	1.7	10.3	30.9	41.9	103.8	-106.7	1.6
Malta	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Poland	2004	13.2	5.0	1.7	32.1	46.9	85.6	-69.0	1.7
Slovenia	2005	9.3	1.5	9.1	43.7	35.5	126.7	-102.0	0.8
Slovakia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Memorandum items:									
EU-12	2004	11.5	3.0	14.1	48.9	21.4	141.0	-86.6	1.2
EU-12 median		15.3	3.2	10.1	49.2	18.9	146.6	-93.4	1.1
EU-12 minimum		4.9	1.8	0.6	25.0	-2.2	56.9	-128.1	0.7
EU-12 maximum		37.6	6.5	41.7	58.5	35.2	291.1	-64.0	1.8

Sources: ECB, Eurostat and own calculations.

Evaluating the financial results of non-financial corporations from the most recent full year available,[2] again the range in the euro area was sufficiently wide to embrace the NMS-10 range for most indicators. As expected for catching-up economies, most NMS-10 had profitability ratios above the euro area average, and these ratios were above the euro area minimum in all NMS-10 for which data were available (see Table C).

Table C Profitability of non-financial corporations in the NMS-10

Country	Year	In % of GDP		In % of „shares and other equity“ (stock)		In % of „total liabilities“ (stock)	
		Operating surplus		Operating surplus		Operating surplus	
		gross	net	gross	net	gross	net
Czech Republic	2003	26.3	15.1	33.7	19.4	14.6	8.4
Estonia	2003	26.8	18.3	22.1	15.1	11.0	7.5
Cyprus	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lithuania	2004	33.0	25.3	34.4	26.4	20.9	16.0
Latvia	2004	32.3	20.5	48.8	31.1	20.9	13.3
Hungary	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Malta	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Poland	2004	19.1	10.3	26.1	14.1	12.4	6.7
Slovenia	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Slovakia	2003	21.0	8.6	n/a	n/a	n/a	n/a
Memorandum items:							
EU-12	2004	20.0	12.1	17.2	10.4	8.8	5.3
EU-12 median		20.9	12.4	18.9	12.3	9.4	6.2
EU-12 minimum		15.4	5.7	8.3	4.4	4.8	2.2
EU-12 maximum		25.3	17.1	42.8	24.8	16.7	9.7

Sources: ECB, Eurostat and own calculations.

2 To provide a robustness check, the situation was evaluated based on a multi-year average (using the last four years available). The results confirm the main findings obtained on the basis of the most recent year available and presented here. Compared with the multi-year average, major changes only occurred in Poland, where in previous years the financial results of non-financial corporations were hit by the pronounced downturn of GDP growth in the Polish economy in 2001 and 2002.

By contrast, in all NMS-10 compensation of employees and employers' social contributions were below the euro area median, and in some cases even below the euro area minimum (see Tables 1.3 and 1.4 in Annex 1 for additional information). The interest burden was also typically lower in the NMS-10 than the euro area median (which is in line with the lower share of debt financing in total financing).

Reflecting the great importance of inward FDI in the NMS-10, reinvested earnings on FDI in the reporting country play a far more important role in the NMS-10 than in the euro area, while non-financial corporations' distributed income was close to the euro area minimum. This implies – ceteris paribus – that non-financial corporations' internal financing in these countries and the overall catching-up process have both strengthened.

All in all, it is hard to find any evidence that the majority of NMS-10 are very different from the euro area countries in terms of many of the indicators of financing structure or the financial situation of non-financial corporations. Still, some differences do exist, primarily stemming from the ongoing catching-up process of the NMS-10 economies and from the more prominent role played by inward FDI, as well as the still minor role played by outward FDI in the economic structure of the NMS-10.

2.3 CONCLUDING REMARKS

The chapter has reviewed the main stylised facts on the financial position of non-financial corporations in the euro area over the period 1995-2005. It can be concluded that differences still exist, even though developments over time look similar across countries. With respect to liabilities, there has been an overall modest increase in the share of market-based financing instruments; while on the asset side, the most remarkable development was the rise in the share of equity in total financial assets. Shares and other equity remain the most important financing channel, followed by loans.

Even after taking into account size and sectoral composition effects, there are still differences across countries with regard to firms' financial structures, especially in terms of the choice of debt versus equity and of bonds versus loans. The literature usually relates cross-country differences in financial structure to differences in institutional arrangements and in the financial market structure. Although these differences were expected to be less relevant within the euro area, given the generally high level of investor protection and financial development already achieved, some relationships do still seem to hold. In particular, firms in countries with better creditor protection tend to have a higher ratio of debt over equity. However, in countries where the protection of shareholder rights is stronger than that of creditor rights, firms tend to have on average more equity relative to debt. More and better information is associated with a more widespread usage of bonds. Higher corporate income taxation, in turn, is associated with firms using more debt financing.

Differences in financial structure across sectors are mainly related to differences in capital intensity which are inherent in their activity. For example, the construction and trade sectors, which are less capital-intensive, have a financial structure that is mainly biased in favour of short-term liabilities, while the energy or transport and communication sectors, which are very asset-intensive, are accordingly rather biased towards long-term liabilities. Levels of indebtedness also differ considerably across sectors, although some convergence has taken place in recent years, with the debt consolidation process being most pronounced in the more indebted sectors.

Despite significant differences in financing structures, some similar trends can be detected over the past decade in the current financing of enterprises in the euro area, the US and the UK. With respect to their financial situation, euro area and US non-financial corporations made some efforts to limit their indebtedness in the period 2002-2004, while UK corporations continued to expand their debt-to-GDP ratios. Developments in Japan, on the other hand, have been rather different, as debt financing transactions remained negative over most of the period under consideration, leading to a much more pronounced reduction in debt ratios. Differences between euro area and NMS-10 countries stem primarily from the ongoing catching-up process of the NMS-10 economies, coupled with the more prominent role played by inward FDI, as well as the fact that outward FDI still only plays a minor role in the economic structure of the NMS-10.

3 THE FINANCING OF SMEs

This chapter provides a comparison of financing decisions across size classes of firms, looking specifically at SMEs. SMEs have received particular attention from policymakers in Europe given their prominent economic role. In addition, small firms are often believed to face financing problems, mostly on the grounds of informational opacity (see, among others, Gertler (1988) and OECD (2006)). Unlike large firms, small firms often do not enter into contracts that are publicly visible (contracts with the labour force, suppliers and customers are generally kept private). In addition, small businesses normally do not issue traded securities that are continuously priced in public markets. Among publicly traded firms, smaller, newer firms are less likely to be tracked by analysts. As a result, small firms often cannot credibly convey their quality and may have difficulty building a reputation to signal that they are of high quality or low risk. The resulting asymmetry of information between the two sides of the market may even result in firms being completely unable to obtain external finance. For instance, on the supply (bank) side, the costs involved in assessing and setting appropriate premia for risk and the relatively high monitoring costs may hinder the flow of funds to smaller firms.

One of the reasons for the existence of informational opacity is that small firms are often recently established and have not had the time to build up a reputation and provide the market with information. In addition, these new firms are usually riskier as they tend to be in higher risk sectors and may have new business models that have never been tested. Therefore, it is important to distinguish, for a given size, the age of the firm, as this might have a distinct impact in terms of financing constraints.

Even aside from the possibility of financing constraints, there are other reasons to expect the financing pattern of SMEs to differ from that of large firms which are related to guarantees and the cost of financing. Smaller firms often have less collateral that could protect creditors from adverse selection or moral hazard effects. In addition, it is plausible that funding costs contain a significant fixed cost component. These fixed costs would make small loans more expensive than larger ones obtained from larger firms. Another reason for lower costs of financing may be the bargaining power of large enterprises vis-à-vis banks.

Given the above reasons, it is reasonable to expect the financing patterns of SMEs to differ from those of large firms. For instance, one way of reducing asymmetric information is to build up a long-term relationship with finance providers (among the extensive literature on this issue see, for instance, Petersen and Rajan (1994) and, more recently, Berger et al. (2006)). This way, a firm can signal its quality by meeting its debt obligations. It could then be expected that small firms would have more stable bank relationships. Moreover, regarding external finance, small firms may not have access to capital markets and could rely more on credit markets. Anticipating financing difficulties, these firms could respond by holding more cash today, to avoid the risk of not realising valuable projects (Opler et al., 1999). Additionally, small firms may also resort to expensive trade debt when cheaper finance sources are exhausted (Nilsen, 2002). Finally, the cost of debt could be higher for smaller than larger firms as a result of higher monitoring costs and problems in assessing firms' risk. Some of these a priori beliefs will be reviewed in this chapter, which analyses euro area firms using indicators computed from the BACH database.

Against this background, this chapter first focuses on the specific aspect of the existence of financing constraints for SMEs and assesses the available empirical evidence on this matter. In particular, this question is analysed using two types of information: surveys and empirical academic studies (sub-section 3.1). Then, how the financing of SMEs differs from that of large firms is analysed using balance sheet information. This analysis is based on the indicators computed from the BACH database[22]

(sub-section 3.2). The analysis of firms' financial position is further motivated by the fact that it conditions their investment decisions. This is shown in Box 4 using balance sheet data at firm level. The main conclusions of the chapter are presented in sub-section 3.3.

3.1 SMEs AND FINANCING CONSTRAINTS

The importance of financing constraints for the operation and growth of a firm, notably for investment decisions, has been studied extensively. Their importance is an empirical question, and consensus on their factors – or even on the definition of financing constraints – has not yet been achieved. There are two main approaches used to detect financing constraints: the use of surveys, asking firms directly whether they feel that they are subject to financing constraints; and the econometric estimation of models in which the presence of financing constraints implies some implication for firms' behaviour that can be tested. While firm-level (rather than aggregate) data are better suited to assess the relevance of financing constraints, such data are often lacking for SMEs, which hampers econometric analysis. Although balance sheet data provide highly useful information regarding the level of risk that can be faced by a firm in the future, these data structures might not reveal the presence of financial constraints, since they simply provide a picture of past choices made by firms and which can be reflected by "in-balance sheet items". Other parameters also influence financial constraints, such as technology and marketing immaterial assets, managerial skills, shareholder's structure and back-up liquidity facilities. Therefore, answers to questions directly posed to firms might yield more information. Thus, surveys are relevant for the detection and assessment of financing constraints, particularly of SMEs, as well as their determinants.

However, some important caveats should be kept in mind when using surveys for assessing financing constraints. First, surveys may be often biased and, therefore, not fully reliable in terms of assessing the existence of financing constraints. Second, depending on the way in which the question is posed, surveys might miss some of the firms facing financing constraints (for example, they might only capture firms which under current conditions feel financially constrained, but not those that would have borrowed more under more favourable conditions), while in other cases firms might claim to be financially constrained even if they are not. Given the difficulties of scrutinising firms, especially smaller ones, credit conditions may not reflect the true risk profile of each firm, and in such cases, survey results could fail to include all those firms that are wrongly priced and that, under better conditions, would seek to obtain more external finance. Given these considerations, the term "financing constraints" should be understood, in this section, as the inability of a company to obtain a sufficient amount of financing to fund its investment needs at current, or even higher, interest rates. This definition does not include those firms that decide not to seek additional financing due to their perceived "high" cost, which implies that, in what follows, financing constraints are not a matter of cost but rather a matter of availability of resources. In addition, assessing financing constraints using surveys might be distorted by existing subsidies to small enterprises.

3.2 SURVEYS

Several surveys have been recently conducted which allow a cross-country analysis to be made. Regarding Europe, the Directorate-General Enterprise of the European Commission has been mandating surveys on SMEs about once every second year since 1993. Two of the most recent surveys led to the publication of specific reports on "SME Access to Finance": by the Flash Eurobarometer in 2005 (on the basis of a survey conducted in 2005) and by

22 In this database, small companies are defined as those with turnover lower than EUR 10 million, medium-sized enterprises are those with turnover between EUR 10 and 50 million, and large ones are those for which this variable stands above EUR 50 million.

the Observatory of European SMEs in 2003[23] (on the basis of a survey carried out in 2002, hereafter called the "ENSR survey").[24] In addition, a survey conducted in 2003 also included some questions relating to business constraints, though unlike the 2002 survey this did not lead to any specific report on the issue of access to finance. In December 2005 the Organisation for Economic Co-operation and Development (OECD) circulated a questionnaire to all its member countries, as well as to a large number of non-members, with the aim of developing an initial understanding on whether a gap exists in the financing of SMEs. In the questionnaire, a gap is defined as a situation in which firms would productively use more funds if they were available. This survey was directed to both government policy and central bank experts.[25] More information on the setting of these surveys can be found in Table 17 in Annex 5.

Finally, some qualitative information on the change of SMEs' credit standards from the perspective of euro area banks is available from the quarterly euro area Bank Lending Survey conducted by the Eurosystem. Ideally, the perspective of the banks could be used to complement the survey results obtained directly from the enterprises.

In addition, several euro area countries conduct national surveys on enterprises. Their timeliness and frequency is in general higher than those of the cross-country surveys reviewed above. These surveys typically pay special attention to the investment position of enterprises in the manufacturing industry, but not to their financial situation. However, given the focus on investment decisions, these surveys still include questions related to constraints (financial or other). The available surveys are conducted by national statistical institutes (Portugal), national central banks (in France, Italy, Belgium and Finland) or other specific institutions (in the Netherlands, Spain and Germany). Although the main focus of national surveys rather aims at monitoring developments in investment and employment, alternative measures of financial constraints and access to finance are generally available, although according to ad hoc methodologies (in both the formulation of the questions and in the definition of the size categories).

Charts 1 to 5 present the evolution of survey results in some euro area countries. Although the answers cannot be easily compared across countries, the charts indicate that access to finance was somewhat more problematic for smaller firms in Spain, and that there is no clear-cut conclusion for both Portuguese and Finnish firms. However, in all three countries large firms generally report fewer difficulties, whereas there were no marked differences in Belgium. In Italy, large firms seemed more credit-constrained; however, when controlling for all other conditions, such as sectoral composition, financial constraints do not appear to influence firms' growth or to be significantly different across size classes. The surveys also indicate that the relationship between the size category and alleged financing constraints is neither necessarily monotone nor constant over time (see charts for Spain and Finland and to some extent also Portugal). However, this is expected, as other relevant factors, e.g. the age of the firm, are not controlled for. Complementary information based on national surveys is available in Table 18 in Annex 5.

SURVEY RESULTS ON THE CONSTRAINTS TO BUSINESS DEVELOPMENT

According to the 2003 ENSR survey,[26] on average around 10% of SMEs in 19 European countries reported that "access to finance" was the major constraint weighing on their business performance over the past two years. However, more firms reported other constraints, such as "purchasing power of consumers", which is

23 The Observatory of European SMEs was established by the Commission in December 1992 to improve monitoring of the economic performance of SMEs (defined as having less than 250 employees) in 19 European countries (the 18 Member States of the EEA plus Switzerland).
24 ENSR stands for the European Network for SME Research.
25 OECD (2006), *The SME Financing Gap*, Volume 1, Theory and Evidence.
26 European Commission (2003).

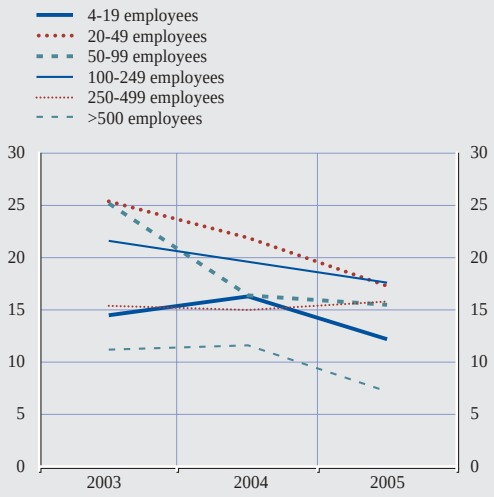
Chart 1 Italy – firms wishing to borrow more at the same credit conditions

(in percentages)

Sources: Italian Survey of Industrial and Service Firms.

Chart 2 Portugal – firms indicating access to a bank loan as a constraint to investment

(in percentages)

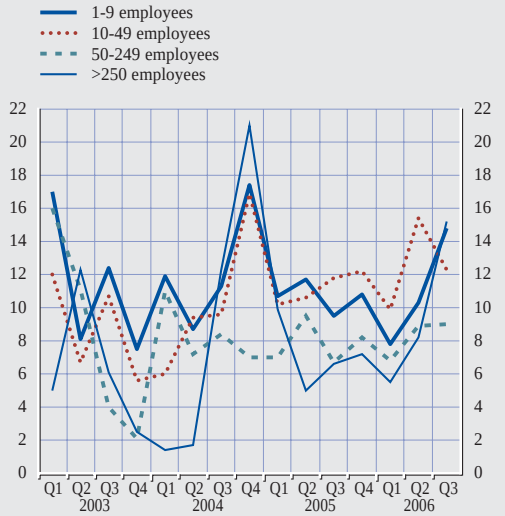


Source: Portuguese Survey on Investment.

related to the unfavourable economic climate at that time, and a "lack of skilled labour". The financial constraint was more relevant for firms in the transport/communication sector and for small firms (10-49 workers) rather than for micro (less than 10 employees) or medium-sized firms (50-249 employees). Unfortunately, no comparison with large firms is possible as a reference sample of large firms is not included in the survey.

Chart 3 Spain – firms indicating financing difficulties as a factor that limits their activity

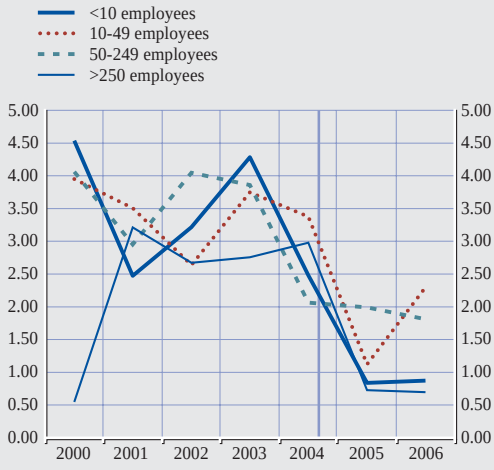
(in percentages)



Source: Spanish Business Confidence Indicator.

Chart 4 Finland – firms indicating problems in getting external financing[1)]

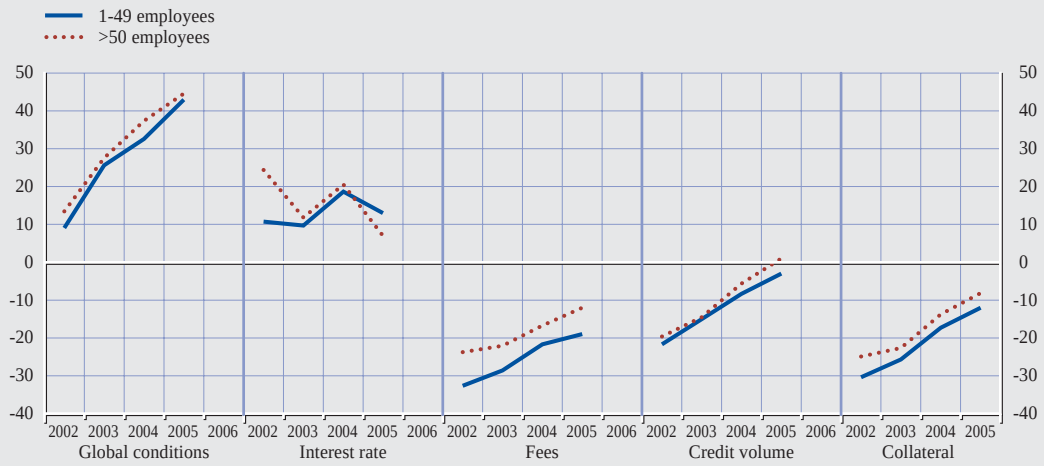
(in percentages)



Source: Finnish Survey of Business Finances.
Notes: Manufacturing and service firms with a positive answer in percentage of total firms.
1) For the period 2000-2003: has the availability of external financing hampered the activities of the firm? For the period 2004-2006: has the firm encountered any problem in getting external financing?

Chart 5 Belgium – net percentage of firms with a favourable global appreciation of credit conditions

(in percentages)



Sources: Belgian Survey on Investment.

More recently, the Flash Eurobarometer surveyed firms about the factors which would best ensure their development. "Easy access to means of financing" came out third after "social and fiscal regulations" more suited to the economic sector, and "better qualified people available on the market". These results are consistent with the 2003 ENSR findings.

In the Flash Eurobarometer survey, firms were also asked whether their current financing was in general sufficient to see their projects through. In all euro area countries, the majority of SMEs replied positively, but the replies exhibit some disparities across countries. In Ireland and Finland, more than nine out of ten SMEs reported having sufficient financing, compared with just two-thirds of SMEs in Portugal and Italy.

The recent OECD survey recognises that there are still many countries which do not have extensive information on SME financing. Furthermore, as there is no unique definition of the financing gap, it is very difficult to aggregate data and proceed with international comparisons. Given these limitations, the survey tentatively concludes that in OECD countries, SMEs are able to obtain sufficient credit from banks and other credit institutions, and that therefore there is no significant SME financing gap in these countries. At the same time, most countries perceive that there are still problems in directing funds to innovative SMEs. These firms include start-ups and young high-risk firms with untried business models.

SURVEY RESULTS ON ACCESS TO BANK FINANCING

According to the Flash Eurobarometer survey, banks are by far the first source of finance of SMEs, followed by leasing/renting companies and private investors (depending on the countries). The importance of access to bank finance is most strongly perceived in France, where 64% of the companies agree that without a bank loan their projects could not be successfully completed. Finland stands at the opposite extreme, with 78% of firms disagreeing with this statement. Views about the ease of access to bank loans are also mixed. For instance, in Finland, 95% of firms reported that access was easy, while only 14% agreed in Germany. In general, the most important reason why respondents perceive increased difficulty in obtaining a bank loan compared to a few years ago is that banks now request too much information.

Table 7 Access to finance: requested bank loans acquired?

(% of SMEs; by size, 2001)

Did you get all the loans you needed from your banks in the last 3 years?

	Euro area countries				Other countries			
	Number of employees, 2001			Total	Number of employees, 2001			Total
	0-9	10-49	50-249		0-9	10-49	50-249	
Not applicable: no need for loans in the last three years	38	28	23	37	40	30	19	39
Yes	49	55	53	50	40	48	52	41
Partly	2	2	1	2	2	4	1	2
No	6	6	5	6	12	10	11	12
Don't know/no answer	5	9	18	5	7	8	16	7
Total	100	100	100	100	100	100	100	100

Access to finance: requested bank loans acquired?

(% of SMEs; by sector of enterprise, 2001)

Did you get all the loans you needed from your banks in the last 3 years?

	Euro area countries				Other countries			
	Main activity			Total	Main activity			Total
	Industry	Trade	Services		Industry	Trade	Services	
Not applicable: no need for loans in the last three years	34	36	39	37	37	41	39	39
Yes	54	52	46	50	47	31	40	41
Partly	2	2	2	2	2	4	1	2
No	6	6	6	6	8	17	12	12
Don't know/no answer	4	4	6	5	6	7	8	7
Total	100	100	100	100	100	100	100	100

Source: ENSR Survey 2002.
Note: The other countries included in the survey are Denmark, Iceland, Liechtenstein, Norway, Sweden, Switzerland and United Kingdom.

The ENSR surveys also show that bank loans and overdrafts are the most widespread debt financing methods for SMEs, although alternative sources as leasing and factoring have been growing in importance. The ENSR 2002 survey shows that during the three years previous to the survey year, only 37% of firms did not request an additional bank loan. Out of all firms surveyed, 50% asked for a loan and received the amount requested, 2% received part of the loan, while only 6% were denied a loan (which corresponds to 10% of the firms who applied for a bank loan) (see Table 7). The demand for loans was better served for medium-sized firms, and least well served for micro-firms (0-9 employees) or for firms in the services sector. According to the survey, the main reason for refusing an additional loan is the lack of sufficient collateral, especially for micro and small (10-29 employees) enterprises. Lending based on collateral becomes less important as the enterprise size increases, whereas good performance and the information flow gain in importance. Refusals were less frequent in euro area countries than in other (EEA) countries.

To sum up, there is some evidence that only some euro area SMEs may face financing constraints (i.e. have no access to finance

despite having borrowing requirements), compared to the majority which enjoy appropriate access to finance. In addition, the OECD survey results also show that in OECD countries the gap is larger in equity financing than debt financing. In fact, most OECD countries perceived a gap in the financing of innovative SMEs. This could imply that firms facing "financing constraints" can be classified into two categories: a) innovative firms, usually in riskier sectors, which request finance from credit institutions even though their investment would better be covered by equity; and b) those which are not able to create value and represent a high credit risk. All in all, the evidence of a gap in the financing of a minority of SMEs does not per se point to a lack of efficiency in the allocation of credit.

3.3 THE ACADEMIC LITERATURE

Many studies have investigated the role of financial factors in a company's investment decisions (see Hubbard (1998) for a general survey of empirical academic studies on financing constraints and the tables in Annex 6 for a selected review of studies with an emphasis on euro area countries).[27] Recently, the OECD (2006) report also includes an extensive review of theory and available evidence on SMEs. The overall conclusion is that the evidence is inconclusive, as there are conflicting results regarding the correlation between firm size and financing constraints. The lack of clear-cut results does not seem to depend on the methodology used (as both the investment equation estimation and other methodologies produce opposite results), nor on sampling choices or biases (there could be a sample bias as really small firms are not included, but again, the opposite conclusions are found in studies that equally suffer from this bias). In the following, a brief summary of the literature is provided (see Annex 6 for a tabular presentation of the main contributions).

In an influential paper, Fazzari, Hubbard and Petersen (1988) suggest that the investment spending of firms facing financing constraints varies with the availability of internal funds, rather than just with the intrinsic characteristics of the projects available. Since with perfect capital markets this relationship should not exist, an "excess sensitivity" of investment to internal funds is interpreted as suggesting the importance of financing constraints. Following this work, many studies assessed the existence of financing constraints by testing the behaviour of constrained and unconstrained firms. This procedure implies an *a priori* assumption that some firms are financially constrained. It is then tested whether a measure of internal funds (usually cash flow) is of higher importance for the investment demand of the firms deemed to be especially constrained, compared with the rest of the sample. Thus, the effect of financial constraints is identified by the excess sensitivity of investment to current cash flow.

The approach taken by Fazzari et al. (1988) basically implies that financially constrained firms are highly sensitive to investment cash flow. Subsequent research has addressed some problems with this approach, namely problems related to the *a priori* classification of firms and the extent to which Q is a good proxy for underlying investment opportunities. Kaplan and Zingales (1997) showed that investment/cash flow sensitivity seems to be a decreasing function of the degree of financial constraints.[28, 29] Regarding the interpretation of the sensitivity of investment to internal funds, several works have shown that cash flow sensitivity may be the consequence of measurement error in the usual proxy for investment opportunities, Tobin's Q (see Erickson and Whited (2000), among others), Povel and Raith (2002) find a U-shaped

27 Most studies analyse the relationship between investment and cash flow. Hernando and Martinez-Carrascal (2003), among others, consider several other financial indicators, such as indebtedness or the debt burden.

28 Recently, Allayannis and Mozumdar (2004) have questioned the findings of Kaplan and Zingales (1997) by showing that their results are driven by a few influential observations in a small sample.

29 The discussion between Fazzari et al. and Kaplan and Zingales is continued in Fazzari et al. (2000) and Kaplan and Zingales (2000). More recently, Moyen (2004) has proposed an explanation that reconciles the conflicting empirical evidence of Fazzari et al. and Kaplan and Zingales.

relationship between cash flow and investment. Gomes (2001) and Alti (2003) show that if cash flow is a good proxy for future investment opportunities, significant investment-cash flow sensitivities could arise even in the absence of financial frictions.[30] More recently, Cummins et al. (2006) and Whited (2006) have contributed to this debate. Both conclude that the use of these types of regressions to test for the presence of financing constraints may not be appropriate.

In this context, alternative empirical methodologies to identify financing constraints have been suggested. One such alternative, introduced by Demirgüç-Kunt and Maksimovic (1998), consists in comparing the actual growth rates of firms with the maximum growth rate firms could attain without access to external finance. This comparison allows some inference on the degree to which firms are financially constrained. Another alternative combines the literature on financing constraints and the literature on investment uncertainty, thereby taking into account the irreversibility and the possibility of postponing the investment decision (see Bo et al. (2003) and Nilsen and Schiantarelli (2003), among others). Furthermore, two recent studies by von Kalckreuth (2006a, 2006b) explicitly take into account the adjustment process of capital formation with regard to detecting constraints.

Moving to substantive results, several studies have assessed whether size is a relevant dimension of a firm in the determination of financial constraints, and tested the hypothesis that smaller firms are more financially constrained than larger ones. Results that confirm this hypothesis have been produced for virtually all euro area countries.[31] Other studies, however, did not find a size effect for most euro area countries (Belgium, France, Germany, Austria, Italy, Spain, Portugal and the Netherlands). Finally, some studies conclude that firm-size effects can actually be detected in the opposite direction (i.e. that larger or medium-sized firms are more financially constrained than smaller ones). This may be due to the fact that the ownership of small firms may be more concentrated, which helps to mitigate agency problems. This result was found for France, Germany and Greece.

The existence of a credit rating is often hypothesised as a good indicator of access to finance, signalling that the firm has low-cost access to capital markets, as firms with serious adverse selection or moral hazard problems are forced to rely on intermediated finance such as bank debt and private placements. In general, the investment of non-rated firms was found to be more sensitive to cash flows. Another alternative is to use age as a criterion for grouping firms: several studies find that younger firms have higher investment cash flow sensitivity, suggesting these firms face higher financing constraints. In addition, some studies show that conglomerate firms face lower financing constraints. Regarding bank relationships, a stable relationship with a bank may prevent firms from encountering financing constraints. There is also some evidence that firms with higher leverage have greater investment cash flow sensitivity. Finally, smaller firms may have limited access to debt markets because they lack the collateral needed for borrowing and tend to rely more on internal funds for investment.

In conclusion, these studies suggest that the size of a firm is just one dimension that may affect investment decisions in the presence of asymmetric information. As with size, there is no agreement regarding the results obtained when studying firm characteristics such as dividend payout or exchange listing. On the other hand, there are fewer controversies when credit rating or age, among others, are considered as means of grouping firms.

30 In Alti (2003) the sensitivity is proven to be higher for young, small firms with high growth rates and low dividend payout ratios.

31 The only exception is Ireland, where no studies were found on this issue.

3.4 HOW DIFFERENT IS THE FINANCING OF SMEs FROM THAT OF LARGE FIRMS?

As large firms are more diversified, offer more collateral and have more bargaining power due to their size, they may have easier access to market and bank liquidity. As a result, small firms are expected to face more problems than large firms. However, an in-depth analysis on how financing patterns of SMEs may differ from those of large firms in the euro area requires possible differences in firm characteristics other than size to be taken into account. For instance, the statement that SMEs are more financially constrained than large firms could possibly reflect their larger presence in sectors or economies with specific characteristics (e.g. asymmetric information problems, institutional factors) that result in more difficulties with regard to accessing finance.

SMEs are seen to play a prominent role in some sectors such as construction, wholesale trade and retail trade. By contrast, large firms predominate in large-scale industries, such as extraction and transport and communication. In addition, there are large disparities in the SME landscape across countries. Compared with the euro area average, the share of SMEs in employment is much higher in Italy, Spain, Portugal and Greece, and much lower in Germany, the Netherlands and Finland. In terms of value added, the contribution from SMEs is much above the euro area average in Italy, Greece and Luxembourg, and much below in Ireland, Finland and France.

This section analyses differences in firms' financial position across firm sizes, and additionally attempts at controlling for the impact of sectoral and country effects. First, to understand better the impact of these differences, the financial position of SMEs is briefly described using the financial indicators as directly derived from the BACH database (without controlling for these two effects). The analysis is then extended, controlling for the impact of sectoral and country effects.

STRUCTURAL ANALYSIS OF FINANCING PATTERNS ACROSS FIRM SIZES BASED ON UNADJUSTED DATA

Over the period 1999-2005, small firms in the euro area were on average less profitable than large firms.[32] This is particularly true of their operating profitability, as measured by the ratio of operating profit to value added, and also of indicators of return (such as return on assets (ROA), and especially return on equity (ROE)), albeit to a smaller extent (see Table 8, "not adjusted").[33]

SMEs have reduced their debt-to-equity ratios in recent years, whereas this ratio has remained broadly stable for large firms; on average, over the period 1999-2005, the debt-to-equity ratio appears lower for smaller firms (Table 10, " not-adjusted"). Over the same period, the capacity of SMEs to repay their debt was lower, as indicated by their higher ratio of debt to cash flow compared to that of large firms. Furthermore, small firms had to bear a higher interest burden than large firms during the period under review.

STRUCTURAL ANALYSIS OF FINANCING PATTERNS ACROSS FIRM SIZES: ACCOUNTING FOR SECTORAL AND COUNTRY FACTORS

A more in-depth assessment of the potential differences of financing patterns of SMEs from those of large firms can be obtained using adjusted indicators and a variance decomposition analysis.[34] The use of adjusted indicators aims

32 In this database, small companies are defined as those with turnover lower than EUR 10 million, medium-sized enterprises are those with turnover between EUR 10 and 50 million, and large ones are ones for which this variable stands above EUR 50 million.

33 However, the positive relationship between profitability and size does not appear to be linear, as medium-sized firms generally show lower profitability than smaller firms over time.

34 A regression analysis was also performed with this data. The results of the regressions are broadly consistent with the main results presented in this section (see Annex 7).

at isolating the size effect from that of sectoral and country effects by imposing the same country and sectoral compositions across size classes. While this partly fails to capture the heterogeneity across size classes that exists in reality, it does bring into sharper focus the differences that only depend on firm size and not on national concentration or sectoral composition. The adjustment of the indicators is similar to that applied in the previous chapter, where the role of the country there is replaced here by that of size. Indeed, the weighting scheme used in this chapter also corresponds to applying the same country and sectoral composition to all size classes. In turn, the variance decomposition[35] helps in assessing the extent to which the size factor contributes to explaining differences in the financing patterns of firms. This contribution is also compared to that of the other factors – sector and country.[36] A detailed explanation of the two tools can be found in Annex 4.

35 The variance analysis can be combined with the use of adjusted indicators, which corresponds to using weighted variances.

36 It should be stressed that if size appears relevant in a variance analysis applied to observations at the size/time level, it may not be the case when adding a dimension (such as in the case of observations at the size/time/sector/country level), given that in this case the total variance is most likely larger, and hence the share of the variance that is explained by the sole size factor decreases.

Table 8 Profitability and investment indicators across size classes

(euro area, average over 1999-2005) [1), 2)]

Indicator	Gross operating profit to value added		Return on assets		Return on equity		Investment in tangible fixed assets to value added	
	Not adjusted	Adjusted	Not adjusted	Adjusted	Not adjusted	Adjusted	Not adjusted	Adjusted
Averages by size class								
Large	41	37	3.0	2.5	8.8	8.0	16.7	17.1
Medium	32	33	2.3	2.2	6.8	7.3	13.6	15.2
Small	27	28	2.7	2.3	6.6	8.0	12.2	15.0
Variance contribution of individual factors								
Size	6.6	11.4	0.6	0.5	1.5	0.4	3	0.5
Sector	58	57	12	12	17	21	13	20.7
Country	8.5	12	32	43	21	24	24	20

Table 9 Amount of external financing indicators across size classes

(euro area, average over 1999-2005) [1), 2)]

Indicator	External financing			
	Bank loans to total debt		Bonds to total debt	
	Not adjusted	Adjusted	Not adjusted	Adjusted
Averages by size class				
Large	18	23	6.2	3.7
Medium	33	34	1.5	1.1
Small	29	34	1.3	0.8
Variance contribution of individual factors				
Size	3.8	8.6	17	11
Sector	9.4	19	11	14
Country	34	37	12	13

Table 10 Balance sheet structure indicators across size classes

(euro area, average over 1999-2005) [1), 2)]

Indicator	Debt to equity		Debt to cash flow		Cash to total assets		Short-term debt to total debt		Tangible fixed assets to total assets		Financial fixed assets to total assets	
	Not adjusted	Adjusted	Not adjusted	Adjusted	Not adjusted	Adjusted	Not adjusted	Adjusted	Not adjusted	Adjusted	Not adjusted	Adjusted
Averages by size class												
Large	171	234	707	881	3.3	4.0	61	63	27	27	25	20
Medium	188	224	928	1,063	5.2	5.8	66	62	26	32	13	10
Small	137	256	925	1,186	6.5	7.9	64	63	19	29	26	11
Variance contribution of individual factors												
Size	2.4	1.7	0.6	4.8	25	31	0.1	0.1	1.8	1.3	16	19
Sector	18	31	12	22	11	13	62	66	63	63	14	10
Country	18	26	19	22	35	40	12	20	11	18	25	33

Source: Own calculations based on BACH database.
1) Adjusted indicators are calculated by imposing that the sector-country weights from the national accounts are the same across size classes.
2) The variance of each indicator across firms has been decomposed separately (not jointly) for their size, sectoral and country dimensions. This variance decomposition has been computed for both unadjusted and adjusted indicators. Thus, regarding the size dimension, the figures report the respective contributions of each size class to the overall variance, as well as the variance between size classes. For instance, in the case of the ratio of cash to total assets, 25% of the variance across firms is explained by size classes on the basis of unadjusted data (31% on the basis of adjusted data), while 75% (69% adjusted) is explained by the residual variance, i.e. the dispersion of firms among each size class. The same decomposition is performed for the sectoral and country dimensions. For instance, in the case of the ratio of cash to total assets, the country and size dimensions are the most relevant factors in explaining the degree of variance across firms.

For the main indicators of profitability, investment, amount of external financing and the balance sheet structure, the adjusted average values for the period 1999-2005 are reported for each size class (see the upper part of Tables 8-10). In addition, a variance decomposition has been carried out for each of the financial ratios considered. The results are shown in the lower panel of Tables 8-10, which report the percentage of the variance that is respectively explained by the size, sectoral or country dimensions (i.e. the three existing sources of variability in the analysis considered) for each financial ratio analysed. The results are also reported for both adjusted and unadjusted data.

The adjusted indicators differ sometimes markedly from the unadjusted ones. In some cases, the ordering of the size classes is even changed or the conclusion from the variance analysis on whether size matters or not is reversed. However, the presence or the lack of differences across size classes for a given indicator is broadly confirmed by the contribution of size to variance across firms, for both adjusted and unadjusted indicators.

RESULTS ON THE FINANCING PATTERNS OF SMEs VERSUS THOSE OF LARGE FIRMS

PROFITABILITY AND INVESTMENT: DOES SIZE PLAY A ROLE?

The lower debt-to-equity ratio observed for small firms (see Table 8, unadjusted data) turns out to be driven mainly by the relative weights of SMEs and large firms in the various sectors, and also to some extent by the relative weights of SMEs in the various countries. When controlling for sectoral and country distributions of firms, this ratio does not appear to be related to the size dimension. In similar fashion, no significant differences are observed for the ROA indicator. However, differences across size groups remain in the indicator of gross operating profit to value added. It also appears

that smaller firms have a lower level of investment in tangible fixed assets (see averages for unadjusted data) that is partly driven by differences in the country and sectoral landscapes across size classes.

AMOUNT OF EXTERNAL FINANCING: DOES SIZE PLAY A ROLE?

Size appears to matter considerably for specific sources of financing, such as loans and bonds. In fact, small and medium-sized firms rely more on loans than large firms (with relatively low disparities across sectors). Moreover, the smaller the firm, the less it relies on bonds (although data on bonds are not available for all countries, which may distort the results).[37] Some of these results are not equally clear-cut when looking at unadjusted data, on the basis of which medium-sized firms seem to obtain more loans than small ones.

Looking in more detail at the relevance of the country of origin for the external financing structure of a firm, it appears that this factor matters for the degree of reliance on loans, but not greatly for bonds (these results, which are derived from a variance analysis applied within each size class, are not shown in the table). Regarding loans, there are large disparities across countries in the larger weight of loans for SMEs (particularly for small firms), while disparities are low across countries for large firms. Thus, this large variability in the weight of loans for SMEs probably reflects institutional disparities (see Chapter 2). These results are in line with the findings that the corporate bond market in the euro area has achieved a high degree of integration, whereas retail banking continues to be fragmented.[38]

BALANCE SHEET STRUCTURE: DOES SIZE PLAY A ROLE?

The lower debt-to-equity ratio observed for small firms (see Table 10, unadjusted data) turns out to be driven mainly by the relative weights of small firms in the various sectors and countries. When controlling for sectoral and country distributions of firms, small firms actually display the largest debt-to-equity ratio. Interestingly, differences between large and medium-sized firms are driven by their sectoral structure, rather than by their country structure, although this is not the case for small firms. Regarding differences between firms within a sector, the debt-to-equity ratio does not depend on the size class of the firm, while it generally differs across countries. This result could also depend on different accounting practices, which may have a particular impact on equity valuation across countries. Regarding differences between firms within a country, the debt-to-equity ratio does not differ across size classes, while the differences are in general sectoral (these results are not reported in the table).

The debt to cash flow ratio, which provides a measure of the ability of a firm to repay its debt, turns out to depend somewhat more on its size than what is apparent on the basis of unadjusted indicators, as the variance contribution of size also points out. That is, when controlling for sectoral and country dimensions, the smaller the firm, the more it is indebted on the basis of this indicator. The country and sectoral dimensions are however more important factors, as the variance decomposition illustrates: this analysis shows that country – as well as sectoral – factors explain nearly 25% of the variability observed in the debt-to-cash flow ratio. With respect to the previous indicator, this may be less biased by accounting practices across countries.

Regarding the structure of assets, the ratios of cash and financial fixed assets to total assets differ considerably across size classes on the basis of adjusted data. The direction of the difference is in line with expectations, whereas this was not the case on the basis of unadjusted data for financial assets. In addition, these ratios differ widely across countries, possibly pointing to cross-country disparities in financial market

37 A similar exercise based on the average rate of interest shows that while this indicator appears to be higher for small firms on the basis of unadjusted data, this is no longer the case when using adjusted indicators. In fact, the aggregate result is driven mostly by national factors (which explains around 60% of the – weighted – variance across firms) and, to a lesser extent, by the sectoral composition.

38 See ECB (2006).

developments, and to a lesser extent across sectors. However, differences across sectors are obviously considerable for the ratio of tangible fixed assets to total assets, which is in line with the huge sectoral disparities in capital intensity. Since large firms play an important role in sectors such as electricity and transport, storage and communication, which are – together with "other services" – the most capital-intensive sectors, the ratio of fixed assets to total assets in large firms is the highest in all countries (on the basis of unadjusted data). Therefore, it does not come as a complete surprise that when controlling for sectoral and country factors, the ratio of tangible fixed assets to total assets no longer appears smaller for smaller firms.

Regarding the maturity structure of liabilities, the ratio of short-term debt to total debt appears to be basically the same across firm classes on the basis of adjusted data. Correspondingly, size does not play a role in the variance decomposition analysis, which is instead dominated by the sectoral dimension. Indeed, the construction and (wholesale and) retail sectors, where small firms predominate, show the shortest maturity of assets. Therefore, when looking at the unadjusted data, it appears that the weight of short-term debt is larger for SMEs.

To sum up, the analysis carried out in this section indicates that some of the different patterns observed between the financial position of SMEs and larger firms are driven by differences in their sectoral compositions and relative concentrations across countries, while other differences remain even after controlling for sectoral and country characteristics. However, there are some caveats to the conclusions reached here. Some possibly important determinants for access to finance, such as the age of the firm or the form of ownership (which are most likely correlated with the size of the firm), have not been taken into account. Another caveat relates to a selection bias of the BACH database, whereby the small firms covered tend to be those in a better financial situation.

Box 4

THE IMPACT OF FIRMS' FINANCIAL POSITION ON INVESTMENT DECISIONS: AN ANALYSIS WITH FIRM-LEVEL DATA

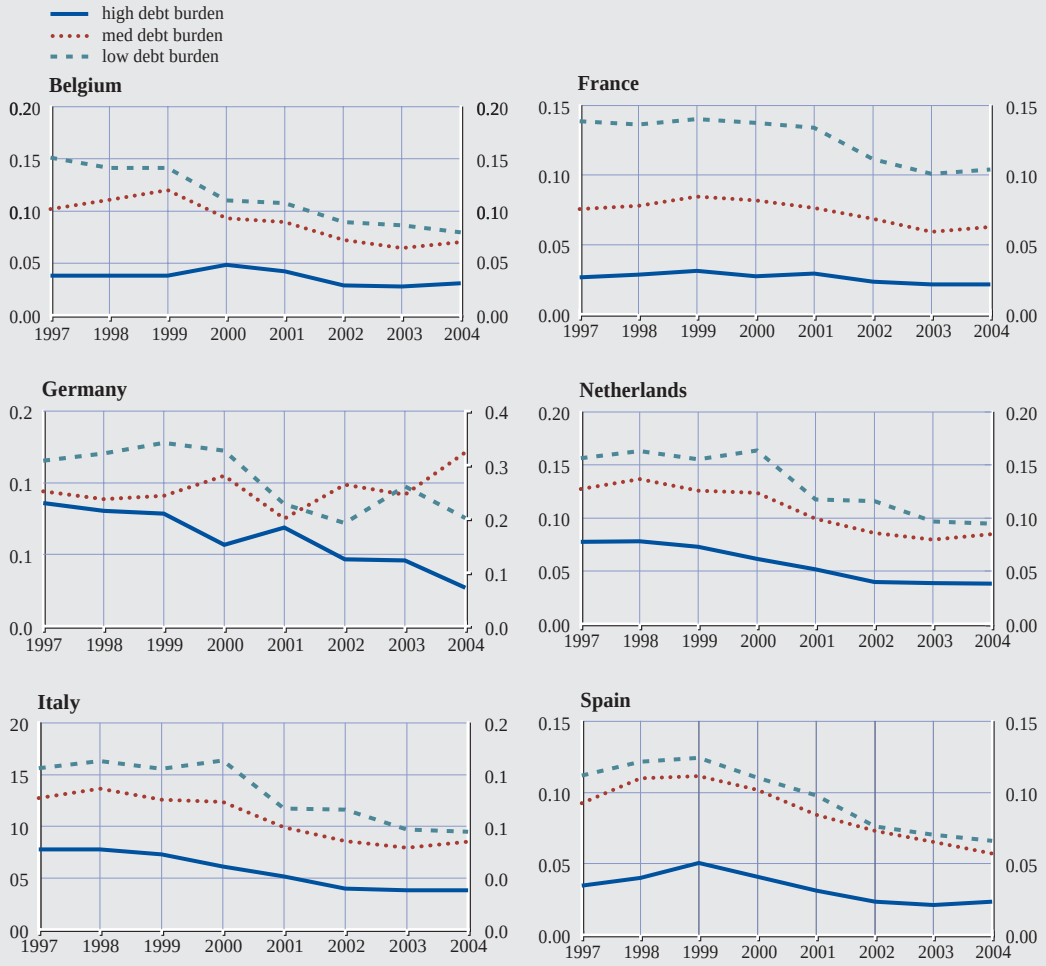
The financial performance of firms, as well as their responses to financial pressure, is important as it affects the operation of monetary policy through the corporate sector. A key channel in this regard is by altering borrowing costs, something that increases or alleviates financial pressure on firms. As a result, a potentially wide range of firms' activities can be affected, investment or employment decisions being among the most prominent.

The empirical studies that have analysed the impact of a firm's financial position on investment have predominantly used databases in which large companies have a predominant weight, even though these are in fact those expected to be less affected by credit constraints. To overcome this restriction, this Box analyses the impact that firms' financial position has on investment, using a sample of non-financial corporations taken from AMADEUS with a much higher percentage of small firms than in most previous studies. The countries covered in this analysis are Belgium, Germany, France, Italy, the Netherlands and Spain.

Charts A-C show the investment patterns of firms facing different degrees of financial pressure for the countries covered in the sample. Three financial ratios are used to capture the degree of financial tightness: the relative burden of debt (that is, the firms' capacity to meet interest

Chart A Interest debt burden and level of investment

(Investment rate)



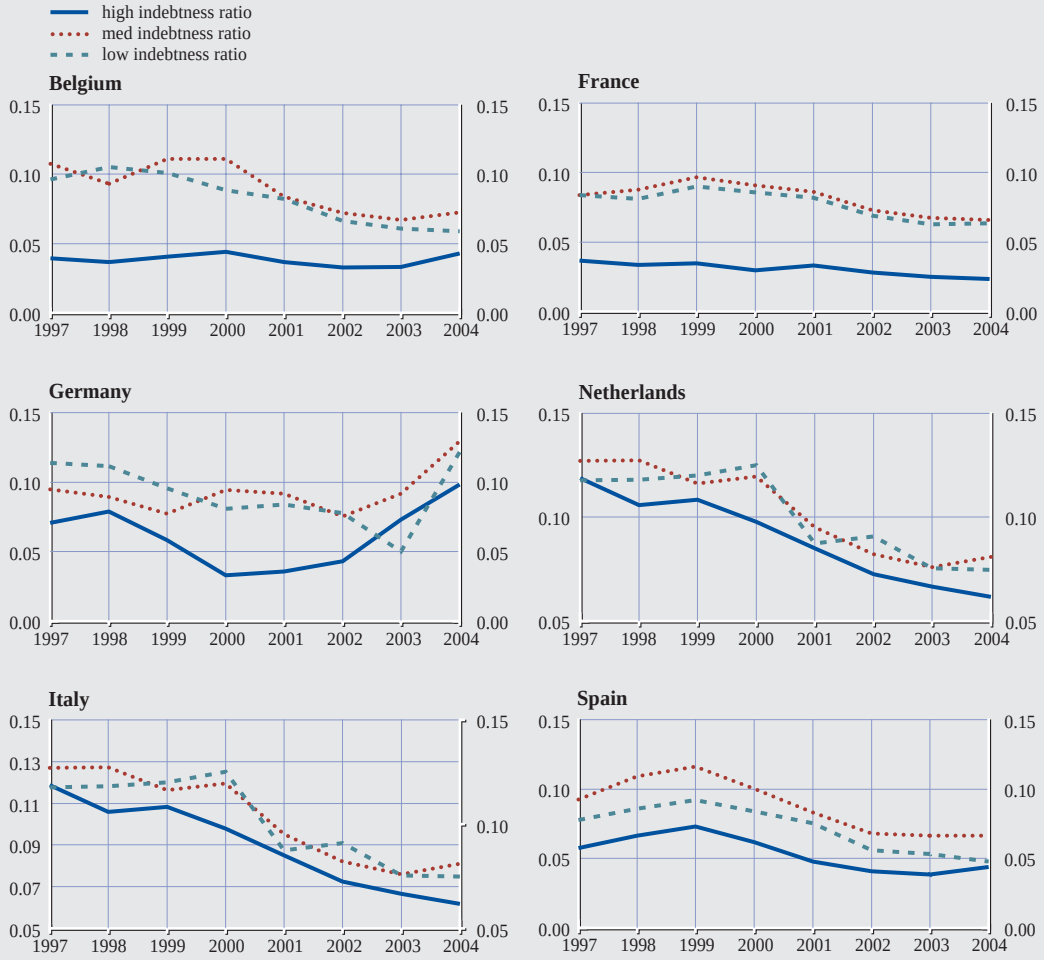
payments),[1] net indebtedness (the ratio between debt minus cash and its equivalents to assets)[2] and profitability (measured as the ratio of cash flow to total assets).

Chart A compares the investment rates using the relative burden of debt. This variable, which is the net result of changes in interest rates, corporate profitability and corporate debt, is a relevant indicator of the financial pressure firms may be facing. More specifically, the chart shows the median investment rate for the 10% of firms with the lowest debt burden (the "low" line in the chart), for those for which this financial indicator stands between percentiles 45 and 55 of the distribution ("med" in the chart) and, finally, the median investment rate for the 10% of firms that face higher financial pressure according to this indicator ("high"). Firms with a higher financial burden in relation to their capacity to generate funds have substantially lower investment rates, a finding that is only less clear in Germany. This simple descriptive analysis

1 Defined as the ratio of interest payments to earnings before interest, taxes, depreciation and amortisation plus financial revenue.
2 By including this indicator we want to test whether debt is important once adjusted for liquidity.

Chart B Net indebtedness and level of investment

(investment rate)



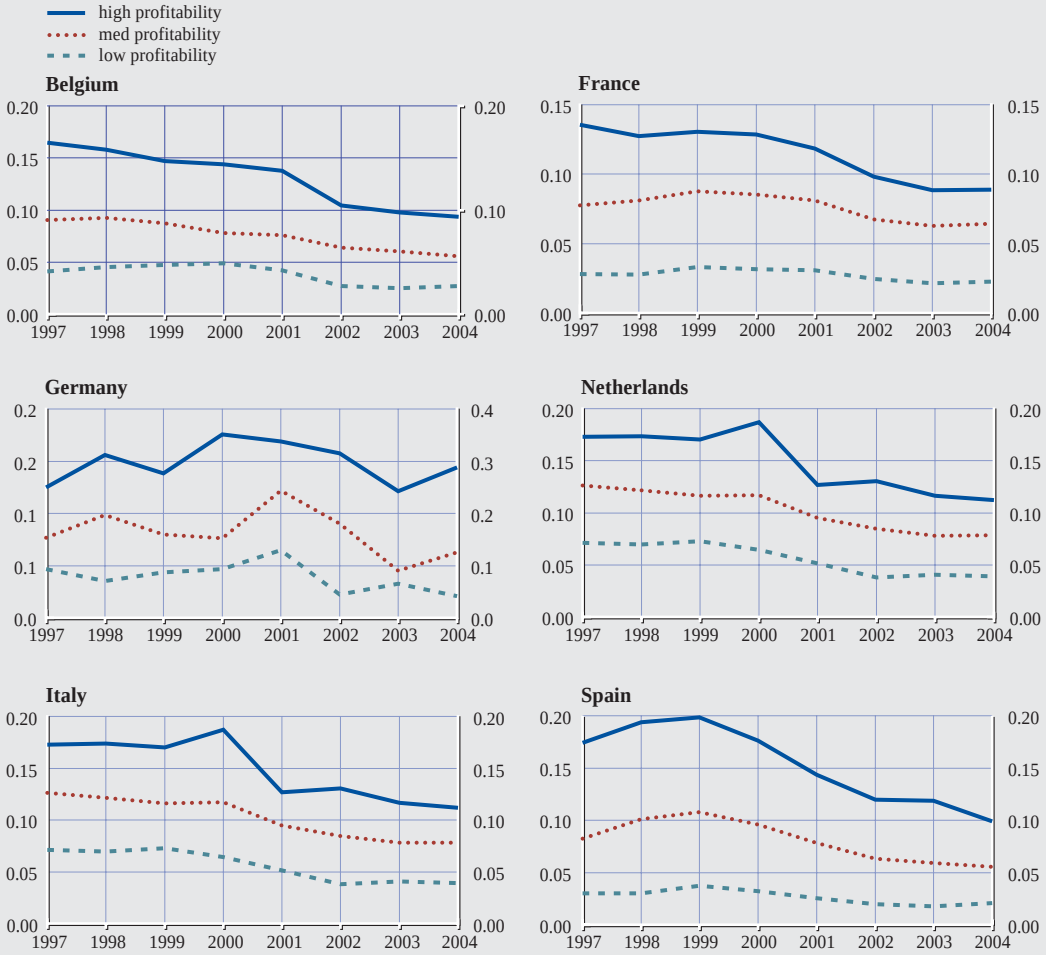
also indicates that in some countries (especially Belgium and Spain) the relationship between financial pressure and investment might be non-linear, as no marked differences in investment rates are observed between those firms with the lowest financial pressure and those with average financial pressure. For those facing a higher financial burden, this rate is substantially lower.[3]

Similar evidence can be found when financial tightness is measured by the indebtedness ratio, as investment rates presents a negative relationship with this indicator in all the countries analysed (see Chart B). Again, in many countries a non-linear relationship seems to exist. Finally, Chart C shows a clear link between investment and profitability, as firms with lower profitability display lower investment rates in all countries. Unlike what was observed with the two previous financial indicators, there is no evidence of a potentially non-linear relationship between investment and profitability.

3 This hypothesis has already been tested in Hernando and Martinez-Carrascal (2003) for Spanish firms, where evidence supporting a non-linear relationship between investment and financial position was found.

Chart C Profitability and level of investment

(investment rate)



The impact of financial position on investment: Some empirical results.

The estimation approach consists in relating for each firm its investment rate with the financial pressure proxied using the financial indicators considered above. The estimation method consists of the GMM System estimator, which controls for fixed effects, and uses lags of the dependent and explanatory variables as instruments to avoid the bias associated with the endogeneity problem of most current firm-specific variables.

The model estimated for fixed investment is an error-correction model which specifies a target level of the capital stock and allows for a flexible specification of the short-run investment dynamics, in which we add different financial indicators as potential explanatory variables:[4]

$$(I/K)_{it} = \alpha_i + \beta_1(I/K)_{it-1} + \beta_2\Delta y_{it} + \beta_3\Delta y_{it-1} + \beta_4(k-y)_{it-2} + X_{it-1}'\gamma + \theta_t + \phi_s + \varepsilon_{it} \quad (1)$$

Coefficients for financial variables in the investment equation

		Belgium	Germany	France	Italy	Netherlands	Spain
Indebtedness	*coefficient*	-0.044	-0.080	-0.038	-0.065	0.029	-0.064
	std.dev	0.026	0.050	0.013	0.022	0.093	0.035
Debt burden	*coefficient*	-0.088	-0.121	-0.085	-0.067	-0.072	-0.045
	std.dev	0.025	0.059	0.023	0.024	0.045	0.022
Profitability	*coefficient*	0.322	0.208	0.440	0.277	0.286	0.292
	std.dev	0.128	0.185	0.156	0.140	0.227	0.100

Coefficients for financial variables in the investment equation: differential impact for smes

		Belgium	Germany	France	Italy	Netherlands	Spain
Indebtedness	*coefficient*	0.038	-0.014	-0.025	0.008	-0.090	-0.090
	std.dev	0.051	0.037	0.032	0.045	0.095	0.055
Debt burden	*coefficient*	-0.003	0.075	0.031	0.007	-0.053	0.037
	std.dev	0.051	0.054	0.030	0.051	0.054	0.039
Profitability	*coefficient*	-0.059	0.052	0.125	-0.020	0.193	-0.009
	std.dev	0.273	0.279	0.301	0.267	0.299	0.081
Sample period		**1997-2004**	**1997-2004**	**1998-2004**	**1997-2004**	**1997-2004**	**1997-2004**
Number of firms		4,229	307	80,858	27,448	731	31,587
% corresponding to SMEs		88.84	39.1	97.2	96.8	33.5	97.3
Number of observations		27,373	1,503	453,015	155,038	4,326	167,430

where i indexes companies i=1...N and t indexes years, t=1...T. Δ denotes a first difference, I/K is the investment rate, y is the log of real sales, k is the log of real fixed capital stock, αi are company-specific fixed effects, and X represents a vector of financial variables. θ_t and ϕ_s are, respectively, time and sectoral effects that control for macroeconomic influences on fixed investment common across companies, while ε_{it} is a serially uncorrelated, but possibly heteroskedastic error term. The coefficients β_2 and β_3 indicate the short-run responsiveness of fixed investment to sales growth, while the coefficient β_4 indicates the speed of adjustment of the capital stock towards its desired level.

The upper panel in the table reports the results obtained when equation (1) is estimated for each of the countries considered. More specifically, the table shows the coefficients estimated for each of the three financial variables considered when they are introduced one at a time in the equation, and the associated standard errors.[5] In line with the descriptive evidence shown above, a negative (and significant) coefficient is obtained in most countries for net indebtedness: only in the Netherlands does this variable not seem to have a significant impact on investment, while in four out of the six countries analysed (Belgium, France, Italy and Spain), the p-value associated with the significance of this variable stands below 10% (and close to this level in Germany). Hence, these results suggest that a high level of debt can lead to balance sheet adjustment in the form of companies deferring or foregoing investment projects.

4 This specification instrumentation strategy has been favoured among others in Bond et al. (2003) and Hernando and Martinez-Carrascal (2003). The depreciation rate is subsumed into the unobserved firm-specific effects, and it is assumed that variation in the user cost of capital can be controlled for by including both time-specific, sectoral-specific and firm-specific effects. See Bond et al. (2003) for details on the derivation of the investment model.

5 For the non-financial variables, the results are in line with those found in similar studies: the error-correction term $(k-y)_{it-2}$ is correctly signed and statistically significant, and sales growth has a positive short-run impact on investment, which is statistically significant in all countries. We find the expected first-order serial correlation in our first-differenced residuals, while there is no evidence of second-order serial correlation, the key requirement for validating our instrumentation strategy, and the Sargan test statistics are insignificant at conventional levels.

A significantly negative and well-determined effect is also found for the interest debt-servicing burden measure, suggesting that the financial pressure of debt servicing plays an important role in influencing firms' investment levels. The evidence in favour of this financial indicator having a significant impact on investment is even more robust and widespread than with the previous one, as only in the Netherlands is the p-value associated with significance of this variable slightly higher than 10%.

Finally, the upper panel of the table reports the results obtained when profitability is included in the specification. This indicator is clearly significant in all the countries analysed except Germany and the Netherlands, where the p-value associated with the significance of this variable stands somewhat above 20%.

The impact of financial position on investment: Is fixed investment more constrained by financial position for smaller firms?

To test whether financial pressure constrains investment differently for small and medium-sized firms than for large firms, the following equation is estimated:

$$(I/K)_{it} = \alpha_i + \beta_1(I/K)_{it-1} + \beta_2\Delta y_{it} + \beta_3\Delta y_{it-1} + \beta_4(k-y)_{it-2} + X_{it-1}\gamma_1 + X_{it-1}*Dsme_{it}\gamma_2 + \theta t + \phi_s + \varepsilon_{it} \quad (2)$$

where Dsme is a dummy variable that takes value one for small and medium-sized[6] firms and zero otherwise.[7] Hence, γ_2 captures the differential impact that financial variable X has on investment for small and medium-sized firms.

The results are shown in the lower panel of the table, which reports the values estimated for γ_2, together with the associated standard errors. Neither indebtedness nor the debt burden seems to be a more important constraint for investment for small and medium-sized firms than for large ones, as the p-value associated with the significance of γ_2 stands above 10% for both variables in all countries (only in Spain does the p-value for the net indebtedness ratio stand close to this level). Likewise the availability of internal finance does not appear to play a more important role for investment for small and medium-sized firms than for large firms. Hence, these results indicate that the impact of financial position on investment does not seem to depend on firm size. However, the analysis of the distribution of firms' financial position shows that in most of the countries analysed (Belgium, Italy, the Netherlands and Spain) medium-sized firms (and especially small ones) tend to face greater financial pressure than large firms (according to the debt burden and profitability indicators in particular), suggesting that firms' financial position might restrict fixed investment of small and medium-sized firms more than for large firms.

To sum up, these econometric results point to two main conclusions: first, they support the hypothesis that financial pressure faced by firms is important in explaining corporate decisions on fixed investment, as indebtedness, the debt burden and profitability indicators are found to be significant when included in investment equations. Second, they indicate that the marginal impact of firms' financial position on investment is similar for small firms and large ones, but the overall effect is larger for small firms because their financial position is weaker according to the proxies for financial pressure used in this box.

6 Size is defined on the basis of employment (according to this criterion, SMEs would be characterised as firms with less than 250 employees), assets and operating revenue.
7 The notation for the rest of the variables is the same as above.

3.5 CONCLUDING REMARKS

The existence of possible differences in small and medium-sized firms' access to finance with respect to large ones has been widely discussed. Evidence based on several surveys conducted at the European level by the European Commission points to the existence of financing constraints in some cases, as perceived by firms, although not in all countries. National surveys also suggest the existence of some financing constraints for small firms, although results vary across countries and are not easily comparable. Moreover, the measurement of financing constraints might be distorted by existing subsidies for small enterprises.

The econometric evidence is mixed, with some studies pointing to financing constraints for small firms as being the main determinant of underinvestment, while others identify additional factors as being more relevant in influencing the access to finance. Certainly, the difficulty in reaching definite conclusions on this issue may be related to some methodological problems that have not yet been empirically solved. Sample bias may also affect the analysis, as it is reasonable to expect that financially sound firms tend to be over-represented in both survey and empirical samples. In addition, results can also be determined by differences in simple issues such as the definition of firm size, as there is no unique definition of SMEs. It may also be the case that small firms indeed find ways around financial obstacles. A stable bank relationship[39] may help reduce informational asymmetries and alternative types of financing, as trade credit[40] may contribute to reducing the financial constraints of SMEs.

Many studies have described the existence of large differences across euro area countries for the financing of SMEs (e.g. the European Investment Bank report (EIB, 2003)). The analysis carried out here indicates that some of the differences observed between the financing patterns of SMEs and larger firms appear to be driven by differences in their respective sectoral compositions and relative concentrations across countries. However, differences across size classes remain for some aspects of the firms' financing patterns, that is, even within a given sector and a given country. This applies to a certain extent to the ratio of gross operating profit to value added and, more strongly, to the reliance on bonds and the share of financial assets to total assets (which are all positively related to the size of the firm). The differences across size classes are also observable regarding the degree of reliance on cash and bank loans and the ratio of debt to cash flow (which are all negatively related to the size of the firm). The results on the retention of cash are particularly robust. As this variable is often considered to be an indicator of the existence of financing constraints, the analysis seems to indicate that differences might exist across size classes in terms of access to finance.

An econometric analysis based on firm-level data has also been performed to analyse whether the financial position of firms affects their investment decisions (see Box 4). The findings are that firms facing a higher degree of financial pressure are found to present on average lower investment rates. The empirical results also show that the role of financial variables does not seem to differ across size classes. However, to the extent that SMEs tend to be in a somewhat weaker financial situation than larger firms, their investment decisions might be more affected. In addition, the fact that financial factors have an impact on investment levels indicates the advisability of taking into account financial developments in order to improve the assessment of the economic outlook.

39 On the banking side, there is a diversification argument, as banks can better afford to retain a relationship with particularly financially distressed SMEs than with large firms.

40 See, among others, Boissay and Gropp (2006) and Cuñat (2007).

4 CHANGES IN THE FINANCIAL LANDSCAPE OF THE EURO AREA

This chapter analyses the major changes that have occurred in the euro area financial landscape and assesses their impact on corporate finance. These changes have broadened the set of financial instruments utilised in corporate finance, thereby potentially contributing to the overall efficiency of the financial system, which in turn can be expected to have a positive effect on productivity growth through improved capital reallocation in the economy.

The chapter starts with a brief overview of external financing developments for euro area corporations. In this respect, during the first few years of EMU, European corporations have benefited from increased availability of funds via direct market financing, with a strong surge in the net issuance of corporate bonds and shares (sub-section 4.1). The robust recourse to these instruments has been used to finance higher real investment as well as to fund the very large increase in M&A activity. More recently, innovations in credit markets – such as securitisation or credit derivatives – have had a significant impact on corporate financing (sub-section 4.2). In fact, by shifting the risk of corporate and households' loans outside their balance sheet, banks seem to be progressively assuming a new role, moving from their more traditional asset transformation role towards one in which they increasingly manage and trade credit risk via the financial markets. The growth of syndicated loans (loans granted by a group of banks to a single borrower) is another step in the same direction. This "new role" has been altering the dynamics of credit allocation and has probably increased the total amount of credit available for corporate borrowers. The other main structural development affecting corporate finance in recent years has been the growth of institutional investors such as pension funds, insurance companies, private equity and hedge funds. These investors are altering the channels of funds available to corporations as well as changing the set of incentives faced by corporations (sub-section 4.3). Overall, it is important to bear in mind that recent developments in corporate finance in the euro area have also been driven by more conjunctural factors such as ample liquidity, low long-term interest rates, the search for yield on the investors' side, the demand for leveraged transactions and the drying up of market-based financing after the fall in stock prices in the period 2001-2003. Sub-section 4.4 concludes.

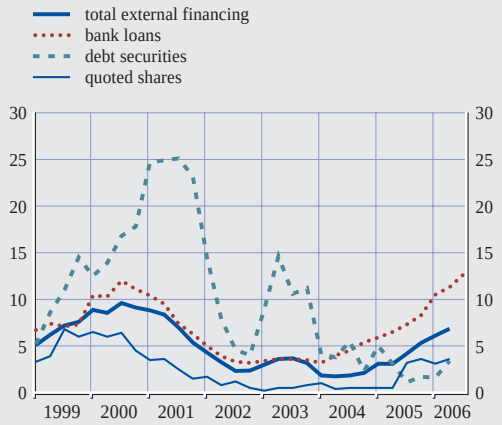
Chart 6 provides an overview of the changing environment of external financing for non-financial corporations in the euro area. In general, following profitability and investment developments, euro area non-financial corporations increased their external financing considerably between 1995 and 2000. This increase occurred for all main financing instruments, i.e. loans, debt securities and equity, while corporate bonds also increased their relative share in these flows. After peaking in 2000, in parallel with the economic slowdown and the fall in stock market prices, the external financing of euro area non-financial corporations decelerated dramatically. While the annual rate of change of monetary financial institution (MFI) loans recovered strongly from 2004 onwards, the annual rate of change of loans granted by other financial institutions (OFIs) only recovered from 2005 onwards.[41, 42] After the boom in the euro area corporate bond market from 1999 to 2001, the issuance of debt securities and quoted equity by euro area non-financial corporations remained overall weak up to the first semester of 2006, with the exception of a pick-up in corporate bonds in 2003, while the role of loans continued to increase throughout 2005 and 2006.

41 The negative annual rate of change of OFI loans to non-financial corporations in 2004 was related to fiscal factors, which induced a substitution of inter-company loans by unquoted equity financing.

42 In some euro area countries, leasing is part of OFI loans, while in other euro area countries, leasing is part of MFIs (France) or of non-financial corporations (Germany). The overall importance of leasing is limited, with a share of around 5% in the debt liabilities of non-financial corporations according to partial information from some euro area countries.

Chart 6 External financing non-financial corporations

(annual growth rates)



Source: ECB.

4.1 THE DEVELOPMENT OF MARKET-BASED FINANCING IN EMU

4.1.1 THE CORPORATE BOND MARKET

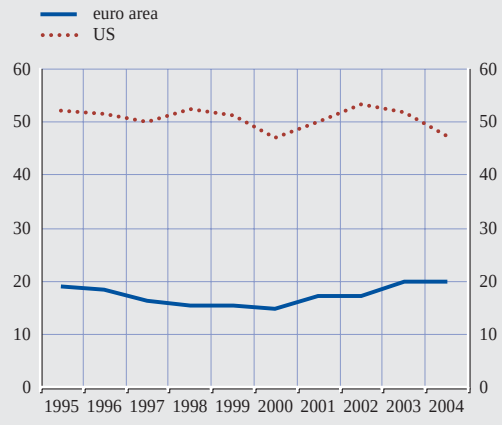
As discussed in Chapter 2, non-financial corporations in the euro area have historically made less recourse to bond finance compared with the US and the UK. A first reason is the traditional reliance of European firms on bank financing, which emphasises the benefits of the lending relationship in overcoming information asymmetries, facilitating the financing of investment and financial support in difficult times.[43] A second possible reason is the prevalence of small and medium-sized firms in the euro area, for which bond finance is not easily suitable.

The ratio of outstanding stock of bonds to total sales for listed firms is substantially lower in the euro area than in the US (see Chart 7). On the other hand, net bond flows, as a share of sales by listed firms, are much closer to the corresponding US flows, which is also a consequence of the decline registered in the US over the past few years (see Chart 8). This implies that the appeal of bond markets has become more similar in both financial markets.

43 In this respect, Altman et al. (2006) find that the loan market does in fact have an informational advantage over bonds. Chemmanur and Fulghieri (1994) show that banks invest for the long term compared to bond holders, and therefore have an incentive to acquire information and to try to rescue firms in financial distress.

Chart 7 Total bonds over sales of listed companies

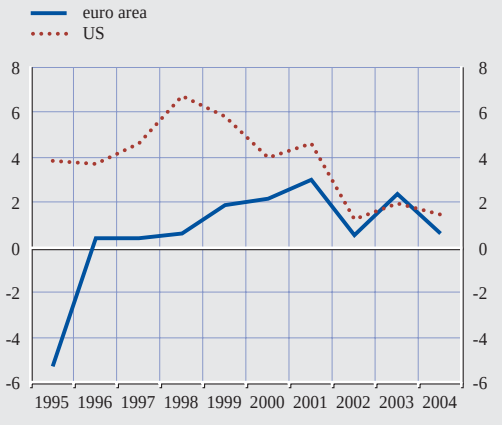
(in percentage)



Sources: National financial accounts and Datastream.

Chart 8 Total bond flow over sales of listed companies

(in percentage)



Sources: National financial accounts and Datastream.

Following the start of Monetary Union, the corporate bond market boomed, with growth in net bond issuance outpacing growth in bank loans until mid-2004 (see Chart 6). The introduction of the euro gave a strong impulse to the European corporate bond market, while the disappearance of exchange rate risk among European countries contributed to enhancing the liquidity of the market, prompting investors and borrowers to start to take a European perspective. Institutional investors increased their cross-country exposure, and corporate borrowers started to access a broader pool of potential investors. Finally, increased bank competition lowered underwriters' fees for corporate bonds.[44]

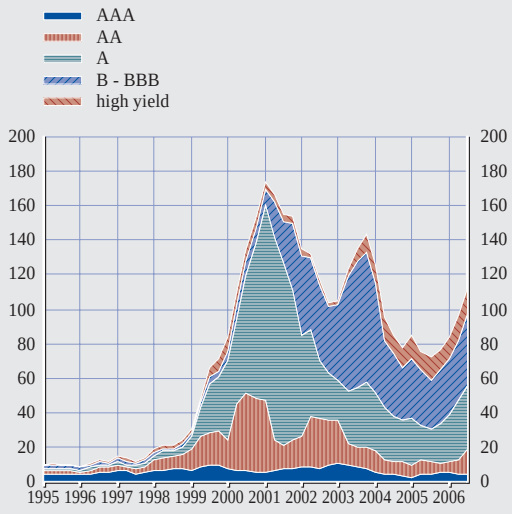
While the pick-up in M&A activity in 1999-2000 was instrumental in encouraging bond issuance both in the US and the euro area, more recently growth in corporate net bond issuance activity has stalled compared to growth in loans.[45] As no structural impediments have emerged over the past couple of years, the decline in the rate of growth seems to have been originated by different factors, the most prominent being competition from other sources of finance. It is worth stressing that similar developments have also occurred to some extent in the US (see Box 1 in Chapter 2).

The deepening and broadening of the corporate bond markets after 1999 have proceeded along several dimensions, two of which are most significant. First, in terms of credit quality, the highest increase in corporate bond issuance was recorded for lower-rated bonds. Before 1999 the market was limited to borrowers rated AA or higher. Since the introduction of the euro, however, the non-financial corporate bond market has been able to accommodate a broader spectrum of credit ratings (see Chart 9), and the high-yield segment has grown substantially.

44 See Santos and Tsatsaronis (2003) and Melnik and Nissim (2006).
45 See de Bondt (2005) and Waschiczek (2004).

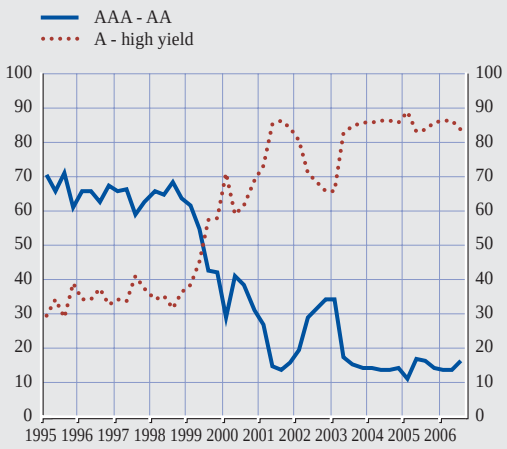
Chart 9 Corporate bond issues by non-financial corporations by rating

Rating breakdown
(EUR bill moving averages)



Source: Thomson Financial Deals.

Rating shares
(in percentages of total)



Source: Thomson Financial Deals.

Second, the development of the market has been favoured by the diffusion of innovative financial products. In particular, over the past ten years, hybrid instruments and other financial instruments that combine characteristics of both equity and debt, and allow firms to obtain more flexible sources of finance, have gained considerably in importance (see Chart 10).

For borrowers, convertible bonds (bonds with a conversion option to equity) are often seen as a low-cost alternative to straight bonds, especially by high-growth companies without high levels of cash flow. Others use convertible bonds as "delayed equity" to avoid short-term equity dilution. Due to their conversion option, they are rather sensitive to stock market movements. Hence, they were particularly popular in the stock market boom, and their issuance volume grew steadily in the second half of the 1990s, especially after the start of EMU. In the period 1997-2001, the volume of convertible bonds issued by euro area companies amounted to more that one quarter of all debt securities issued by non-financial corporations in the euro area. Over the last few years, however, issuance has shrunk considerably as the relatively low interest rate environment made the use of straight bonds a more attractive method of raising finance.

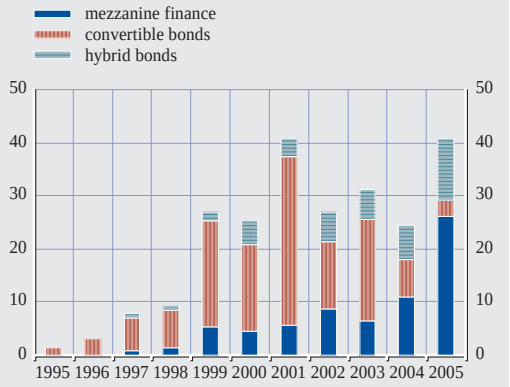
In contrast, hybrid bonds (subordinated bond issues with very high duration) have flourished in an environment of low nominal interest rates and shrinking corporate bonds spreads, partly also due to tax considerations.[46] In 2005 mezzanine finance (instruments that combine elements of both equity and loans) increased very strongly owing to the increase in M&A activity.

Some other related complex financial instruments have also been growing rapidly. One of the most prominent in the last couple of years is probably the payment in kind (PIK) note. A PIK typically does not provide any cash flow between the issuing and the maturity date, just like a zero-coupon bond. It is usually unsecured or very subordinated, long term (most maturities are over five years) and, in a standard offer, is accompanied by a mechanism that allows the investor to share in the future success of the business. PIKs are frequently issued to finance an acquisition or a leveraged buyout, given that they allow the borrower to achieve a higher level of leverage without having to pay cash interest on all the finance raised, and as a result are enjoying fast growth in the currently buoyant M&A market.

Overall, it seems that, especially after the introduction of the euro, the wider size of the financial market and increased cross-border competition have established a situation whereby large corporations in particular can now tap the corporate bond market relatively easily. The market has increased in depth and broadened in terms of rating and type of products. Most recently, the recent slowdown

Chart 10 Gross issuance of hybrid financial instruments by euro area non-financial corporations

(EUR billions)



Source: Dealogic.

46 In Europe, the International Financial Reporting Standards (IFRS) allow companies to treat hybrid bonds that meet specific criteria as equity in their balance sheets, while for tax purposes they can be treated like debt – so interest payments can be deducted from a company's tax liabilities.

in its growth seems mostly related to competition from other sources of finance.

4.1.2 THE EQUITY MARKET

Developments in the equity market have mirrored to some extent the broad fluctuations in the corporate bond market in recent years. Within the equity market, the very large fluctuations experienced in the initial public offering (IPO) market were particularly remarkable, while the secondary public offering (SPO) market fluctuated to a lesser extent. From an economic viewpoint, the IPO market is a particularly relevant segment of the equity market as it tends to promote entrepreneurship by providing a source of capital for growing firms and an exit route for private equity investors (see sub-section 4.3).[47]

Focusing on the developments in the IPO market in the euro area, the number of public equity offerings accelerated strongly in the late 1990s and reached a peak in 2000, in a context of excessive profit expectations and the so-called New Economy stock market bubble. In the aftermath of the bursting of the bubble, in 2001 the total number of IPOs decreased dramatically and the market remained very subdued in following years, although a slight recovery took place in 2005 and 2006 (see Chart 11).

At the beginning of the observed period, several IPOs were simply the effect of privatisation processes ongoing at that time in many euro area countries, with the consequent listing of previously state-owned companies. Afterwards, the "hot market period", broadly ranging from 1997 to 2000, had a very strong concentration of firms operating in the technology, media and telecommunications (TMT) sectors (see Chart 12).

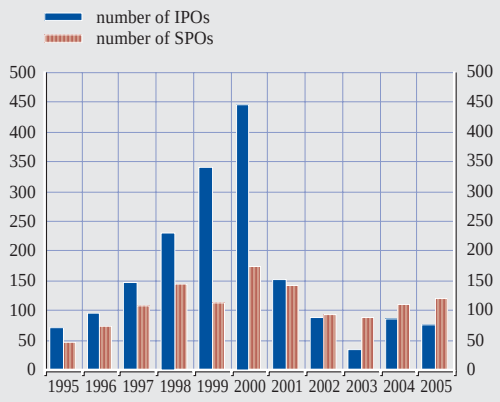
From an institutional point of view, the mid-1990s saw the creation of a variety of specialised stock exchanges, focused on innovative companies in high-growth sectors. These markets aimed at channelling equity funds to firms in their early stage of development and catering for investors' appetite for this kind of assets.[48] There was also an attempt to create a single "new" European Stock Exchange with

47 ECB Monthly Bulletin, October 2005.

48 Such as the Nouveau Marché in France, the Neuer Markt in Germany, the Nieuwe Markt in the Netherlands, the Nuovo Mercato in Italy, the Nuevo Mercado in Spain, the Alternative Investment Market (AIM) in the UK, and the Easdaq and Euro.Nm in Belgium.

Chart 11 Number of IPOs and SPOs by non-financial corporations in the euro area

(sum of issues; annual data)



Source: Thomson Financial Database.

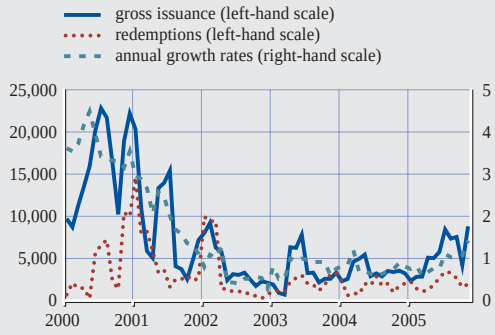
Chart 12 The share of number of industrial and TMT IPO over the total number of IPOs

(percentages)

Source: Thomson Financial Database.

Chart 13 Quoted shares issuance by non-financial corporations

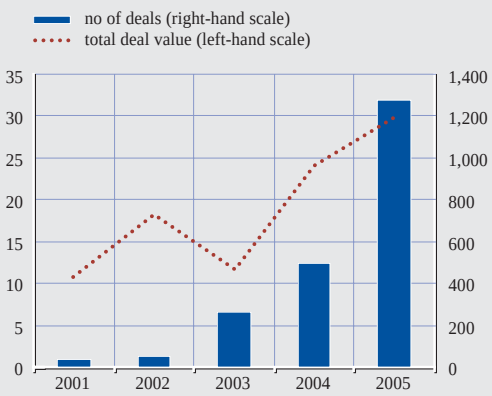
(annual growth rates and gross transactions in EUR millions)



Sources: ECB.

Chart 14 Euro area share buybacks by non-financial corporations, total deal value and number of deals

(EUR billions and number of deals)



Sources: Bureau Van Dijk (Zephir database).

the alliance of five new markets (Frankfurt, Paris, Amsterdam, Milan and Brussels) into the so-called Euro.nm,[49] which however ended in December 2000 as a result of a reduction in the growth expectations of the new markets and several corporate governance scandals. The most prominent of these new markets, the German Neuer Markt, closed down in 2003, and most of the companies still listed were moved to the ordinary stock exchange. More recently, some new exchange-regulated market segments have opened up such as Alternext (the Euronext exchange-regulated segment), IEX in Ireland and Expandi in Italy.

More generally, the slowdown in equity issuance after the peaks reached at around the turn of the century is even more marked in terms of net issuance developments (i.e. not just IPOs) (see Chart 13). This can also partly be attributed to the increase in share buyback activity by euro area companies in recent years (see Chart 14). The decline in the recourse to equity in net terms does not seem to be related to structural deficiencies of the euro area markets, but rather to a broader trend. In this respect, net new share issuance activity declined in all the major economies, with the most extreme case being the US, where it remained negative for several years. The main reasons behind the much lower net recourse to equity financing in recent years were the collapse in share prices after the bursting of the New Economy bubble, low interest rates and a shrinking financing gap. In this respect, the very low cost of debt financing has probably favoured the substitution of debt for equity capital in recent years, as Box 5 below suggests.

49 The adoption of uniform admission and trading requirements and the possibility for investors to access all the involved markets through a common interface were the main rationales underlying the creation of the Euro.Nm.

Box 5

THE COST OF CAPITAL FOR EURO AREA CORPORATIONS

To assess the financing decisions of euro area corporations, it is necessary to calculate the cost of capital, which should include the costs of different forms of financing, and in particular the cost of raising funds via equity and via debt (both market-based debt and bank loans). The weighted average cost of capital can be written as:

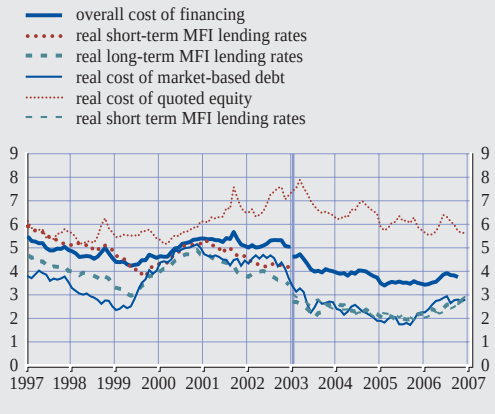
$$C = r_D \frac{D}{D+E} + r_E \frac{E}{D+E}$$

where r_D and r_E are the cost of debt financing and equity financing respectively, and D and E are the amount outstanding of corporate debt and corporate equity. The real cost of external financing of non-financial corporations is calculated as a weighted average of the cost of bank lending, the cost of debt securities and the cost of equity, based on their respective amounts outstanding, and deflated by inflation expectations.

The costs of the different means of financing for the euro area are shown in Chart A. Equity financing is normally a costlier way of raising funds for euro area corporations, while the cost of market-based debt tends to be close to the cost of bank financing. Given the structure of the euro area financial system and the importance of bank loans for corporate financing, bank lending rates play an important role in defining the cost of funding. Nominal interest rates for bank loans aggregated at the euro area level are shown in Chart B for three different maturity classes. It is interesting to note that the cost of bank financing is not directly linked to the maturity of the loans, i.e. the rates are not always higher for longer maturities. This result may

Chart A Real financing costs of non-financial corporations according to source

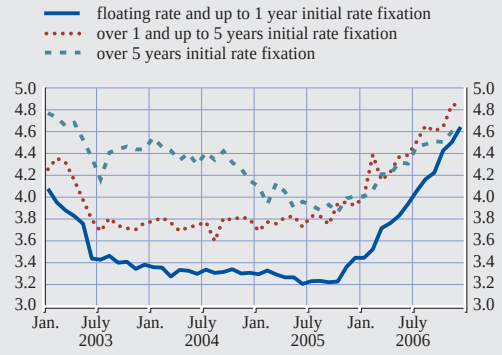
(percent per annum, monthly data)



Sources: ECB, Thomson Financial Datastream, Merrill Lynch and Consensus Economics Forecast.
Notes: The real cost of the external financing of non-financial corporations is calculated as a weighted average of the cost of bank lending, the cost of debt securities and the cost of equity, based on their respective amounts outstanding and deflated by inflation expectations. The introduction of the harmonised MFI lending rates at the beginning of 2003 led to a break in the statistical series.

Chart B Nominal interest rates on new business MFI loans to non-financial corporations

(percent per annum; monthly averages)



Sources: ECB.
Notes: Within each fixation category rates are weighted averages between loans up to EUR 1 million and over 1 million, respectively. New business volumes have been used as weights.

partly reflect a yield curve that is at times negatively sloped or different volumes of transactions across maturities, coupled with the fact that short-term loans (especially overdrafts) are in general less collateralised.

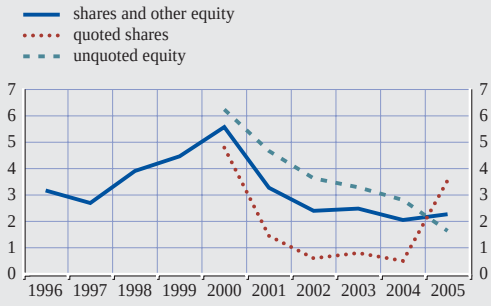
A key element for the calculation of the cost of capital is the cost of equity, the return required by investors willing to invest in companies' shares. As such, it is not directly observable and needs to be estimated. The cost of equity shown in Chart A is calculated using the Three-stage Gordon Dividend Discount Model (DDM) approach as applied by Fuller and Hsia (1984),[1] based on the idea that the current equity price is the discounted value of future dividends. The main advantage of this approach is the use of forward-looking information. At the same time, however, it relies on a set of strong assumptions concerning future developments of dividends and earnings; in addition, the cost of equity calculated as such tends to respond little to current movements in stock prices, due to the infinite horizon of the discounting. A different approach is to use an asset-pricing model (such as the Capital Asset Pricing Model (CAPM)) and explain equity returns through their correlation with a set of common factors, in particular the return on the market portfolio.

1 See Fuller and Hsia (2004).

Data on the euro area financial accounts allow us to consider – at a lower frequency than other sources – developments in unquoted equity, which comprises a very large component of equity funding in the euro area. Chart 15 shows how the decline in unquoted equity since 2000 has been less marked than for quoted equity. More recently, however, financial accounts data show a marked increase in quoted equity funding in 2004 and 2005, whereas the growth rate of funding via unquoted equity has continued to decline.

Chart 15 Equity financing of non-financial corporations in the euro area

(in growth rates)



Sources: ECB annual national and financial accounts. 2005 data are preliminary ECB estimates.

4.2 FINANCIAL INNOVATIONS AND NEW FINANCING AVENUES FOR CORPORATIONS

One of the most important innovations in credit markets in recent years has been the spectacular growth in credit transfer techniques. From a corporate finance perspective, it is important to understand how innovations in credit markets have altered the dynamics of corporate lending between banks and markets, and to assess whether they have increased the total amount of credit available for corporate borrowers. Overall, these techniques – which include securitisation and credit derivatives – allow banks to shift corporate and households' bank loans off their balance sheet and onto the financial markets, thus improving asset diversification.[50] As a result of the use of these instruments, banks seem to be progressively assuming a new role in which they are managing and trading credit risk more actively.

50 In common with most derivatives, credit derivatives can also be used – often by sophisticated financial intermediaries such as hedge funds – as a source of revenue, thus increasing credit risk exposure.

In the course of the past decade, banks have increasingly made recourse to the sale of loans to shed credit risk and to increase funding, initially mainly regarding residential mortgages, but more recently also for loans to non-financial corporations. In addition, over the past few years banks have been able to retain loans in their portfolio and, at the same time, to sell their credit risk exposure via credit derivatives. This included credit default swaps (CDSs) or the sale of bonds embedding hedging products (see sub-sections 4.2.1 and 4.2.2). The possibility of hedging loans has in turn contributed to the significant expansion of syndicated loans (see sub-section 4.2.3). From a corporate financing perspective, corporations have become increasingly aware of the possibilities open to them and have benefited from easier access to credit from banks, which are now able to mobilise significant amounts of financing in a very short period of time.

Market participants from a variety of large key financial institutions were contacted in the course of a fact-finding mission which confirmed the relevance of the current financial innovations in reshaping the dynamics of corporate financing (see Box 6 for more details). Market participants also stressed the increasing sophistication of corporate treasurers and chief financial officers. The increasing familiarity with new products has put corporations in a better position to exploit fully funding possibilities, for example by switching from bond to bank funding, or by changing the leverage of firms (for example via share buybacks) according to market conditions.

SECURITISATION OF BANK LOANS[51]

In recent years, the dramatic increase in the use of securitisation techniques is probably the most significant example of how financial innovation can affect corporate credit in the euro area. In broad terms, standard securitisation involves the pooling of (financial) assets and their subsequent sale, usually via a special purpose vehicle (SPV), which issues asset-backed securities (ABS) that are often bought by institutional investors to finance the purchase of pooled assets. ABS can be split into tranches of different seniority, thereby catering for diverse credit risk profiles, which are in turn characterised by different credit ratings. Often the originator of the assets – in this case the bank – retains the tranche bearing the highest risk to signal the alignment of its interest to that of its investors. In addition, this creates an incentive for the originator to continue to monitor the credit quality of the underlying assets.

When the assets are effectively moved off the bank's balance sheet, as in the case above, this is called a *true sale* or a *cash* securitisation. When purely the risk of the assets is sold, but the assets themselves remain on the balance sheet of the originator, this is called a synthetic securitisation. A synthetic securitisation is normally carried out with the use of credit derivatives, such as CDS, which are often embedded in bonds (normally called synthetic credit default obligations).

Banks have securitised an increasingly wide range of financial assets in recent years, and this has given birth to an equally wide range of different sorts of ABS. The most commonly securitised assets were initially mortgages.[52] In recent years, more sophisticated forms of securitisation have been developed, and banks can now securitise a large portion of their corporate and consumer credit portfolio. Non-financial companies can also directly resort to securitisation techniques.

Focusing on the drivers of securitisation, it is worth mentioning that technological advances have enabled the development of sophisticated financial transactions that require complicated calculations and processing of financial data. The dramatic improvements in data storage

51 A large literature on securitisation and structured finance has evolved in recent years. See for instance BIS (2004, 2005a and 2005b) and Schwarcz (1994) for a comprehensive discussion of securitisation.

52 In practice, two types of mortgage-backed securities (MBS) are distinguished: securities backed by residential mortgages (RMBS), and securities backed by commercial mortgages (CMBS).

have also contributed to these developments, as the accuracy of the pricing of these financial products depends to a large extent on data availability.

From an economic standpoint, the demand for structured products has grown rapidly, as they allow investors to invest in assets that have a very specific, sometimes even tailor-made, risk-return profile. The very low interest rate environment has stimulated securitisation for at least two reasons. First, low interest rates have increased the credit demand of the private sector, which has enabled banks to increase their issuance of loans, thus increasing considerably the amount of assets eligible for securitisation. Second, the demand for structured products has also increased due to the search for yield, especially on the side of institutional investors, as ABS have a relatively favourable risk-reward trade-off. For instance, the demand for ABS has increased in particular from institutional investors that need to achieve a certain minimum return (such as hedge funds or pension funds).[53]

Banks have an incentive to securitise assets to realise immediately the cash value of the originated assets, or simply as a tool for raising liquid funds.[54] In this respect, the new rules on regulatory capital (Basel II) may create an incentive for banks to use sophisticated techniques in order to manage their exposure and diversify credit risk. From the viewpoint of corporations, securitisation has most likely increased the availability of funds, as banks have become more willing to lend funds.

4.2.1 BROAD DEVELOPMENTS IN SECURITISATION

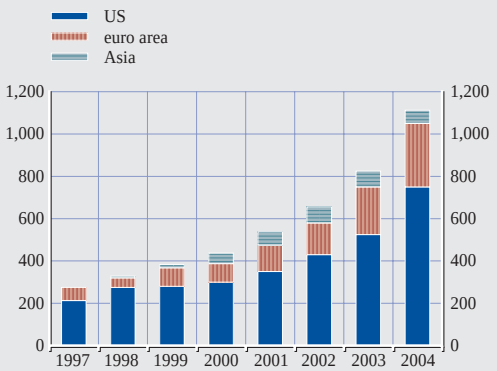
In recent years the size of the market for structured products (including true and synthetic securitisation) has expanded rapidly (at about 30% per annum in the euro area, see Chart 16), as has the range of ABS. In the Eurosystem's official statistics, most of the securities issued by SPVs are included in debt securities issued by non-monetary financial corporations, which have indeed been growing very strongly in recent years (see Chart 17).

Regarding the so-called true securitisation, the UK is the leading country in Europe in terms of securitisation transactions (see

53 See Rajan (2005).
54 See for instance Firla-Cuchra (2005), Rajan (2005), Iacobucci and Winter (2005) or Schwarcz (1994).

Chart 16 Total funded structured finance issuance by region

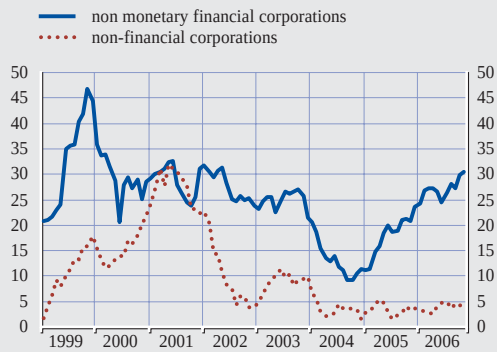
(in billions of US dollars; data include cash issuance and funded portion of synthetics)



Source: BIS.

Chart 17 Sectoral breakdown of debt securities issued by sector

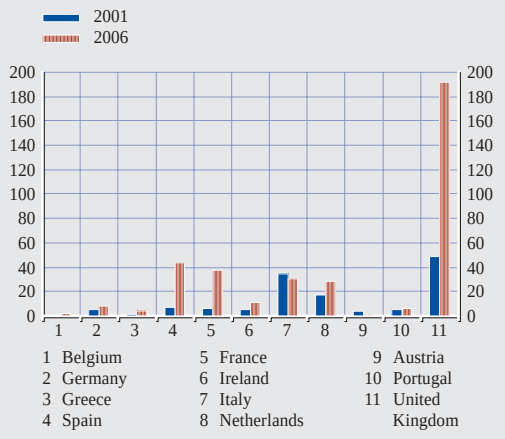
(annual growth rates)



Source: ECB
Notes: Non-monetary financial corporations include insurance corporations and pension funds, financial auxiliaries and other financial intermediaries.

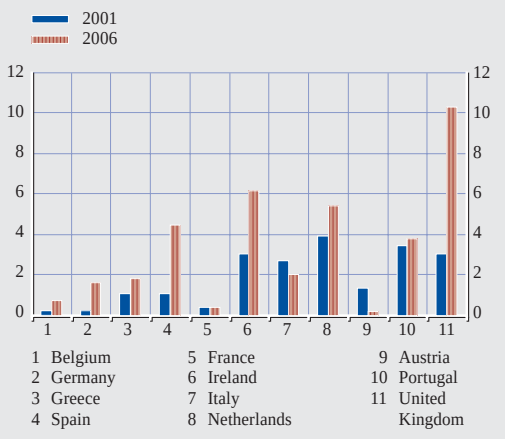
Chart 18 European securitisation. Issuance by country

(EUR billions)



Source: European Securitisation Forum.
Note: Data for 2006 excludes CDOs.

Chart 19 European securitisation. Issuance by country, as a percentage of GDP



Sources: European Securitisation Forum and own calculations.
Note:Data for 2006 excludes CDOs.

Charts 18 and 19). The market for structured products has in similar fashion increased considerably in Spain, the Netherlands, Germany, Italy and Ireland. With respect to the types of ABS issued, the largest class remains mortgage-backed securities – which is therefore not importantly linked with non-financial corporations – with a growth rate of approximately 30% per annum (see Chart 20). More recently, collateralised debt obligations (CDOs), which to a large extent include credit risk position toward enterprises, have also increased very significantly. According to the European Securitisation Forum, in 2006 the issuance of CDO securities in euro amounted to €88 billion, an increase of 80% on the previous year.[55] In addition, the so-called commercial mortgage-backed securities, i.e. bonds collateralised with mortgage loans for commercial properties, increased in euro area countries, from around €10 billion to almost 25 billion, with Germany mostly driving the growth.

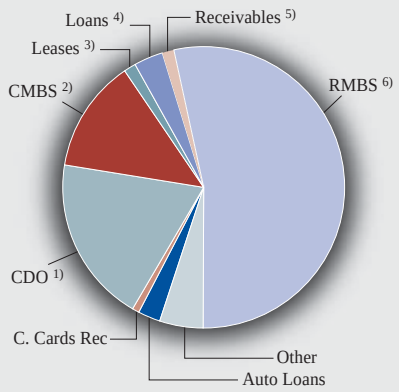
As already mentioned, so-called synthetic securitisation is normally conducted via CDS. A CDS is an agreement between a protection buyer and a protection seller, whereby the buyer pays a periodic fee in return for a contingent payment by the seller following a credit event. In case a bank is seeking to reduce its exposure towards a particular asset, it can buy protection against the default risk by paying a periodic fee to an investor (often an institutional investor) that sells the protection. Overall, CDS allow banks and investors to reduce or increase risk exposure on a flexible basis.

The market for CDS has leaped over the past few years. The total estimated notional amount outstanding of credit derivatives exceeded €15 trillion in 2006, according to estimates by the British Bankers' Association and the BIS (see Chart 21). It is worth mentioning that the heading "credit derivatives" encompasses a large variety of products ranging from simple bilateral CDS between two counterparties to portfolio of CDS embedded in bonds (e.g. in synthetic or bespoke CDOs). It is also interesting to note that a survey conducted by the British Bankers' Association in 2004 expected the market by 2006 to reach a size of around only 40% of what has actually prevailed.

55 This figure includes funded cash and synthetic deals.

Chart 20 European securitisation. Issuance by collateral

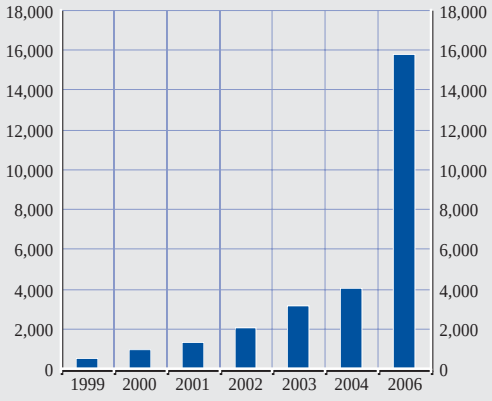
(EUR billions; 2006 data)



Source: European Securitisation Forum (2006).
1) CDO securities issued in Euros.
2) commercial mortgage-backed securities.
3) includes equipment and other leases.
4) includes leveraged, commercial, consumer, corporate; and other loans.
5) includes account, health care, insurance utility and other receivables.
6) residential mortgage-backed securities.

Chart 21 Global credit default swaps market

(EUR billions)



Source: British Bankers' Association.

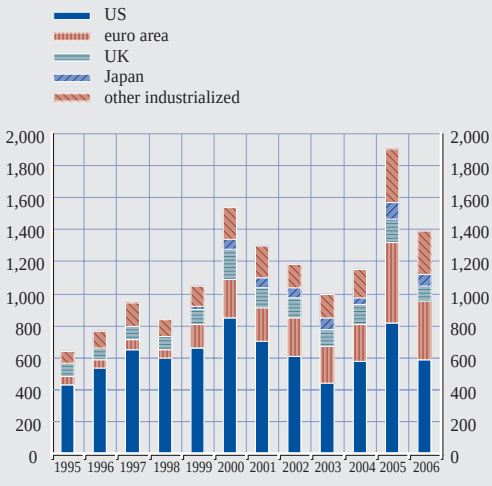
The above-mentioned developments in securitisation and CDS could have indirectly impacted on the availability of financing to firms. The spreading of risk from the banking sector to the whole financial system may indeed have caused a shift in the loan supply, altering the quantity and price of debt financing potentially available to non-financial corporations. However, a precise assessment is difficult given the scarcity of evidence, the novelty of this phenomenon, and the difficulty of disentangling possible structural features from conjunctural ones, connected to ample liquidity, low interest rates and a high appetite for yield on the investors' side (see also Box 6).

4.2.2 THE DEVELOPMENT OF THE SYNDICATED LOAN MARKET TO CORPORATE BORROWERS

One of the main sources of corporate financing for borrowers is the syndicated loan market. Although syndicated loans have a long history, the global volume of international syndicated loan facilities has risen tremendously over the last few decades, increasing in size from USD 7 billion in 1970 to over USD 3.5 trillion by 2005. The expansion of the syndicated loan markets in the euro area has also seen its transformation from a relatively illiquid market, in which banks agreed to syndicate lines of

Chart 22 Syndicated loans granted to borrowers from industrialised countries

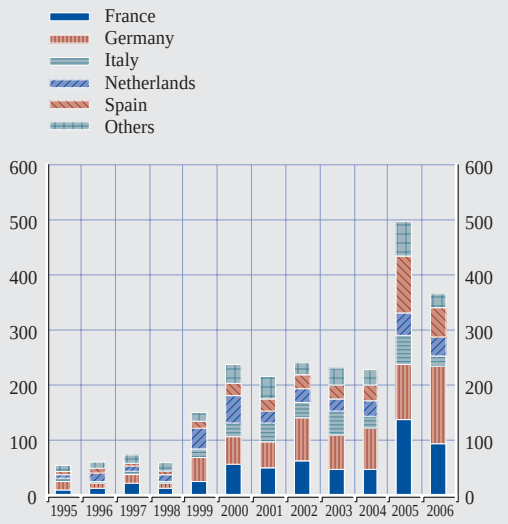
(billions of US Dollars)



Source: Dealogic.

Chart 23 Signings of syndicated loans by EMU borrowers

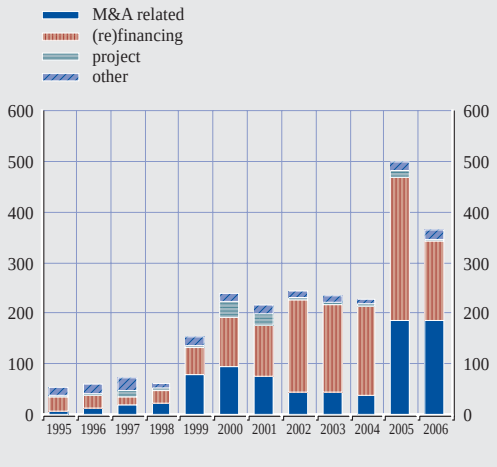
(EUR billions)



Source: Dealogic. 2006 includes data until June only.

Chart 24 Distribution of syndicated loans by purpose

(EUR billions)



Source: Dealogic.

credit to normally very large borrowers, into a more competitive market with a much more liquid secondary market and in which there are strong connections with other financial market players such as private equity firms, hedge funds and other institutional investors. As an instrument combining features of bilateral relationship lending and publicly traded debt, syndicated loans broaden access to capital in the euro area by constituting an alternative to high-yield bonds and more illiquid bilateral loans.

From a borrower's perspective, the primary reason for preferring syndicated loans is the sizeable amount and quicker availability of finance that this market provides. Firms not willing to issue public debt due to disclosure concerns and in need of large loans that bilateral lending transactions cannot provide consider syndicated loans as an option. Firms with high growth potential that are also subject to high levels of asymmetric information might also prefer loan markets which can offer cheaper funds in comparison to the bond market. In fact, the composition of syndicated loans by borrowing sector reveals that manufacturing and high-tech industries are the principal customers for syndicated loans in the euro area. The likelihood of renegotiation in case of financial stress is another rationale for firms preferring a syndicated loan; the large number of parties involved in a public issue makes it extremely difficult to renegotiate effectively the terms of debt agreements, as any new agreement must involve the consensus of all parties involved. Syndicated loans also offer a number of administrative advantages.

From a lender's point of view, banks are increasingly engaging in syndicated lending as these instruments enable them to spread risks more effectively by diversifying sector and geographical specialisation from the origination business. They also allow banks to reduce their monitoring and operating costs and to provide credit to large borrowers without supplying the full amount of finance. This is particularly relevant in Europe, where cross-border bank lending activity remains very limited. Fees involved in the syndication process may also be a motivation as these can be quite substantial,

particularly in the case of leveraged deals where large global banks act as arrangers.

The fact that syndicated loans offer the possibility of raising larger amounts of finance at attractive terms within a tight time frame has made them a powerful financial tool for strategic corporate transactions such as M&As. In fact, given the decline in interest rates, syndicated loans have in recent years, besides being used for debt repayment purposes, been increasingly used for M&A and leveraged buyout (LBO) funding. Their growth in the late 1990s and early 2000s (see Chart 22) was also supported by the establishment of secondary loan markets and by the emergence of credit derivatives markets, which allowed bank originators to shed part of their credit risk and to attract institutional investors to the markets. The secondary market for syndicated loans has been supported in turn by increased transparency, greater use of credit ratings, and structured credit financial innovation.

Within the euro area, German and French firms are the main clients of the syndicated loan market, followed by Spanish and Italian borrowers (see Chart 23). The share of loans extended to euro area borrowers and issued for financing M&A activity increased dramatically in 2005 and 2006 (see Chart 24).

As indicated earlier, the introduction of the single currency in Europe has accelerated the integration process in most financial market segments in Europe.[56] In this respect, while loan markets are among the less integrated financial markets, particularly at the retail level, the increase in competition in the syndicated loan market is increasing the integration of the corporate loan market.

The total volume of syndicated lending to euro area firms in 2005 was approximately 7.5 times the level seen in 1998. In contrast, during the same period, syndicated lending in the US and the UK grew by 37% and 95% respectively. While the US dollar has historically been the preferred currency for issuing debt in this market, this trend changed significantly after the launch of the euro. In 1998 barely 5% of global syndicated loans were denominated in pre-euro European currencies, with the vast majority (over 80%) of loans denominated in US dollars. Today, rising progressively after 1999, euro-denominated loans constitute more than 20% of the total debt issued in the syndicated loan market. A similar pattern can be observed for European-based firms, which now prefer to borrow in euro.

56 See for example Hartmann et al. (2003) and Baele et al. (2004).

Box 6

FACT-FINDING EXERCISE WITH MARKET PARTICIPANTS

At the end of 2006 a fact-finding exercise was carried out with a number of selected major financial players involved in the process of underwriting or granting credit to non-financial corporations. In general, most market participants agreed that credit markets have significantly changed in the euro area over the last few years. This change is partly due to conjunctural factors (ample liquidity and the search for yield), but also to structural ones (financial innovation). This process has consequences in terms of the products to be used from a corporate financing perspective, but it is also perceived to have significant macroeconomic implications. For instance, due to securitisation and general structured credit innovation, the amount of credit available to non-financial corporations via the banking sector is deemed to have increased in recent years. This Box summarises the main views of market participants.

Credit

Most market participants agreed that the current environment of low rates and ample liquidity is having a significant impact on the price of credit, compressing corporate spreads and making "cheap finance" currently available even for the riskier segments of borrowers.

The low cost of corporate debt has made it a very attractive alternative for borrowers compared to equity financing. The relatively low cost of debt also strongly supports M&A activity. In this respect, private equity firms are also enjoying favourable conditions for raising additional funds for acquisition purposes, often via the banking sector in the form of syndicated loans.

However, market participants expressed differing views on the current levels of the credit cycle. Some institutions expressed their concern about the current levels of credit spreads, and a number of debt arrangers went as far as saying that credit spreads were "absurdly benign". Certain agents mentioned that this could mark the peak of the credit cycle. Interesting enough, a few credit market analysts noted that from a historical point of view, "turnarounds" of the credit cycle are often non-linear and could be quite steep, and that under such a scenario, they would expect a significant effect on loan granting. According to most observers, the expected worsening of credit conditions has been anticipated (and progressively postponed) for some months but to date has yet failed to materialise, even though its likelihood has increased.

Corporate financing

One major development quoted by most institutions was the considerable change of corporate financing patterns, as a consequence of the new role played by banks in moving from balance sheet intermediation to risk intermediation. Banks are now increasingly acting as merely the initial originators of loans, shifting credit risk to the capital markets and other intermediaries through credit derivatives and securitisation. The fact that a rising level of bank exposure has exited the banking system also explains not only the resilience of the banking sector but also the stable supply of credit in recent years, despite a few significant episodes of corporate distress.

The changing role of banks has been driven by a number of factors. First, short-term pressure for banks to perform from banks' shareholders (and to a lesser extent by other stakeholders in the case of savings banks) has increased. Second, financial innovation and risk management techniques have allowed banks to shift credit risk to the markets, as well as to quantify better their own internal risks position. These developments are also used for internal capital decision allocation. On the demand side, the search for yield by investors, which has been directed towards credit derivatives and new asset classes such as CDOs, often client-customised, credit loan obligations (CLOs) or ABS, has also encouraged this new role of banks.

For securitisation, 2006 was a record year in terms of volumes on the euro area markets, and this trend is expected to continue in 2007. Focusing on the investor side, the banking sector, traditionally the largest buyer of these instruments, has significantly decreased its share, while insurance corporations, pension funds and hedge funds have substantially increased theirs. CDO and CLO markets are among the fastest growing segments. Overall, cash and synthetic credit risk transfer (CRT) instruments are developing very rapidly and going down the rating curve. According to some universal banks interviewed, these institutions could now potentially

be hedging around 80% of their overall credit exposure, up from around 50% just three years ago.

Securitisation of SME loans remains relatively limited. Without sufficient standardisation in loans, the setting up a securitisation of a pool of SME loans and structuring the whole deal remains costly (Germany and Spain have seen some significant SME securitisation in recent years, but this has often been linked to regulatory developments and public sector intervention).[1] On the other hand, in the case of securitisation, financial innovation has dropped on the rating scale, also given the increased skills and experience acquired by intermediaries and arrangers and investor demand, and is progressively trickling down to SMEs.

Syndicated loan market activity has reached record levels, in both investment-grade and leveraged finance, mainly propelled by M&As and leveraged buyout activity, again taking advantage of available cheap finance and strong liquidity.

Overall, developments in structured credit (including securitisation and credit derivatives) and recent developments in loan syndication are expected to have structurally impacted both the potential volume of loans available to corporations and the smoothness of the credit cycle. According to many institutions, even if the track record is not long enough to allow for a meaningful quantitative analysis, financial innovation and the changed role of banks have indeed increased the potential loan supply. On the other hand, there is no consensus on whether financial innovation has smoothed the credit cycle. This kind of analysis is also complicated by the fact that in the past few years, financial innovation has taken place in an environment of ample liquidity, very low rates and spreads and low default rates. In such an environment, assessing which developments are structural and which ones could be reversed by a turn in the credit cycle is not straightforward.

Financial structure

Non-financial corporations are at present managing their financial structure more actively than just a few years ago, due to different factors. There is currently more pressure for maximising shareholder value; there is greater awareness of the difference in tax treatment and of the different prices of financial instruments; and cultural factors connected to a generational change of European managers are at work. Financial innovation has broadly enlarged the set of instruments potentially available for raising equity and debt finance. This more active attitude towards the management of corporations' capital structure was in the past mainly a feature of large firms, but has now started to trickle down to smaller companies, family-owned firms and SMEs.

The Basel II accord is expected to be a significant driving force behind improvements in the management of financial structure. Indeed, the accord contains various provisions that encourage the extension of credit rating to all companies, not just those that have had recourse to the bond markets. More companies are therefore expected to pay more attention to their credit rating.

1 In France the Loi Dailly scheme, established in the early 1980s, enables companies to finance their working capital assets (inventories, claims on customers) on a dematerialised basis, and actually can be regarded as a substitute for securitisation.

Firms may have more opportunities to target a certain level of rating. In this respect, there is a tendency towards a higher level of gearing and migrating down the rating scale. Due also to existing ample liquidity, downgrades are now less likely to have a strong impact on corporate financing conditions. Overall, most analysts agreed that there has been a strong increase in corporate debt in the last two years. The funding of this increase has often been used to engage in M&A activity.

Regarding the use of corporate bonds, recent years have been characterised by sustained growth in corporate bond issuance. The revenues from such issuance have recently been used for refinancing old debt, for distributing higher dividends in the short-term, for real activity investment, for financing M&A activities and also for buying back own shares. In the latter case, the direct effect is an increase in ROE and an increase in corporate leverage. Among the different segments of the corporate bond market, the high-yield market segment has grown most significantly, although it continues to be relatively reduced when compared to the US, and investor demand for this kind of paper remains strong. Within the high-yield bond segment, the credit quality of the average bond has declined significantly, with the share of B and CCC-rated bonds rapidly growing. While a larger high-yield bond market is perceived by market participants to be a structural development, this trend has been supported by a more conjunctural component, linked to the ample levels of market liquidity and the still high risk appetite of investors.

4.3 NEW FINANCIAL MARKET PLAYERS: INSTITUTIONAL INVESTORS AND PRIVATE EQUITY FUNDS

The very significant growth in the role of non-bank financial market players is one of the most considerable developments to have taken place in the financial structure of the euro area in recent years. The existence of non-bank financial market players has at least three main effects from a corporate finance perspective. First, they strengthen the supply of funds to non-financial corporations directly by buying corporate bonds or equities. Second, by having significant corporate ownership participations in the euro area, they can impose market discipline and influence the behaviour of non-financial corporations. Third, they allow banks to diversify credit risk more effectively through their role as buyers of risk.

This section aims to explain briefly the latest developments with regard to these new financial factors and argue that further analysis of their incentives and their potential impact on the transmission of monetary policy is warranted.[57]

An important feature that most institutional investors share is that they play a role as a delegated monitor of investors, both households and corporations – a role that in the past was overwhelmingly undertaken by banks. The most relevant institutional investors from a corporate finance perspective are examined below. The selection is not designed to be exhaustive, but instead aims to cover the intermediaries that are most relevant either due to their size (pension funds and insurance companies), their impact on corporate governance (such as hedge funds and private equity funds), or their importance as financial providers at the earlier stages of firm creation (venture capital). Box 7 presents in detail some of the most recent developments related to corporate governance, and the role played by the composition and concentration of ownership.

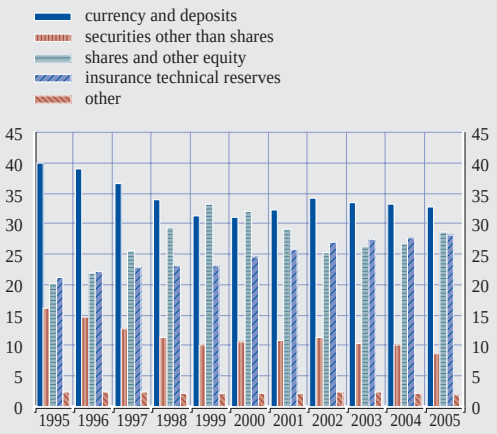
4.3.1 INSTITUTIONAL INVESTORS

Institutional investors include insurance companies, pension funds and investment companies, such as mutual funds and hedge

57 See Rajan (2005).

Chart 25 Households allocation of main financial assets

(% of total financial assets)



Source ECB.
Note: Data for 2005 are preliminary estimates.

funds, that are investment vehicles in their own right. Overall, they are defined as specialised financial institutions that manage savings collectively on behalf of other investors towards a specific objective in terms of acceptable risk, returns and maturity of claims (Davis, 2001). Institutional investors' liabilities are the dominant asset class in household portfolios in several countries, as they facilitate an efficient allocation of household resources by providing them with a means of pooling savings and diversifying risks.

Against a background of ageing populations and rising longevity, a larger proportion of household savings is now being placed in private-funded pension schemes and life insurance policies, therefore providing institutional investors with more funds (see Chart 25). Experience in some countries has shown that the development of private pension funds is often inversely related to the degree of generosity of the social security systems. Moreover, tax benefits associated with life insurance contracts are an important reason for their popularity as savings vehicles.[58]

The increasing importance of the investment of households in pension funds and in insurance contracts mirrors the decline of investment in currency and deposits, and is broadly in line with the increase in corporate market financing. That is, the increase in their relevance tends to lead to newer forms of financing of enterprises, which prefer to purchase instruments issued on the market to traditional bank intermediation.

Reflecting the increased role of institutional investors, the volume of financial assets held by euro area insurance corporations and pension funds has risen from end-1997 to mid-2006 by 96%, to reach around 4,900 billion (see Chart 26). Securities other than shares are the dominant asset class, worth around 1,900 billion and increasing by 98% during the reference period. Amounts outstanding of quoted shares and mutual fund shares remained more limited (at around 900 and 1,000 billion respectively), but have still grown faster than other investments (110% and 205% from early-1997 to mid-2006 respectively). Other asset classes have less quantitative relevance.

Insurance corporations have in the past predominantly invested in high-quality long-term bonds to match the duration of their liabilities. Therefore government bonds, in particular ones issued by EU and OECD countries, continue to represent – albeit to a lesser extent than in the past – the bulk of their portfolios. For pension funds, the impressive rise in investment in mutual fund shares may reflect the ongoing transition from defined benefit to defined contribution plans, extended portfolio diversification or the increasing importance of alternative investment in real estate funds, hedge funds or private equity funds. In general, there is evidence that pension funds tend to contribute to the efficiency and liquidity of financial markets, fostering innovation and competition among intermediaries and increaseing the available funds for firms. They also contribute to the efficient monitoring of listed firms, with favourable effects on transparency and on corporate governance.

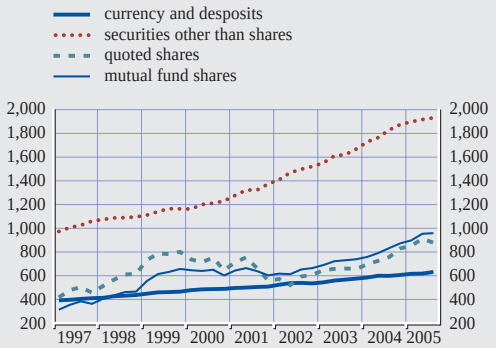
58 See BIS (2006).

Overall, institutional investors have become an increasingly important saving medium for households, which are in turn indirectly investing in equity and corporate bonds issued by non-financial corporations. These investments in financial market instruments are managed by professional fund managers, who act as delegated monitors of savers. Hence, fund managers' incentives could have an effect on their investing behaviour, thereby affecting the relative prices and issuance of some corporate financing instruments. In this respect, two major trends can be identified: the emphasis on short-term benchmarking, and absolute returns evaluation.

Referring to the first, fund managers are increasingly evaluated according to their relative performance in relation to a comparable index or benchmark. The performance evaluation of fund managers often takes place at relatively short time periods, even if the contractual liabilities of managed funds are often of long duration, as in the case of pension funds and insurance corporations. This could lead to excessively short-term views being taken on fund managers' investment behaviour. Regarding the second trend, absolute returns assessment is focused on evaluating performance against an optimal portfolio composition including several investment products, rather than making an evaluation linked to a specific investment product such as equities or bonds, or to a certain geographical area. In this respect, in the currently low global interest rate environment, many institutional investors have been looking for ways to gain additional yield. For instance, by investing in credit risk via credit derivatives or CDOs, some fund managers could improve their performance while at the same time obtaining additional credit exposure, the risk and value of which might be difficult to ascertain. While quantitative information regarding the actual investments made by institutional investors in these products is scarce, there is however some tentative evidence that there has been recently a significant shift of credit risk outside the banking system. According to a recent survey by Fitch Ratings[59] covering 75 major financial institutions, a substantial amount of credit risk was shifted out of the traditional banking system in the period 2002-2006. This is in line with the results of the fact-finding exercise described in Box 6.

Chart 26 Financial assets of insurance corporations and pension funds in the euro area

(EUR billions)



Source: ECB.

Turning to hedge funds, these intermediaries are unregulated or loosely regulated funds which can freely use various active investment strategies to target positive absolute returns. Hedge funds typically operate as limited partnerships or limited liability companies which often chose to register offshore, in order to minimise reporting and regulatory requirements. Their shares are normally offered only via private placements. Compared to traditional asset management, hedge funds have greater latitude in their active management, and often apply investment techniques such as short-selling (the selling of borrowed securities) or strong leverage (expanding trading positions with borrowed money). They are subject to few or no restrictions regarding the type of instruments they can invest in, and generally change their portfolio composition much more

59 Fitch Ratings, "Global Credit Derivatives Survey: Indices Dominate Growth as Banks' Risk Position Shifts", September 2006. See also ECB, "Financial Stability Review", December 2006.

frequently than traditional funds.[60] Often hedge funds directly engage in corporate financing for a very short time period.

For many institutional investors, placements in hedge funds represent an alternative investment due to uncorrelated returns, which therefore offers an interesting opportunity to diversify their portfolio. Initially restricted to institutional and very sophisticated investors, hedge funds have become increasingly accessible to a broader circle of investors. On average, the investment yield of hedge funds shows little correlation with that of equity or bond indices, and they therefore offer opportunities for risk diversification.[61]

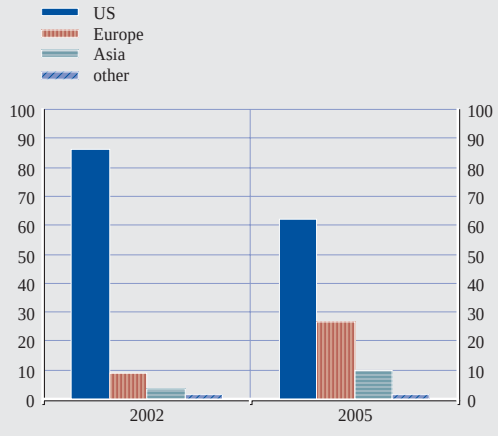
The overall size of hedge funds is still relatively limited, but their leverage and active role in markets makes them much more important than their size alone. As at the first quarter of 2006, the global hedge fund industry had an estimated USD 1.2 trillion of assets under management, a year-on-year increase of 13%. The global number of hedge funds increased to around 9,000 in 2005. In relative terms, at the end of 2004 assets managed by hedge funds represented 2.2% of the global assets managed by insurance, pension or other investment funds (up from 0.7% in 1998). Hedge funds located in or managed from the EU numbered around 1,250 in January 2006. They had assets of more than €300 billion (see Chart 27), and their share as a percentage of total investment is growing. For instance, in Europe 51% of institutional investors now invest in hedge funds. Pension funds in particular have expressed growing interest, as have insurance companies.[62]

Hedge funds are often active investors in corporate equity and active shareholders of the companies in which they invest. Hedge fund activism differs, quantitatively and qualitatively, from the more moderate forms of activism that traditional institutional investors engage in, and they often take a much more active corporate governance stance[63] with regard to corporations. The distinction between hedge funds and private equity funds can therefore

60 For more information on hedge fund characteristics and strategies, see also Garbaravicius and Dierick (2005) or European Commission (July 2006).
61 See Garbaravicius and Dierick (2005).
62 European Commission (2006).
63 See also Kahan and Rock (2006).

Chart 27 Global hedge funds by source of investment – regional breakdown

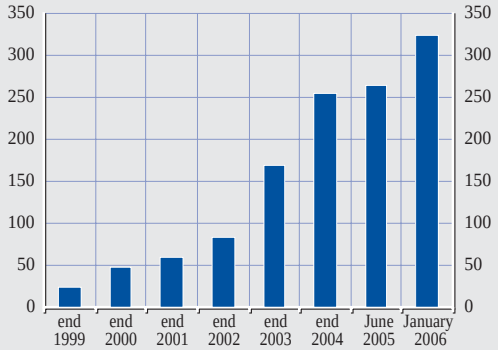
(as a percentage of total investment)



Source: European Commission.

Chart 28 Asset under investment of hedge funds located or managed in Europe

(EUR billions)



Source: European Commission.

sometimes be rather blurred. This activism takes a variety of forms, from putting public pressure on portfolio companies to change their business strategy, to running proxy contests to gain seats on the board of directors of portfolio companies, to litigating against present or former managers. An indirect effect of this activism is that it imposes market discipline; however, as in the case of private equity firms, hedge fund strategies might often be excessively oriented towards the short term.

4.3.2 PRIVATE EQUITY IN THE EURO AREA (VENTURE CAPITAL AND BUYOUT FUNDS)

The private equity markets provide medium or long-term equity or equity-linked finance for privately held firms at various stages of their life cycle. Private equity firms are professionally run investment firms which collect funds from investors and redirect them to firms in the form of risk capital.

The private equity industry is usually divided up into two separate activities.[64] Venture capital funds typically concentrate on the early-stage and expansion investments of growth-oriented firms, often expanding industries, whereas the buyout segment of private equity industry is involved in the acquisition and restructuring of existing, and usually large, companies in more mature industries.

Venture capital financing is mainly used by early-stage companies to start up business activities and to make the necessary investments in order to bring innovations onto the market. Traditional external financing instruments, such as bank loans, may not be available for such firms because of their low and uncertain cash flows, their lack of collateral and high informational asymmetries between the entrepreneur and the potential investors. Venture capital deals are frequently executed with a high proportion of equity[65] and are often complemented by more traditional financing methods. Venture capital is not, however, just another financing method, but also a source of management expertise for growth-oriented firms. A commonly expressed view is that the venture capital markets are not yet well developed in the euro area, and more activity would be desirable in order to boost innovation and productivity growth in the economy.[66]

The buyout segment typically concentrates on management acquisitions, i.e. on management buyouts (MBOs) or management buy-ins (MBIs) of more mature companies with established business plans, and is usually less risky than the venture capital segment.[67] The target companies of buyout funds can either be listed companies which have been taken private by the funds or large privately held companies.

The buyout segment of the private equity industry aims at improving the efficiency of mature firms with predictable cash flows by enforcing cost reductions, restructuring their management and organisation and/or selling off unprofitable parts of the target firms. Furthermore, buyout deals are often associated with high debt levels (which is why the press often refer to buyouts as LBOs), which may financially discipline the management and help to align the incentives of managers and owners.[68] Since buyouts are typically highly leveraged, the target firms need to generate large and steady cash flows in order to service their high debt payments, while buyouts are

64 This classification follows the definition of private equity used by the European Private Equity and Venture Capital Association (EVCA). EVCA statistics comprise the main data source used in this section. Some sources apply other classifications, so that private equity can for example in some cases purely refer to the buyout segment of the industry. For a discussion of the various conventions, see European Commission (2006b).

65 For a description of the venture capital financing process, see Tirole (2006) and Gompers and Lerner (1999).

66 See e.g. Bottazzi and Da Rin (2002), and European Commission (2006a and 2006b). Anecdotal evidence from several commentators (see fact-finding exercise, Box 6) also suggests that while overall corporate funding remains buoyant, the supply of venture capital funds continues to be scarce in Europe.

67 In an MBO, the current management of the target firm is involved, whereas in an MBI a new external management team buys the company and assumes responsibility for its management.

68 In addition to secured debt and equity, several other financing instruments that have both debt and equity features, such as mezzanine debt and preference shares, can be used to finance private equity deals.

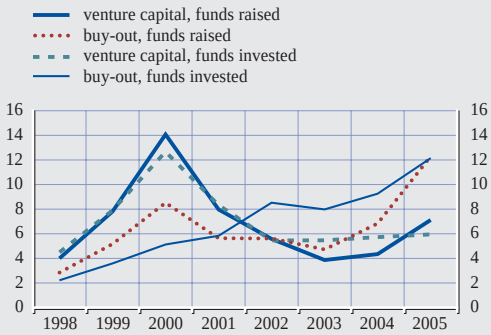
concentrated in mature industries, where cash flows are relatively stable. In Europe, the buyout segment of the industry has lately come in for some criticism, raising worries over the long-term credit quality of the companies that have been taken over. A more fundamental critique of the actions of private equity firms is based on the misalignment between the short to medium-term interest of private equity capitalists and the target companies' longer-term prospects.[69]

In the euro area, the private equity industry has undergone considerable changes in recent years (see Chart 29). While the rapid growth and the subsequent decline of venture capital investments at the turn of the century were mainly caused by the boom-bust cycle of the New Economy, the buyout segment has grown relatively steadily over the years. Consequently, the focus of private equity investments has shifted from early and expansion-stage investments to corporate acquisitions and industry restructurings in the buyout segment, which currently makes up around two-thirds of all investments in the industry.[70] By comparison, in 2005 buyouts comprised 73% of all investments in the UK. In the US, the relative sizes of the venture capital and buyout segments are quite similar to Europe, and the buyout segment comprised 61% of total private equity investment in 2004 (Jenkinson, 2006).

Despite the ongoing process of financial integration in Europe, over 80% of private equity investment in the euro area is directed towards domestic companies. Several reasons have been suggested to explain the reluctance of private equity companies to make cross-border investments. National differences in regulation and legal conventions, taxation and fiscal policy and cultural differences may impact on operating and administrative costs and hence the willingness to engage in cross-border investments. Therefore, investment and fundraising decisions may be more determined by these factors than by the business opportunities of companies themselves, and the efficient allocation of capital in Europe may thus be to some extent hindered.[71] On the other hand, the development of financial markets is deemed to contribute positively to capital reallocation from declining industries to industries with better growth prospects, an important determinant of productivity growth in the economy (Wurgler, 2000).

Chart 29 Funds raised and invested by private equity firms in the euro area

(EUR billions)



Source: EVCA.

In recent years the total venture capital investment relative to the size of the economy has stayed stable at around 0.075% of GDP in the euro area, but with relatively large differences across individual countries (see Chart 30). The relatively poor development of venture capital fundraising and investment compared to the buyout segment might be

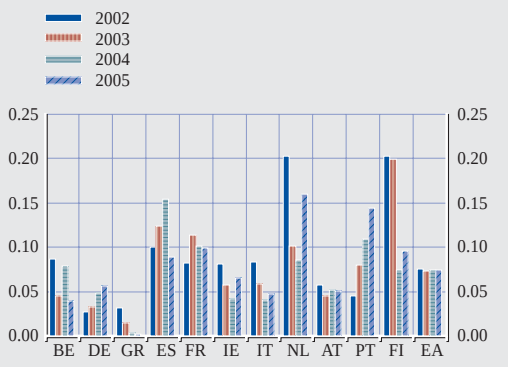
69 See Jenkinson (2006) and Bloomberg (2006).

70 The data on private equity collected by the EVCA consist of the funds raised and invested as risk capital by private equity firms. Hence, the data do not cover private equity activities by private persons (i.e. so-called business angels) or the debt financing associated with deals. Due to the latter fact in particular, the total amount of transactions and the economic significance of private equity are much greater than the figures show. The data include all euro area countries except Luxembourg. The data presented in this section describe private equity activities mostly by country of management, i.e. the country data reflect the amount of investments made by the private equity firms located in that particular country. Hence, the data utilised do not cover private equity investments made from abroad, e.g. by private equity firms from the UK and the US to the euro area, and may therefore be on the conservative side. Private equity investments by country of destination, i.e. by country of the target company, are only available for total private equity, and not separately for the venture capital and buyout segments.

71 See e.g. European Commission (2006b).

Chart 30 Venture capital investments by country of management

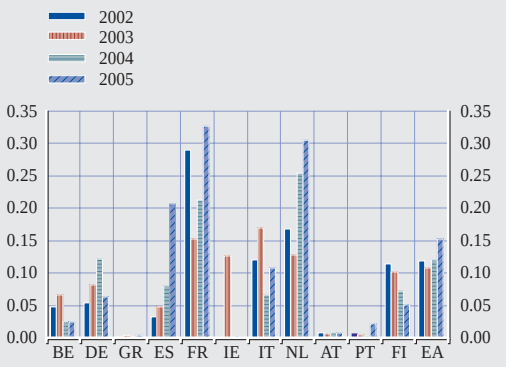
(% of GDP)



Sources: EVCA and Eurostat

Chart 31 Buy-out investments by country of management

(% of GDP)



Source: EVCA.

explained by their relatively low profitability. Given the much higher risk associated with venture capital investments relative to the more predictable buyout segment, the realised returns seem, particularly in early-stage activity, to be extremely modest in Europe.[72]

The growth of buyout fundraising has been particularly strong recently, and the development of buyout investments in the euro area points towards increased activity relative to GDP. Cross-country differences are more substantial than in venture capital investments (see Chart 31).

In recent years, strong cash positions and favourable financing conditions such as low interest rates have contributed to the rapid increase in highly leveraged buyout deals. Overall, most buyouts are indeed quite heavily leveraged and often financed via syndicated loans.[73] In the year up to the third quarter of 2006, LBO activity in the euro area reached almost EUR 80 billion (see Chart 32),[74] fuelled by the availability of funds via syndicated lending.

The boom in buyout activity has raised some concerns about its potential implications for the credit quality of companies.[75] As buyouts have become larger and more leveraged, the riskiness of loans has increased considerably. According to BIS (2006), in 2004-2005 around 80% of all LBO loans were characterised as high-yield facilities (measured by newly issued loans with ratings below BB-). The significance of buyout funds in terms of investment has grown fairly steadily over the last decade and is likely to continue in the near future owing to the potential for corporate restructuring in Europe.

In terms of the economic impact of private equity, the role of venture capital in financing young and innovative firms is well understood. At the same time, the long-term effects of

72 The investment returns of European venture capital funds during the period 1994-2003 were on average 8.3% annually, whereas buyout funds generated a higher return of 12.7%. During the same period, early-stage venture capital funds performed particularly badly, with returns of only 1.3%. The corresponding figures covering the same time period for the US are much higher for venture capital returns than in the buyout segment at 25.4% and 7.8% respectively. In particular, early-stage investments yielded a robust return of 37.0% (Machado and Raade, 2006).

73 Combining the buyout deal data provided by Mergermarket and Bowne (2006), which include both equity and debt associated with the deals and cover 25 European countries, and data from the EVCA survey of 21 European countries, it is possible to calculate that up to 80% of the deals are financed with debt. Jenkinson (2006) reports somewhat lower leverage ratios of around 60-65% for European buyouts in recent years.

74 ECB, December 2006.

75 See BIS (2006), Wall Street Journal (2006), Standard & Poor's (2005) and Economist (2006a).

Chart 32 The value of LBO transactions targeting euro area firms and LBO-related syndicated lending

(EUR billions)

Sources: Bureau van Dijk (Zephyr database) and Thomson Deals.

buyout activities of private equity firms on target companies are more controversial. On the one hand, the incentives between management and shareholders can be aligned more effectively than in publicly held companies, where the connection between ownership and control is less tight. On the other hand, it is not clear the extent to which private equity activities are aligned with those of the target companies. All in all, private equity incentives are having an impact on corporate governance and can thus speed up the restructuring of industrial structures across Europe. In addition, buyouts are normally highly leveraged operations – often with only 30% equity in their capital structure. In this respect, there are indications that some private equity firms have pushed up the debt levels in target companies by paying out large dividends which have been financed by new debt.[76]

76 While the number of European buyouts has recently risen dramatically, considerable opportunities still remain with regard to European integration, de-conglomeration, family ownership and succession issues, etc. Hence the number of funds focused on European buyouts has also been increasing (Jenkinson, 2006).

Box 7

CORPORATE GOVERNANCE IN THE EURO AREA AND RECENT POLICY REFORMS

An important aspect to look at when assessing the state of the corporate sector in the euro area is corporate governance. Corporate governance addresses how to avoid and eventually manage the potential conflicts arising between investors and firm managers and among different classes of investors. Corporate governance is very much related to the main characteristics of the financial system in place. Some of these characteristics and how they relate to the possible emergence of conflicts among stakeholders are outlined below. After that, recent policy reforms, first in the US and in the EU, and then in some of the euro area countries, are briefly described.

One important factor affecting differences in financial structures around the world is the degree of ownership concentration.[1] This is reflected directly, for example, in the ratio between listed and non-listed shares in the corporate sector. A noteworthy characteristic of the euro area financial system is the extensive use and the importance of non-listed shares, which in turn reflects the importance of large shareholders and family ownership structures.[2] Differences in ownership structure also have an impact on corporate governance. Because large investors have more power, they are typically also the ones to exercise corporate governance, especially in systems where legal arrangements give relatively less power to minority shareholders. The fundamental problem with large shareholders, however, is that their interests may not always

1 See La Porta et al. (1999).
2 See for example ECB (2002).

coincide with the interests of all the investors. They have the power to appoint directors and managers and to make major corporate decisions that normally require the approval of a range of shareholders. These conflicts of interests may also affect the performance of a firm, and there is some evidence that ownership concentration and profitability are not monotonically linked.[3] Ownership concentration seems to be a characteristic linked to the geographical location. As far as listed companies are concerned, in the Anglo-Saxon countries (primarily the US and the UK), corporate ownership tends to be much more dispersed than in other continental Europe countries or in Asia. Only in the Netherlands and in Switzerland is the concentration measure low and similar to the value for the US and the UK (see Chart A).

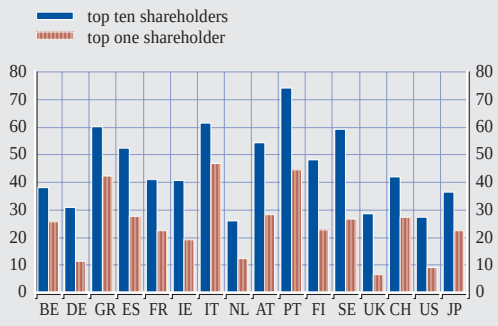
In the US, one of the factors affecting the dispersion of shareholdings is the significant use of equity-based reward systems (i.e. stock options) for managers. In continental Europe and Asia, it is much more common to have large shareholders – often in the form of controlling family owners. As a result, problems when they have arisen have tended to derive from large owners exploiting their dominant role. In the US by contrast, recent corporate scandals were characterised by a strong conflict of interest between managers and shareholders, between managers and external intermediaries – primarily financial intermediaries – as well as reputational intermediaries, such as auditors.

In systems where ownership is more concentrated, large shareholders often enjoy a close relationship with the management and have an incentive to monitor a firm's activities. The identity of these large shareholders may be important as well. The role of institutional investors differs across countries and only in few countries – Ireland, the Netherlands, Sweden, the UK and the US – do they tend to have a larger shareholding stake than other kinds of investor (see Chart B). This may have possible implications for corporate structures, investment choices, dividend policies and more broadly for corporate governance and the way firms are run. For example, there is some evidence that institutional investors – pension funds in particular – tend

3 See Shleifer, A. and W. Vishny (1997).

Chart A Ownership concentration in top-10 quoted companies

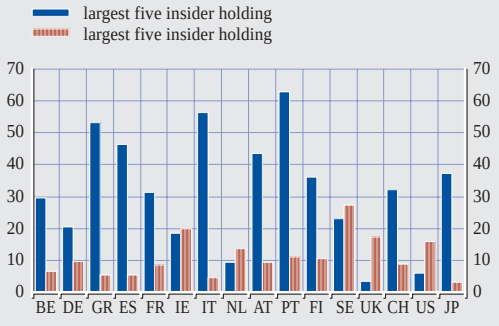
(in percentage)



Sources: ECB calculations using Reuters Kobra database (2005). See also Hartmann et al. (2007a).
Notes: Calculated on the basis of data available for the largest shareholders in 10 top quoted companies in terms of market capitalisation in each country.

Chart B Stakeholding rights of insider versus institutional investors

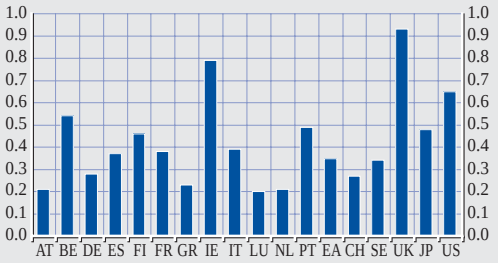
(in percentage)



Sources: ECB calculations using Reuters Kobra database (2005). See also Hartmann et al. (2007a).
Notes: Calculated on the basis of data available for five largest insider and institutional shareholders in 10 top quoted companies in terms of market capitalisation in each country.

Chart C Enforcement of shareholder rights against self-dealing

(anti self-dealing index)



Sources: Djankov et al., 2006 and ECB calculations.
Notes: The index ranges from 0 to 1. Higher bars indicate better shareholder protection. The index incorporates ex-ante and ex-post private control of self-dealing transactions. Euro area (EA) figures are averages of EA country data weighted by stock market capitalisation. Data are from May 2003.

to be more careful in exercising their monitoring role than other shareholders, and may at times increase firms' valuation.[4]

Problems arise when the advantages from the privileged position enjoyed by large shareholders outweigh the benefits to all the shareholders. The presence of cross-shareholdings, voting agreements and pyramid structures – common features of European and Asian systems – can make market discipline ineffective, as the only option left for minority shareholders is to sell their shares.[5] Chart C shows a measure that quantifies shareholders' rights against expropriation by corporate insiders against self-dealing.[6] Under this measure, the enforcement of shareholder rights is stronger in Ireland, in the US and in the UK, whereas a large number of European countries could significantly improve their enforcement of shareholder protection.

Another factor that may hamper market discipline is the lack of relevant information that is publicly disclosed. Some studies[7] have tried to measure *earnings opacity* in companies' financial accounts: in terms of this measure, the US generally performs better than other countries, although looking at the scandals which came to light in 2001-2003 in the US, it could be argued that more information does not always coincide with more disclosure. In this context, the increasing use of financial innovations and the related disclosure requirements is a key issue. Offshore entities or SPVs can serve the purpose of processing fraudulent transactions, as happened for example regarding the Enron and the Parmalat scandals. In the presence of these instruments, it can be very difficult for an investor to comprehend the true financial position of the company.

Financial and reputational intermediaries play a key role in this respect. Financial intermediaries can often carry out a variety of activities – underwriting, research and brokerage activities for example – with the same company. In Europe, banks play a very important role and are often also large shareholders and/or sit on companies' boards. Even if they do not hold equity directly, they can be custodians for customers that are shareholders and vote on their behalf. In addition, banks are often directly involved in the management of the company. Especially in systems where ownership is more dispersed, reputational intermediaries such as auditing companies and rating agencies review and analyse information on companies' activities. However, although their role is designed to guarantee shareholder value, they have on occasion proven to be ineffective.

4 See Qiu and Wan (2006) and Giannetti and Laeven (2006).
5 Parmalat, for example, was characterised by a strong pyramid structure, with two companies at the top that were exclusively controlled by majority shareholders, and which precluded minority shareholders from having an effective monitoring role.
6 See Djankov et al. (2006). Self-dealing may include executive excessive compensation, transfer pricing, directed equity issuance, personal loans to insiders up to outright theft of corporate assets.
7 See Bhattacharya, Daouk and Welker (2003).

Corporate governance reforms

In the aftermath of the recent wave of corporate scandals, several reforms were implemented with the objective of addressing some of the problems brought to light by these events. In the US, the reforms were mainly included in the Sarbanes-Oxley act and several changes in the Securities and Exchange Commission (SEC) requirements for disclosure of information of public companies. Investment banks are now required to put in place effective Chinese walls between their research functions and their underwriting business. In case accounting statements accompanying company reports are proven to be inaccurate, CEOs and chief financial officers can face criminal prosecution.

Policy responses in the EU – which took the form of several Directives to be implemented at the national level – seemed to be more inspired by a principle-based regime, emphasising transparency and self-governance, rather than a rule-based regime.[8] In May 2003, the European Commission adopted the "Company Law and Corporate Governance Action Plan," which is based on two guiding principles: improving transparency and empowering shareholders. No proposal was made for a European Governance Code, and it was recognised that "in this area soft law instruments such as recommendations, rather than prescriptive detailed legislation" are more appropriate.[9]

In this context it should be emphasised that the ultimate objective of these policy reforms should be to improve the allocation of productive capital in Europe by increasing the efficiency of the financial system. Recent studies suggest that improving corporate governance is likely to increase the size of the financial markets and thus can help to allocate capital towards sectors of the economy with higher growth potential.[10]

The main regulatory change which took place in the EU was the adoption of the International Financial Reporting Standards (IFRS) for financial years starting on or after 1 January 2005. After this date, all EU listed companies need to follow these common standards in their consolidated financial statements. The aim of the IFRS is to increase the transparency and comparability of financial statements, for example by recognising the fair value of stock options (a measure which has also been implemented in the US since June 2005) and similar forms of employee compensation, as well as information on SPVs and similar entities.

Recent policy reforms in euro area countries

The key points of the policy reforms carried out in euro area countries in the wake of the EC Directive are summarised in Table 22 and Table 23 of Annex 8. Most of the reforms are directed only at listed companies, although they often contain the recommendation that non-listed companies should whenever possible follow the proposed guidelines. The majority of reforms addressed issues related to the composition of the Board and the disclosure of conflicts of interest of members of the Board or directors. The new codes and laws called for improved information disclosure, especially concerning remuneration plans and equity-based schemes. All in all, the implemented reforms did not seem to improve significantly the rights of minority shareholders. Only in Spain and in Italy have recent laws protecting investors' rights explicitly

8 See ECB (2005).
9 See speech by Charlie McCreevy (2005).
10 See Hartmann et al. (2007b).

put in place some limitations on the assignment of and incompatibility requirements for external advisors (auditing and revision companies for example). It should be emphasised that the number of reforms reflected in Annex 8 is not per se an indicator of the level of good governance in the various countries. Indeed, some countries have not needed to pass new laws because their legal framework broadly matched the EC Directive.

Concerning enforcement, codes of corporate laws are often based on the "comply or explain" principle; at the same time, recent laws protecting investors' rights have to some extent increased the criminal and administrative consequences of not abiding by the rules.

4.4 CONCLUDING REMARKS

Over the last decade the financial landscape of the euro area has changed substantially, and this process has had a significant impact on non-financial corporations in terms of the cost and availability of funds and the incentives they receive from the capital markets. The introduction of the euro was an important structural feature that has directly affected the financial markets of the euro area by increasing their size and encouraging cross-border competition. EMU has broadened and deepened the corporate bond market and significantly widened the size of the equity market.

As a result of financial innovation, new products have entered the market and modified the role and functions of intermediaries, thereby affecting the financing dynamics from banks to corporations. For instance, securitisation processes and the increasing use of credit derivatives have eased commercial banks' passage from being balance sheet intermediaries to becoming originators and sellers of credit risk. At the same time, the role and relevance of non-bank intermediaries has increased across the board, from insurance corporations and pension funds to hedge funds. In addition, the role of private equity in providing finance and management to non-financial corporations has substantially expanded in the last few years. The increased importance of hedge funds and private equity funds has also affected the governance of euro area corporations, although it is not yet clear whether this influence has been positive or negative from a corporate governance perspective. The importance of venture capital funds remains overall still limited.

Furthermore, the Basel II accord has triggered an increase in credit ratings, especially the credit ratings of SMEs (which are mainly provided through internal ratings-based (IRB) systems and external credit assessment institutions (ECAIs)). The development of credit ratings and the possibly stronger relationship between credit ratings and the pricing of external finance is likely to influence the management of firms and to persuade them to place more emphasis on transparency and sound financial management in order to reduce information asymmetries and thus benefit from enlarged opportunities in the access to finance.

It is not easy at this juncture to disentangle which dynamics are of a structural nature, and to what extent, and which ones can mainly be explained by conjunctural factors such as the ample liquidity prevailing in the market, historically low interest rates and the high appetite for returns displayed by investors. At the same time, from a corporate finance perspective four tentative conclusions can be drawn.

First, the new role of banks in originating, pooling and distributing credit risk outside the banking system should affect non-financial corporations by providing them, under most economic scenarios, with easier and cheaper access to corporate funds. The competition

among banks, and between banks and other financial intermediaries, should also lower the overall cost of corporate financing. Therefore, it is likely that firms may benefit from more favourable financial conditions for a given level of interest rates, as a consequence of a shift in the supply of funds.

Second, in relation to the interest rate channel, as credit granted is evaluated on a more mark-to-market basis and the banking sector becomes more competitive, the speed of transmission of monetary impulses to bank interest rates across the whole maturity spectrum is expected to accelerate.[77]

Third, turning to the so-called credit channel, the effect of the changing role of banks on the transmission mechanism is not so clear-cut. On one hand, the importance of banks in providing funds has increased. On the other hand, by managing credit risk better and shifting risks from banks' balance sheets to the markets, the importance of the traditional role of banks' conditions from a monetary policy perspective should decrease significantly under normal circumstances. In addition, recent developments have been dictated by a very strong increase in available public information and credit signals of corporate borrowers' credit quality. This latter effect is narrowing the information gap between lenders and borrowers, thereby decreasing the information problems that originated in the broad credit channel in the first place.

Fourth, it is likely that the lower concentration of credit risk on banks will make them less vulnerable in the event of shocks. However, it cannot be ruled out that episodes of mispricing of credit risk may be followed by abrupt adjustments, which may pose new challenges to the stability of the financial system. Such patterns may be relevant for monetary policy and financial stability considerations alike, noting that even in normal circumstances, the different distribution of credit risk in the economy may affect the way the transmission mechanism operates.

77 In this respect, the paucity of studies examining this issue in the US suggests that securitisation positively influences the speed of transmission of the policy rate to bank lending rates. See Estrella (2002) and Loutskina and Strahan (2006).

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ANNEX I

DESCRIPTION AND COMPARISON OF THE BACH DATABASE AND THE NATIONAL AND FINANCIAL ACCOUNTS STATISTICS USED IN THE REPORT

THE BACH DATABASE[81]

The Bank for the Accounts of Companies Harmonised (BACH) database was created by the European Committee of Central Balance Sheet Data Offices (ECCBSO)[82] with the support of the European Commission. The database is managed by the European Commission (DG ECFIN), and is published on the European Commission website. The BACH database contains harmonised annual accounts statistics of non-financial corporations provided by national central balance sheet offices (CBSOs) to allow for cross-country comparisons.[83] Mainly for confidentiality reasons, no individual corporation data are provided; instead, the database provides sectoral data across firm sizes. It covers annual aggregated data for nine euro area countries (Germany, Austria, Belgium, Spain, Finland, France, Italy, the Netherlands and Portugal) and additionally for Denmark, Sweden, the US and Japan. All countries contributing to the BACH database deliver aggregates based on non-consolidated financial statements[84] broken down by NACE industrial sub-sectors (up to a maximum of 58 different activity sectors) and main industry groupings, with three different size classes. Up to 94 accounting items covering the asset and liability side of the balance sheet, the profit and loss account as well as additional information on investment flows and cumulative depreciation are available. For the euro area countries (except Finland), most data are generally available from the beginning of the 1990s (late 1980s), whereas the data for Finland are only available from 1999 onwards.

Countries which provide data to BACH from exhaustive surveys (such as Belgium) or use a statistical sampling method in connection with an expansion procedure (e.g. Finland) provide results that are representative for the entire population. These datasets are defined in BACH as "genuine variable samples". The datasets of some other countries are built from non-exhaustive surveys. In order to overcome this bias – especially survivor bias and sample rotation bias – sliding samples have been built for Austria, France, Germany, the Netherlands, Italy, Portugal and Spain.

In terms of timeliness, the most recent data are available in the BACH website with a time lag of 11 months for France, 12 months for Belgium, Italy and Spain, 13 months for Germany, Portugal and Finland, 14 months for Austria, and 15 months for the Netherlands. Accordingly, all datasets for the participating euro area countries are available 15 months after the end of the reference year.

THE COMPILATION OF THE BACH INDICATORS IN THE STRUCTURAL ISSUES REPORT

In the context of this report, it should be stressed that, as Tables 11 a-b and 12 show, the coverage of the data supplied by the different national CBSOs to the BACH database varies considerably. Only the data transmitted by Belgium, the Netherlands and, to some extent, by Finland, France, Germany and Italy provide a comprehensive coverage of the non-financial corporations sector. The coverage is lower in the samples provided by the remaining countries, and sometimes embodies only a limited set of NACE sectors. Higher degrees of coverage are observed in the "traditional" sectors, such as manufacturing, electricity, gas and water supply, and the transport, storage and communication sectors. Otherwise, the coverage is lower, especially for earlier years.

81 For more details, see BACH User Guide (2001).

82 The ECCBSO was set up in 1987 to improve the analysis of corporate accounts data. The Committee is made up of representatives of the NCBs or the NSIs (plus the Italian Centrale dei Bilanci) of 12 of the 25 EU Member States plus the European Commission.

83 To make the data comparable despite the existing differences in accounting rules and layout, the data have been reprocessed based on the 4th Community Company Law Directive (78/660/EEC). Complete harmonisation is not possible, but the BACH database provides the necessary information to analyse the remaining methodological differences and to decide whether an item could be comparable or not, depending on the purpose of the study.

84 With the exception of the Netherlands, which provides nationally consolidated data for the main Dutch groups, in combination with non-consolidated data for smaller non-financial corporations.

Table 11 Data coverage in the Bach database

a) turnover

(turnover in each sector covered by this report, as a percentage of total turnover in each sector, 2003)

	BE	DE	ES	FR	IT	NL	AT	PT	FI
D-Manufacturing	n.a	77	n.a	n.a	77	93	n.a	68	n.a
E-Electricity, gas and water supply	n.a	72	n.a	n.a	76	100	n.a	83	n.a
F-Construction	n.a	36	n.a	n.a	40	93	n.a	36	n.a
G-Wholesale and retail trade	n.a	58	n.a	n.a	79	89	n.a	49	n.a
H-Hotels and restaurants	n.a	n.a	n.a	n.a	46	86	n.a	23	n.a
I-Transport, storage and communication	n.a	89	n.a	n.a	73	91	n.a	68	n.a
K-Real estate, renting and business activities	n.a	40	n.a	n.a	50	91	n.a	34	n.a

b) employment

(employment in each sector covered by this report, as a percentage of total employment in each sector, 2003)

	BE	DE	ES	FR	IT	NL	AT	PT	FI
D-Manufacturing	100	n.a	21	78	n.a	n.a	41	n.a	97
E-Electricity, gas and water supply	100	n.a	73	82	n.a	n.a	34	n.a	92
F-Construction	100	n.a	9	70	n.a	n.a	37	n.a	86
G-Wholesale and retail trade	100	n.a	22	76	n.a	n.a	28	n.a	91
H-Hotels and restaurants	100	n.a	11	58	n.a	n.a	21	n.a	82
I-Transport, storage and communication	100	n.a	42	58	n.a	n.a	21	n.a	90
K-Real estate, renting and business activities	100	n.a	21	68	n.a	n.a	15	n.a	82

Source: European Commission (DG ECFIN).

For most countries, the original BACH data were downloaded from the website of the European Commission. However, some countries amend such data, for example Spain, France and Portugal, which provide amended databases excluding non-financial holding companies. These companies, which typically have a low turnover, are mainly included in the SME size category following the BACH size classification according to turnover and hence can distort the results for SMEs. In some other countries, such as Germany, Italy and the Netherlands, non-financial holdings are already excluded in the original BACH data, while in a couple of other countries, these companies only play a minor role. Overall, the results for SMEs should therefore not be affected to any major extent by non-financial holding companies.

The analysis in the report also covers a sample of non-financial corporations in Greece. Data were taken from ICAP, a commercial database, for the period 2000-2005. Greek indicators were not included in the euro area aggregate

Table 12 Number of non-financial corporations in the BACH database

(in thousands – 2003 for the sectors covered by this report)

	BE	DE	ES	FR	IT	NL	AT	PT	FI
D-Manufacturing	21.9	9.9	2.6	38.7	17.6	14.5	6.7	5.1	16.4
E-Electricity, gas and water supply	0.2	0.7	0.2	0.2	0.3	0.1	0.1	0.2	0.6
F-Construction	26.1	3.2	0.9	20.6	1.9	12.7	4.6	1.5	18.6
G-Wholesale and retail trade	72.2	9.5	1.8	60.9	10.9	39.2	10.0	4.6	28.9
H-Hotels and restaurants	14.2	-	0.3	6.1	0.3	4.0	3.6	0.3	6.4
I-Transport, storage and communication	10.6	1.9	0.4	9.5	1.7	6.5	2.0	1.0	13.1
K-Real estate, renting and business activities	85.5	6.9	2.0	28.3	1.7	45.3	3.2	1.8	25.7

Source: European Commission (DG ECFIN).

owing to some remaining methodological differences between BACH and the commercial database. There are no data available on Ireland and Luxembourg.

For the purpose of this report, non-financial corporations are defined following the NACE sector classification:

All – Total non-financial corporations; sum of D, E, F, G, I, H and K (excluding A, B, C, M and O owing to the unavailability of data in some major countries[85])

D – Manufacturing
E – Electricity, gas and water supply
F – Construction
G – Wholesale and retail trade
I – Transport, storage and communication
X – Other services[86], which is defined as the sum of:
- H – Hotels and restaurants[87];
- K – Real estate, renting and business activities.

Firm sizes are defined following the following size classification in the BACH database:

Size class		Turnover (T) in million EUR
0	all sizes	all
1	small	T <10
2	medium	10 ≤ T <50
3	large	T ≥ 50

As a general rule, indicators are computed on the basis of the variable sample figures if the formula includes only one period. By contrast, for the calculation of annual growth rates, sliding sample figures are used. In the cases of Belgium, for which the coverage of firms is 100%, and Finland, the variable sample is also used for the calculation of growth rates.

With respect to the aggregation of the BACH data, the indicators are calculated by summing up the variables (in EUR) from the most disaggregated level (e.g. small firms in the manufacturing sector in a particular country) to a more aggregated level of firm sizes, sectors and countries (e.g. all firms in the manufacturing sector in a particular country, or all firms in a particular country), up to the most aggregate level (which is all firms in the euro area). For each indicator, the respective formula is applied by summing up the variables (in EUR) in the numerator and dividing them by the sum of the variables (in EUR) in the denominator. For example, to calculate the debt-to-equity ratio for all firms in a country, the debt figures (in EUR) of small, medium-sized and large firms in all non-financial sectors in this country are summed up and divided by the sum of capital and reserves of small, medium-sized and large firms in all non-financial sectors in the country. This calculation method gives large firms and large sectors a proportionally higher weight in the aggregate which can be seen in the indicators, as the indicator values for large firms are generally close to the indicator values for all firm sizes.

85 A: agriculture, B: fishing, C: mining, M: education, O: other community, social and personal service authorities.

86 In the national accounts, the service sector generally also includes the sectors G and I. However, for the purposes of economic interpretation in the context of this report, it could be advisable to investigate separately the "wholesale and retail trade" as well as the "transport, storage and communication" sectors owing to their special importance, and some specific developments from the "other services" sector. Sectors M (education), N (health and social work), O (other community, social and personal service authorities) and P (activities of households) are not included in the definition of the "other services" sector, mainly as data on these sectors are not provided by some major countries in BACH.

87 Data on sector H are not available for Germany. For Austria, figures are only available for the total non-financial corporations and for small enterprises, owing to confidentiality reasons related to the low number of large and medium-sized firms in this sector.

LIST OF INDICATORS USED IN THE REPORT

The codes in the list of indicators below refer to the BACH codes as mentioned in the BACH user guide.[88]

Legend

A.	Subscribed capital unpaid
C.	Fixed assets
C.1	Intangible fixed assets
C.2	Tangible fixed assets
C.3	Financial fixed assets
D.	Current assets
D.4	Cash at bank and in hand
E.	Prepayments and accrued income
AE.	Total assets (A + C + D + E)
F.	Creditors: amounts becoming due and payable within one year
F.2	Amounts owed to credit institutions
I.	Creditors: amounts becoming due and payable after more than one year
I.1	Debenture loans
I.2	Amounts owed to credit institutions
J.1	Provisions for pensions and similar obligations
L.	Capital and reserves
L.1	Subscribed capital
L.2	Share premium account
R1.	Net turnover
S.	Total operating income
R7.	Value adjustments on non financial assets
R12.	Value adjustments on financial assets
T.	Added value BACH (S – Costs of materials and consumables – Other operating charges and taxes)
U.	Gross operating profit (T – Staff costs)
R21	Profit or loss for the financial year (Profit on ordinary activities before taxes + Extraordinary income – Extraordinary charges – Taxes on profit)
	– Statement of investment –
R263.	Acquisitions – sales and disposals

BALANCE SHEET INDICATORS

Capital structure

– Debt to equity: Creditors and provisions for pensions and similar obligations[89] as a % of capital and reserves[90] [(F + I + J1) / L]

– Maturity (mis)matches: Short-term assets to short-term debt (liquidity ratio): current assets/creditors (amounts payable within one year) [D / F]

– Maturity (mis)matches: Fixed assets to long-term debt (including provisions for pensions and similar obligations): fixed assets/(creditors (amounts payable after more than one year) + provisions for pensions and similar obligations) [C / (I + J1)]

– Cash to total assets [D4/AE]

– Share and composition of fixed assets as a % of total assets:
  – Tangible fixed assets [C2/AE]
  – Financial fixed assets [C3/AE]

– Maturity structure of debt: Relative importance of short-term and long-term debt as a % of total debt:
  – Creditors (amounts payable within one year) [F/(F + I + J1)]
  – Creditors (amounts payable after more than one year) including provisions for pensions and similar obligations [(I + J1)/(F + I + J1)]

88 In contrast to the database, the codes are used here as if the variables were presented in absolute terms (i.e. disregarding the presentation in percentages of total assets or turnover in the BACH database).

89 In the definition of debt according to the financial accounts, the ECB includes pension fund reserves. Provisions for pensions and similar obligations are partly not reported for Belgium, France and the Netherlands. For the purposes of this report, Belgium provided estimations based on the available data for all sectors and size groups. For France, the item is not relevant, and it is not reported for the Netherlands.

90 Subscribed capital unpaid (A) has not been included as it is not yet available to the companies.

Assets

– Investment in tangible fixed assets (acquisitions – sales and disposals of tangible fixed assets) as a % of value added [R263 / T][91]

Debt and capital

– Debt to assets [(F + I + J1) / AE]

– Reimbursement capacity: Total debt/cash flow [(F + I + J1) / (R21 + R7 + R12)]

– Debt/turnover [(F + I + J1) / R1]

– Equity/turnover [L / R1]

– Bank loans/total debt [(F2 + I2) / (F + I + J1)]

– Bonds/total debt [I1 / (F + I + J1)]

– External equity to turnover [(L1 + L2) / R1]

PROFIT AND LOSS STATEMENT

Profitability

– Gross operating profit as a % of value added [U / T]

– Return on assets: Profit/loss for the financial year as a % of total assets in the current year [$R21_t$ / AE_t]

– Return on equity: Profit/loss for the financial year as a % of capital and reserves at the beginning of the year[92] [$R21_t$ / L_{t-1}]

NATIONAL AND FINANCIAL ACCOUNTS STATISTICS

Along with the BACH database, national and financial accounts have also been widely used in this report. The main objective of national accounts is to measure the economic performance of a country, for example by GDP and the uses of GDP (e.g. consumption and fixed investment). Besides these overall economic indicators, data are also available for the following different sectors: households, general government, and financial and non-financial corporations. Financial accounts provide corresponding sector-specific information for the acquisition of financial assets and external financing. These highly aggregated datasets compiled by NSIs and NCBs can be considered secondary statistics, as a large amount of primary data (e.g. turnover and production statistics, data on wages and employment, MFI statistics, capital market and balance of payments statistics) are used in the compilation of the data. National and financial accounts statistics are available for nearly all euro area and EU countries, and in 2006 the ECB and Eurostat published yearly integrated sectoral accounts for the first time.

USE OF INDICATORS BASED ON INDIVIDUAL FINANCIAL STATEMENTS (BACH) VERSUS INDICATORS BASED ON THE NATIONAL AND FINANCIAL ACCOUNTS

An alternative to using individual aggregated data like BACH when analysing the financial structure of firms is data from national and financial accounts (NFAs). However, there are a few specific differences between BACH and NFA data. According to ESA 95, which is obligatory for the NFAs in the euro area and in the EU, non-financial corporations also include partnerships in the NFAs; these are however not taken into account in the BACH database. Other differences that may hinder comparability between the sources include the valuation methods and prices that are used in the statistics. BACH relies on accounting figures that are mainly based on book value, although some assets are valued at market prices, following national accounting rules and/or the new IFRS recommendations. NFAs tend to privilege market values, but sometimes estimate values for missing information, such as non-marketable securities. Furthermore, the detailed activities or legal form of firms covered by BACH or

91 If the investment variables R253, R263 and R273 do not exist for all countries, they may be substituted by the change in the stock in period t.

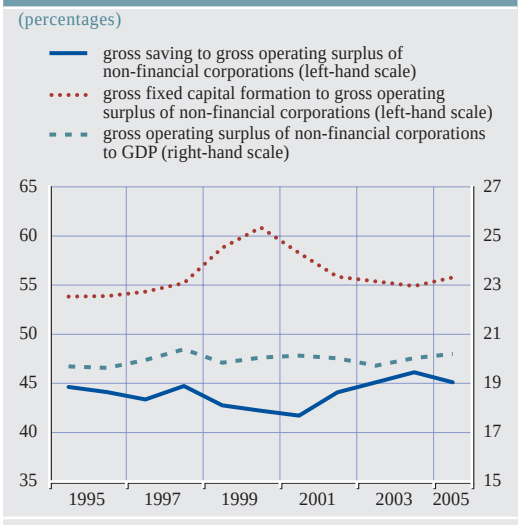
92 This ratio is calculated based on the sliding sample.

NFA data, or even among different national data providers for BACH or for international NFA data, tend to vary. For example, in the context of national accounting statistics, while the euro area, the UK and Japan follow the ESA 95, the US statistical accounting system partly uses different definitions. With respect to the delineation of the sectors, the US non-financial business sector broadly corresponds to the non-financial corporations defined in the System of National Accounts (SNA 93), including both incorporated and unincorporated businesses. Lastly, by contrast to the non-financial corporations in the other three economic areas, the US non-financial business sector also includes sole proprietorships.

On the whole, the main advantage of NFA statistics is their exhaustive coverage. They therefore provide a broad overview that can be complemented by individual data collections such as BACH, which provide more detailed insight into specific aspects, such as firm-size issues.

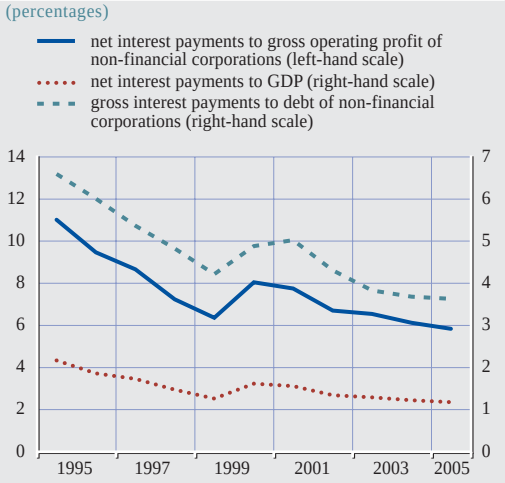
PROFITABILITY AND THE INTEREST BURDEN OF NON-FINANCIAL CORPORATIONS IN THE EURO AREA

Chart 33 Profitability and investment of non-financial corporations in the euro area



Source: ECB annual national and financial accounts.
Note: 2005 data are preliminary estimates.

Chart 34 Interest burden of non-financial corporations in the euro area



Source: ECB annual national and financial accounts.
Note: 2005 data are preliminary estimates.

FINANCIAL POSITION OF NON-FINANCIAL CORPORATIONS IN THE TEN NEW EU MEMBER STATES (NMS-10)

In addition to the information included in Box 3 on the financial position of non-financial corporations in the NMS-10, this section reports some additional comparisons in terms of the saving, investment and financing needs of non-financial corporations in the NMS-10 as compared to euro area corporations.

Table 13 shows that in all NMS-10 compensation of employees and employers' social contributions were below the euro area median, and in some cases even below the euro area minimum. The relatively higher share of gross operating surplus in total gross value added in the NMS-10 is in line with the data on macro-competitiveness, which show comparative unit labour cost levels in the NMS-10 to be far lower than those in the euro area. This may be partly explained by the presumably more pronounced short-term impact of inward FDI on average productivity levels than on average wage levels.

Both net other taxes on production and the income and wealth tax burden were above the euro area minimum in all NMS-10 for which data

Table 13 Derivation of net saving of non-financial corporations in the NMS-10

Country	Year	Flow items in % of gross operating surplus							
		Compensation of employees	Other taxes on production minus subsidies	Net interest payments	Net other property income	Allocation of other primary income account	Current taxes on income and wealth	Net other current transfers	Consumption of fixed capital
Czech Republic	2003	117.8	-3.1	8.3	1.0	24.7	14.9	-0.2	42.4
Estonia	2003	126.6	1.6	5.5	2.1	28.4	5.6	-25.2	31.9
Cyprus	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lithuania	2004	77.0	0.2	1.9	-0.5	54.3	5.4	0.2	23.3
Latvia	2004	87.7	2.8	-1.2	7.0	52.1	5.6	-2.4	36.3
Hungary	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Malta	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Poland	2004	109.1	4.1	4.1	-0.2	30.8	9.0	-0.3	45.9
Slovenia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Slovakia	2003	109.2	-2.0	6.1	1.0	12.7	13.8	0.9	59.1
Memorandum items:									
EU-12	2004	151.6	4.1	6.1	11.6	48.1	8.1	-3.0	39.6
EU-12 median		155.6	0.9	6.6	12.1	37.3	11.9	-1.5	39.9
EU-12 minimum		77.6	-0.3	1.5	0.3	7.1	2.8	-11.2	23.6
EU-12 maximum		211.3	13.4	16.1	34.6	57.6	17.9	0.7	63.0

Source: ECB, Eurostat and own calculations.
Notes: Net interest payments: interest burden, i.e. interest paid minus interest received. (Net) other property income: excluding the allocation of other primary income account, i.e. excluding distributed income and reinvested earnings on FDI in the reporting country. Allocation of other primary income account: distributed income and reinvested earnings on FDI in the reporting country.

were available except in the Czech Republic and Slovakia, where net other taxes on production were negative (implying that subsidies exceed other taxes on production); however, the income and wealth tax burden was clearly higher than the euro area median. In three of the six NMS-10 for which data were available, non-financial corporations had an income and wealth tax burden ratio (as a percentage of gross operating surplus) that was higher than the corresponding tax ratio in the euro area aggregate, while in the other three countries, non-financial corporations had a tax burden somewhat above the euro area minimum.

The interest burden was typically lower in the NMS-10 than the euro area median (which is in line with the lower share of debt financing in total financing). On the other hand, net other property income constituted a rather negligible source of entrepreneurial income in the NMS-10 as opposed to the euro area. This is attributable to the fact that the level of financial assets and of shares and other equity on the assets side has been comparatively lower in these economies, as has the degree of inter-company linkages in general and that of outward FDI in particular.

Reflecting the great importance of inward FDI in the NMS-10, reinvested earnings on FDI in the reporting country play a far more important role in the NMS-10 than in the euro area, while non-financial corporations' distributed income was close to the euro area minimum. This implies – ceteris paribus – that both non-financial corporations' internal financing and the overall catching-up process in these countries have been strengthened.

It is noteworthy that in the NMS-10, both net saving and gross saving by non-financial corporations (which do not include reinvested earnings on FDI in the reporting country) were at or in most cases above the euro area average when measured as a ratio to GDP (see Table 14, bottom). At the same time, non-financial corporations' investment-to-GDP ratio was at or in most cases above the euro area maximum ratio in all NMS-10 (except in Poland), in line with their status as catching-up economies. Consequently, non-financial corporations' net

Table 14 Saving, investment and financing needs of non-financial corporations in the NMS-10

Country	Year	Flow items in % of gross operating surplus							
		Net saving	Net capital transfers	Gross saving	Gross fixed capital formation	Gross other capital formation	Net lending (+)/net borrowing (-)	Net acquisition of financial assets	Net incurrence of liabilities
Czech Republic	2003	10.4	4.6	57.4	67.2	1.9	-12.4	33.3	-45.7
Estonia	2003	5.5	2.2	39.6	75.1	n/a	-51.2	35.0	-86.2
Cyprus	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lithuania	2004	14.7	0.7	38.7	41.5	6.1	-9.8	9.2	-19.0
Latvia	2004	11.7	8.0	56.0	75.8	16.8	-36.7	38.9	-75.6
Hungary	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Malta	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Poland	2004	9.7	3.2	58.8	48.5	8.0	2.4	39.2	-36.9
Slovenia	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Slovakia	2003	10.2	2.8	72.0	75.7	-1.1	-3.9	n/a	n/a
Memorandum items:									
EU-12	2004	6.5	3.6	49.7	54.9	1.1	-6.4	28.8	-35.1
EU-12 median		5.2	3.8	62.6	57.5	0.9	-10.6	37.4	-29.2
EU-12 minimum		-12.9	0.4	33.9	37.4	-0.9	-26.8	-4.7	-118.5
EU-12 maximum		43.8	19.1	79.9	93.7	6.0	38.1	91.7	6.7

Country	Year	Flow items in % of GDP							
		Net saving	Net capital transfers	Gross saving	Gross fixed capital formation	Gross other capital formation	Net lending (+)/net borrowing (-)	Net acquisition of financial assets	Net incurrence of liabilities
Czech Republic	2003	2.7	1.2	15.1	17.6	0.5	-3.3	8.7	-12.0
Estonia	2003	1.5	0.6	10.6	20.1	n/a	-13.7	9.4	-23.1
Cyprus	2003	n/a	n/a	n/a	n/a	n/a	-3.7	11.0	-14.7
Lithuania	2004	4.9	0.2	12.8	13.7	2.0	-3.2	3.0	-6.3
Latvia	2004	3.8	2.6	18.1	24.5	5.4	-11.8	12.6	-24.4
Hungary	2005	n/a	n/a	n/a	n/a	n/a	-5.7	9.3	-15.0
Malta	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Poland	2004	1.8	0.6	11.3	9.3	1.5	0.5	7.5	-7.1
Slovenia	2005	n/a	n/a	n/a	n/a	n/a	-4.9	9.3	-14.2
Slovakia	2003	2.1	0.6	15.1	15.9	-0.2	-0.8	n/a	n/a
Memorandum items:									
EU-12	2004	1.3	0.7	10.0	11.0	0.2	-1.3	5.8	-7.0
EU-12 median		1.0	0.8	11.1	10.2	0.2	-1.9	7.6	-6.3
EU-12 minimum		-2.0	0.1	7.4	8.6	-0.2	-4.6	-1.0	-20.4
EU-12 maximum		9.0	3.0	17.2	15.0	1.2	8.2	15.8	1.5

Source: ECB, Eurostat and own calculations.
Notes: Gross saving: net saving plus net capital transfers plus consumption of fixed assets. Net lending (+)/net borrowing (-): ratio derived from published data for net lending/net borrowing or from data for net financial transactions. (The latter approach was chosen in the case of Cyprus, Hungary and Slovenia due to a lack of (recent) data on sectoral national accounts.) Data for net lending/net borrowing may thus deviate somewhat from the difference between gross saving and gross (fixed and other) capital formation. Net incurrence of liabilities: ratio derived as the difference of the ratios of net lending / net borrowing minus net acquisition of financial assets.

borrowing relative to GDP exceeded the euro area average (in most cases considerably) in all NMS-10 except in Slovakia, where it stood at the euro area average level, and in Poland, where non-financial corporations were net lenders.

Given the already relatively high net borrowing requirements in the NMS-10 (with the exception of Slovakia and Poland), the generally high level of net financial investment (except in Lithuania) signals that, on average, non-financial corporations in the NMS-10 did not face serious constraints in incurring (net) financial liabilities. However, real investment was higher than net financial investment in all NMS-10 for which data were available.

ANNEX 2

METHODOLOGY FOR THE ANALYSIS OF CROSS-COUNTRY DIFFERENCES: WEIGHTING SCHEME AND INSTITUTIONAL INDICATORS

WEIGHTING SCHEME

To take into account existing differences in size and sectoral composition, the analysis in Chapter 2 uses adjusted financial indicators to apply a common weighting scheme to all countries. In other words, instead of aggregating for each country the values calculated for each size-sectoral combination (e.g. small manufacturing firms and large energy firms) with the weight that each combination holds in that country, we apply a common weight to all countries – the weight of each size-sectoral combination in the euro area (as derived from the BACH database). This way, all countries are made to have the same size-sectoral composition and therefore, to the extent that BACH accurately mapps national economies, the country-level variables calculated this way should reflect cross-country differences rather than differences in the size or sectoral composition of each country.

Analytically:

$$Y(i)_t = \sum_d \sum_s y(i)_{d,s,t} w(e)_{d,s,t}$$

where Y is the aggregate value of the variable at the country level, y the value of the variable at the size-sectoral level and w the weight in terms of value added of the size-sectoral combination. I denotes 1…n countries and e the euro area, d denotes 1…p size classes, s denotes 1…q sectors and t denotes 1…T years recorded in the sample.

Since the weighting scheme is the same for all variables and is based on value added, the values of the indicators for the euro area change as well. This is because the implicit weighting scheme for the unadjusted indicators is different for each variable and is based on the variable used as the denominator for each ratio.

INSTITUTIONAL INDICATORS

Chapter 2 uses a set of institutional indicators, most of which have been recently collected by Hartmann et al. (2006). This annex contains the definitions and references to the original data sources used to construct the indicators.

FOR LEGAL PROTECTION

Shareholders' rights:
Data sources: R. La Porta, F. Lopez-de-Silanes, A. Schleifer and R. W. Vishny (1998), "Law and Finance", Journal of Political Economy; OECD Corporate Governance and Company Law Database.
Notes: The index ranges from 0 to 6. The lower the score, the weaker shareholders' rights are. The index is computed as the sum of the following variables: (1) proxy by mail allowed; (2) shares not blocked before meeting; (3) cumulative voting or proportional representation; (4) oppressed minorities mechanism; (5) pre-emptive rights; and (6) percentage of share capital needed to call an extraordinary shareholder meeting. Variables from (1) to (5) equal 1 if allowed and 0 otherwise, while (6) equals 1 when the minimum required percentage is less than 20%, and 0 otherwise. This update is not available for the US for 2005. Data for 1998 have been appended. Euro area figures are averages of euro area country data weighted by stock market capitalisation.

Creditors' rights:
Data source: Djankov et al. (2006a).
Notes: The index ranges from 0 to 4. The higher the score, the higher the degree of protection. A score of one is assigned when each of the following rights of secured lenders is defined in laws and regulations. First, there are restrictions, such as creditor consent or minimum dividends, for a debtor to file for reorganisation. Second, secured creditors are able to seize their collateral after the reorganisation petition has been approved, i.e. there is no "automatic stay" or "asset freeze". Third, secured creditors are paid first out of the proceeds of liquidating a bankrupt firm, as opposed to other creditors such as government or workers. Finally, if management does not retain administration of its property pending the resolution of the reorganisation,

euro area figures are averages of euro area country data weighted by GDP.

FOR THE ENFORCEMENT OF LAWS

Data source: "Governance Matters V: Aggregate and Individual Governance Indicators for 1996-2005".

Notes: The rule of law indicator reveals the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contact enforcement, the police, and the courts as well as the likelihood of crime and violence.

FOR BANK MARKET STRUCTURE

H statistics:
Data sources: Bankscope and ECB calculations.
Note: The H statistic measures the elasticity of firms' output to input prices. Under competition, the H statistic is 1, and under monopoly equal to or lower than 0. More information on the computation of this indicator can be found in sub-section 3.7 of Hartman et al. (2006). Euro area figures have been estimated by considering the euro area as a single country (i.e. using all euro area banks).

FOR TAXATION

Data source: "Taxation of Corporate and Capital Income", OECD (2005).
Notes: Combined corporate income tax rates typically apply to or are targeted at "small (incorporated) businesses", where they are targeted based on size alone (e.g. number of employees, amount of assets, turnover or taxable income), and not on the basis of expenditure or other targeting criteria. A "small business corporate tax rate" may be a special statutory corporate tax rate applicable to (all or part of) the taxable income of qualifying "small" firms (e.g. ones that meet a turnover, income or asset test), or an effective corporate tax rate below the basic statutory corporate rate provided through a tax deduction, or a credit for "small" firms determined as a percentage of qualifying taxable income (e.g. up to a given threshold).

ANNEX 3

SMES IN THE EURO AREA: SECTORAL AND COUNTRY LANDSCAPES

This annex provides an indication of the role that SMEs play across the various sectors of the economy and across the euro area countries. In order to provide an alternative analysis to the one based on the BACH database (see Annex 1), another source with different representativeness characteristics – the Observatory of European SMEs – is used to assess the weights of SMEs at the sectoral and country levels.[93]

The data from the Observatory suggest that the overwhelming majority of euro area enterprises are SMEs, with only 0.2% of companies classified as large firms (i.e. ones with 250 or more employees, see Table 15). Most SMEs are micro-enterprises, employing less than ten persons (this class accounts for more than 90% of all firms). In addition, around two-thirds of the labour force work in SMEs, generating around 60% of value added in the euro area.

The relevance of SMEs differs considerably across sectors (see Chart 3.1). On the basis of data related to the EU 15, SMEs clearly play a key role in some sectors such as construction, wholesale trade and retail trade, where they account for more than 70% of employment and value added (rising to over 85% in the construction sector). By contrast, large firms predominate in large-scale industries, such as extraction and transport and communication, where they account for more than 60% of value added and more than half of employment (with 75% in the extraction sector) (see Charts 3.2 and 3.3).

In addition, there are large disparities in the SME landscape across countries (see

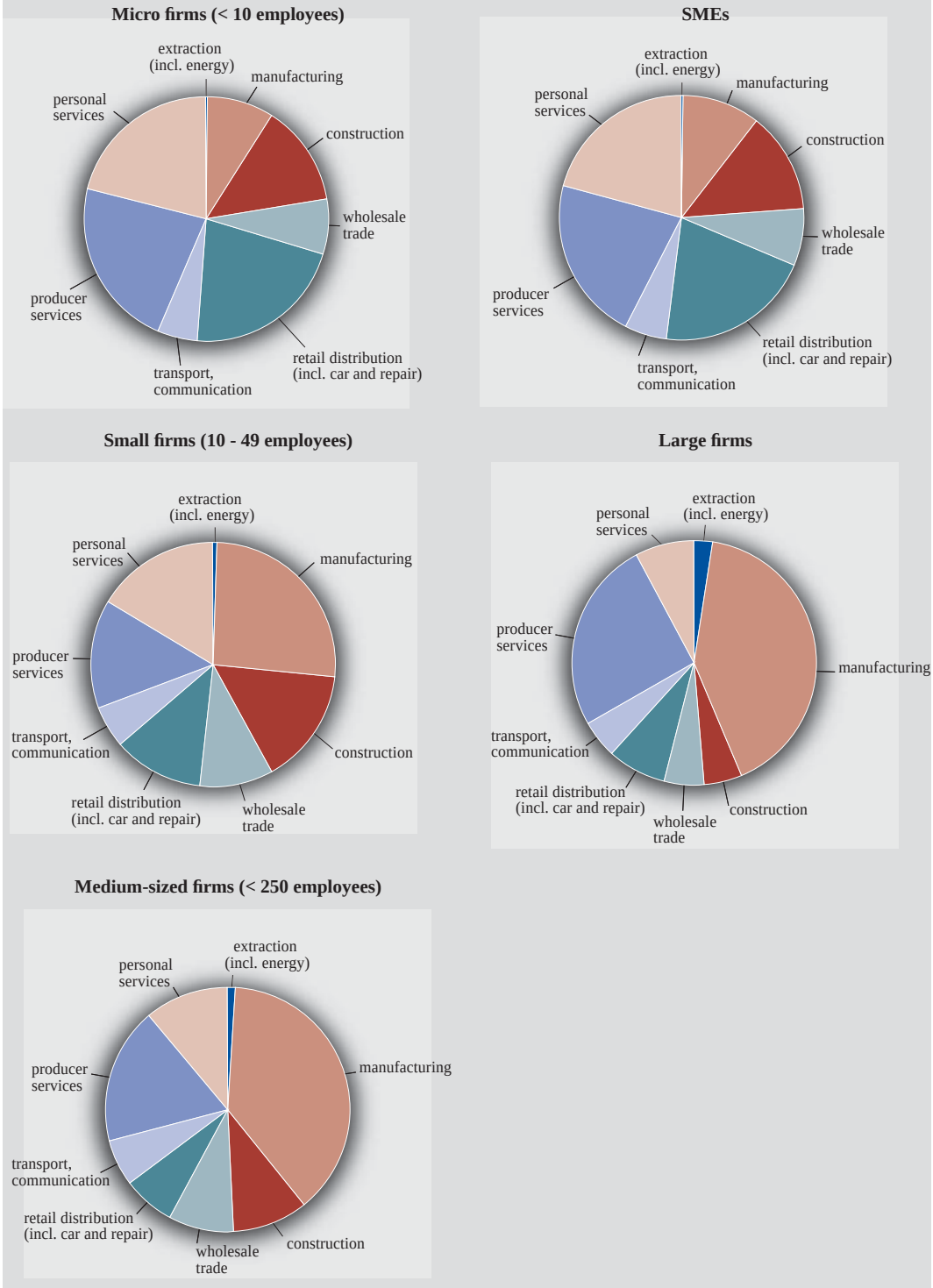
93 The figures presented by the Observatory of European SMEs rely on EUROBASE, the ENSR (European Network for SME Research) database on the size class structure of European enterprises developed by EIM on the basis of 'Enterprises in Europe' from Eurostat. For the purposes of this report, it is important to highlight that the use of this alternative source has some drawbacks since: i) it is based on a different size criterion (on the number of employees instead of turnover as in the BACH database, delimiting four instead of three size classes); ii) it includes sole proprietors and partnerships (instead of just corporations as in the BACH database); iii) it is neither regularly updated nor timely; and iv) data for the euro area are not readily available.

Table 15 Stylised facts on SMEs in the euro area

	Micro	Small	Medium	SME	Large	Total
Number of enterprises (X 1000)	14 640	964	138	15 743	30	15 773
in %	92.8	6.1	0.9	99.8	0.2	
Occupied persons (X 1000)	43 753	18 724	13 428	75 905	28 206	104 111
in %	42	18	12.9	72.9	27.1	
Value added (euro millions)	1 315 339	1 146 331	978 818	3 440 548	2 303	5 743 963
in %	22.9	20	17	58.9	40.1	

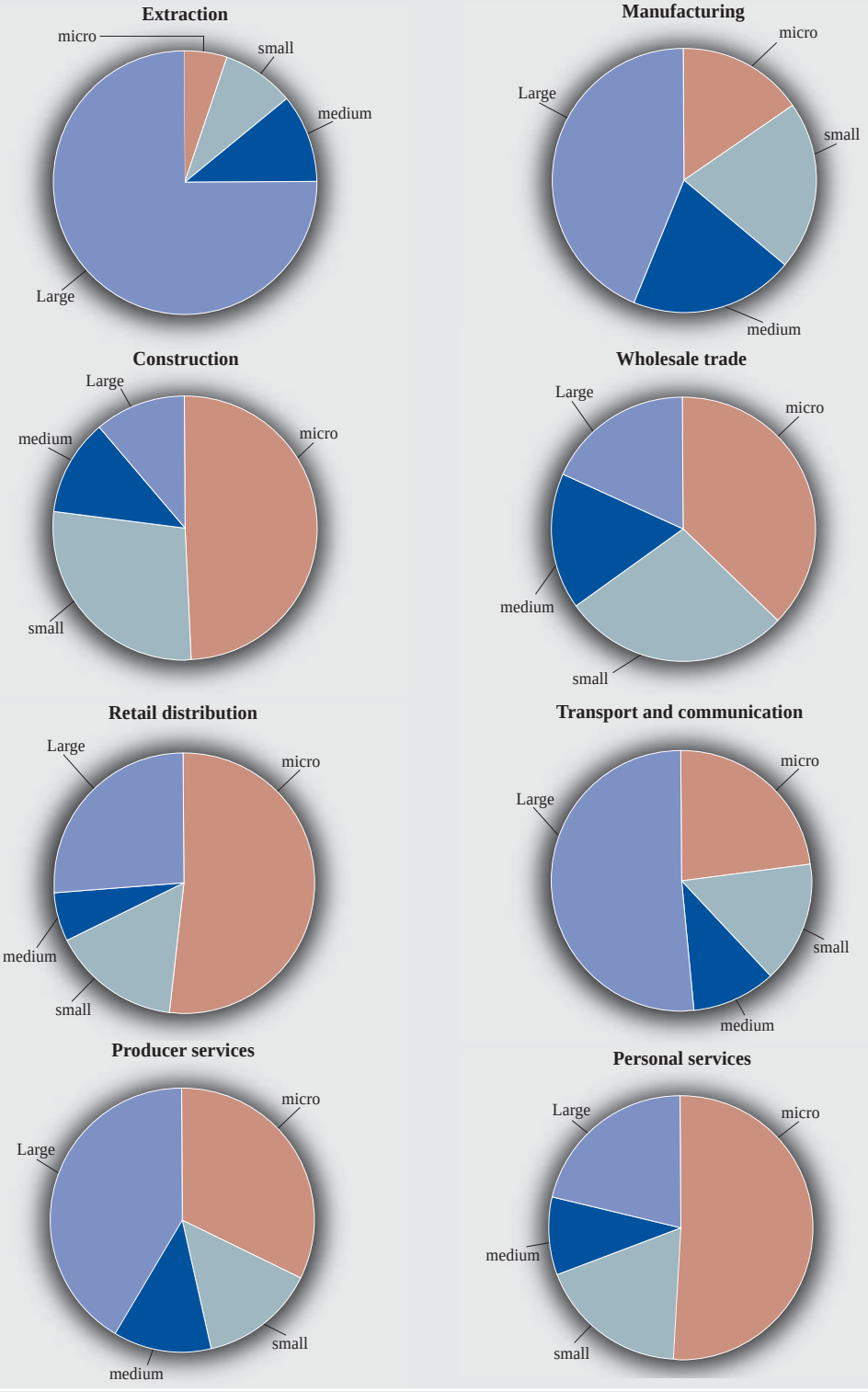
Source: Observatory of European SMEs (2003 data for number of enterprises and occupied persons, 2000 data for value added).
Note: Size is defined on the basis of the number of occupied persons (1 to 9 for micro firms, 10 to 49 for small firms, 50 to 249 for medium-sized firms, 250 and over for large firms).

Chart 35 Sectoral distribution by size class, EU-15



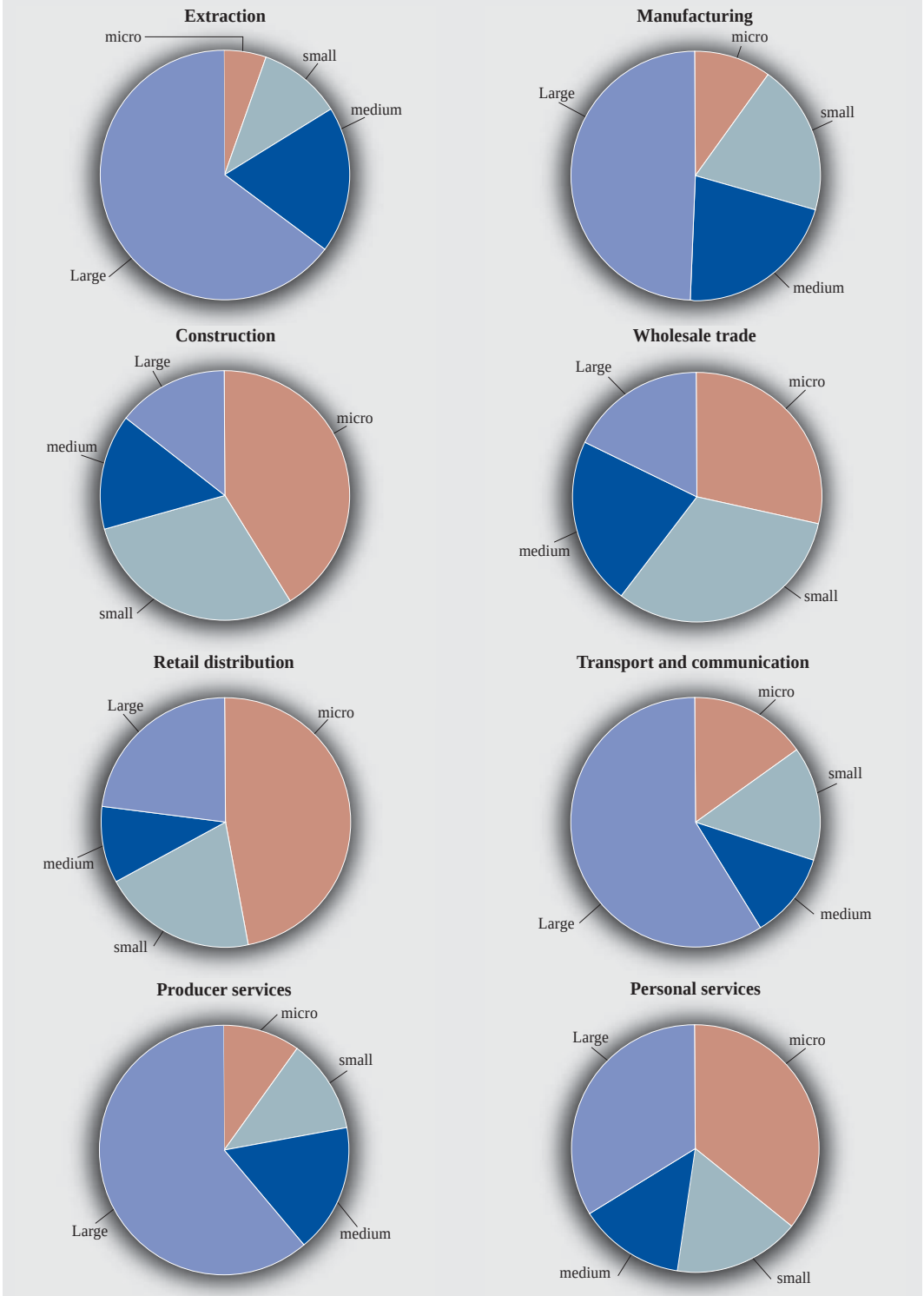
Source: Own calculations based on Observatory of European SMEs.
Notes: Data are for 2000 and are not readily available for the euro area. The sectoral breakdown corresponds to the NACE classification.

Chart 36 Weight in employment by size for each sector, EU-15



Source: Own calculations based on Observatory of European SMEs.
Notes: Data are for 2000 and are not readily available for the euro area. The sectoral breakdown corresponds to the NACE classification.

Chart 37 Contributions to value added by size for each sector, EU-15



Source: Own calculations based on Observatory of European SMEs.
Notes: Data are for 2000 and are not readily available for the euro area. The sectoral breakdown corresponds to the NACE classification.

Table 16 Weights in value added and employment by size group for each country

(in percentages, 2000 data)

	Value added					Employment			
	micro	small	medium	SME	large	micro	small	medium	SME
Austria	14	18	19	**51**	49	24	22	20	**65**
Belgium	29	20	15	**64**	36	43	16	10	**69**
Finland	18	14	12	**44**	56	26	17	16	**59**
France	18	15	13	**46**	54	34	19	14	**67**
Germany	19	21	19	**60**	40	28	20	11	**60**
Greece	34	30	19	**83**	17	57	17	13	**87**
Ireland	7	11	16	**33**	67	25	24	21	**70**
Italy	32	24	15	**71**	29	48	21	11	**80**
Luxembourg	9	14	51	**74**	26	24	24	25	**72**
Netherlands	16	16	24	**56**	44	25	18	19	**62**
Portugal	24	22	21	**67**	33	38	23	18	**79**
Spain	20	17	18	**66**	45	47	20	13	**79**
Euro area	23	20	17	**60**	40	36	20	13	**69**

Source: Observatory of European SMEs.

Table 16). While SMEs account for two-thirds of employment in the euro area, this share is much higher in Italy, Spain, Portugal and Greece (80% or more, based on data for 2000). Employment is especially concentrated in micro firms in these countries (as well as in Belgium). By contrast, the share of SMEs in employment is much lower in Germany, the Netherlands and Finland (at around 60%). In fact, among the four size groups, large companies clearly account for most of the employment in these countries as well as in Austria and Ireland. In terms of value added, the contribution from SMEs is above the euro area average of around 60% in Italy, Greece and Luxembourg (at around 70% or above), and considerably below in Ireland (at 33%), or in Finland and France (at around 45%).

ANNEX 4

METHODOLOGY FOR THE ANALYSIS OF THE FINANCING OF SMES: VARIANCE DECOMPOSITION AND WEIGHTING SCHEME

This annex explains the methodology used in Chapter 3 to address the question of how the financing pattern of SMEs differs from that of large firms when also accounting for sectoral and country factors.

VARIANCE DECOMPOSITION ACROSS FACTORS

A simple tool that can assess whether size matters for the financing pattern of a firm is the variance decomposition, which allows the variance of a dataset that can be explained by a certain factor (such as the firm size) to be compared with what is left unexplained by that factor. This tool is used here to analyse the relevance of a firm's size, both with respect to its sector of activity and its country of origin as a factor in explaining differences in firms' financial situation. Thus, by making full use of the size, sectoral and country dimensions of BACH, conclusions can be drawn on how relevant size is for the financing pattern vis-à-vis the sector of activity or country of origin.

The variance decomposition consists in decomposing the variance (actually the sum of squares) of a dataset organised by classes into the variances between and within these classes. The classes in this chapter are organised around factors such as size (3 size classes), sector (6), country (9) or time (11 years from 1995 to 2005, or a subset). Several overlapping factors can be captured in the decomposition. For instance:

$$SS = SS_{between\ d} + SS_{within\ d}\ .$$

Here the variance can be decomposed further in several ways:

$$SS_{within\ d} = SS_{d,between\ s} + SS_{d,within\ s} =$$

$$SS_{d,between\ i} + SS_{d,within\ i}\ ,$$

where d represents size classes, s sectors and i countries, and where $SS_{d,\ between\ s}$ is, for a given size class d, the sum of squares between sectors s.

The variance analysis considered in Chapter 3 is a one-factor analysis and not a multifactor variance analysis (i.e. one in which several factors would be considered at once). It sheds light on the significance of each factor (size, sector and country) for the financing pattern of firms, and on the relative contributions of each factor to the variance in this pattern. For example, when defining groups on the basis of size, the variance within groups for a given ratio (debt to equity, for example) can be used to capture how that ratio varies across countries and sectors in a given size group where by the variance for each size group is calculated using the observations in the different sectors and different countries, using 54 observations (six sectors times nine countries). The average variance for each one of these size groups reveals the variance within groups. This captures how different the average values in each size group are, and hence allows conclusions on how relevant the size dimension is in explaining financing patterns.

In the analysis, one observation – corresponding to the average over the period 1995-2005 – is taken for each size-sector-country group. Alternatively, one observation per year could have been used for each one of these size-sector-country groups. This would have implied an additional source of variation associated with the time dimension; however, this has not been considered here as the focus of our analysis is structural and not related to analysing how relevant time variation is in comparison to other sources of variability such as sector, country or size.

WEIGHTING SCHEMES

As shown in Annex 1, the sample of firms used in BACH is partly biased.[94] This bias could affect the conclusions obtained by variance analysis with regard to the relevance of size (or another factor) for the financing pattern of

94 There is some indication that the small firms sampled in BACH may be those which are in an optimal financial situation.

firms. To avoid such a problem, the analysis of variance across firms depending on their size class (or another factor) is based on weighted data, using the breakdown of value added by sector in the euro area national accounts (which are by definition representative of the economies in question). Thus, the variance within a size class is equal to the weighted sum of squared differences (i.e. the differences between the indicator and its weighted average in the size class), where the weights are the shares of value added for the sector-country combinations in total value added, aggregated over the sectors and countries considered. However, the variance between size classes is not weighted as there is a lack of information on size in the national accounts and applying instead the weights of each size class as derived from BACH would introduce a bias related to the uneven degree of representativeness of the database.

While allowing for the correction of biases in the country and sector representations in the BACH database, the weighting scheme applied in Chapter 3 when analysing the relevance of size in financing patterns also serves a second purpose similar to that of Chapter 2 (see also Annex 2). The role of the country there is replaced here by that of size, and the weighting scheme also allows the effect of size to be isolated by controlling for country and sectoral effects. Indeed, the weighting scheme used in this chapter also corresponds to applying the same country-sectoral composition to all size classes. While this ignores the heterogeneity that exists across size classes, it does allow the size-level variables to reflect cross-size differences rather than differences in the national concentration or sectoral composition of each size class.

In addition to the size factor, the relevance of the sector of activity and country of origin also analysed in the chapter using variance decomposition ideally calls for the use of similar weighting schemes, where the role of size is replaced respectively by that of sector or country. However, for the country-size and sector-size combinations, only a partial weighting scheme based on value added in the sectoral national accounts has been applied (again owing to the lack of information on size).[95] The use of partial weighting schemes in this chapter implies that the variation computed across sectors (and across countries) will not only reflect cross-sector (cross-country) differences, but also differences in the size class concentrations in each sector as reported in BACH.

95 BACH was still used to derive the weights for the sector-size combinations in Chapter 2, where it was crucial to weight the data by relating size for the purpose of the analysis conducted, notwithstanding the introduction of bias. Therefore, the size-sector combinations are not fully comparable to those of Chapter 2.

ANNEX 5

OVERVIEW OF EUROPEAN AND NATIONAL SURVEYS ON INVESTMENT/BUSINESS CONSTRAINTS

Table 17 Overview of European surveys on investment/business constraints

Country	Title	Conducted by	Periodicity/ last date	Sample size and sectors	Definition of size	Questions more directly related to business constraints
European countries (18 Member States of the EEA and Switzerland)	ENSR 2002 – results mainly published in "SME Access to Finance"	European Commission/ EIM Business and Policy Research	2002	Around 7,700 firms – Manufacturing, Construction, Wholesale, Retail, Transport/ Communication, Business services and Personal services	Three classes based on number of employees: [1-9], [10-49], [50-249]	Which of the following factors has been the major constraint on your business performance over the last two years? With how many banks do you have credit lines? Did you obtain all the loans you needed from your banks in the last three years? What is the most important reason why you did not get all the loans you needed?
European countries (18 Member States of EEA and Switzerland)	ENSR 2003 – results mainly published in "SMEs in Europe 2003"	European Commission/ EIM Business and Policy Research	2003	Around 7,800 firms – Manufacturing, Construction, Wholesale, Retail, Transport/ Communication, Business services and Personal services	Three classes based on number of employees: [1-9], [10-49], [50-249]	Which of the following factors has been the major constraint on your business performance over the last two years?
European countries (15 Member States prior to enlarge-ment)	Published in the Flash Eurobarometer 174 – "SME Access to Finance"	European Commission/ TNS Sofres, EOS Gallup Europe	October 2005	Around 3,000 firms – Construction, Industry, Services and Trade	Three classes based on number of employees: [1-9], [10-49], [50-249]	Would you say that in general your company's current financing is sufficient to see your projects through? Which of the following would best assure the development of your company? Which of the following institutions did your company go to in order to obtain one or several types of financing?
30 countries (20 OECD and 10 non-OECD members)	Results published in "The SME Financing Gap", Vol. I	OECD	December 2005	The survey is not at firm-level. It was directed to government policy and central bank personnel		The questionnaire asked about the existence of a financing gap, the reasons for such a gap, and the type of gap (equity or debt).

Table 18 Overview of national surveys on investment/business constraints

Country	Title	Conducted by	Periodicity/ last date	Sample size and sectors	Definition of size	Questions more directly related to business constraints	Results
Belgium	Survey on Investment	Nationale Bank van België/ Banque Nationale de Belgique	Twice a year/2005	Manufacturing, construction and services to enterprises	SME < 50 employees; large firms ≥50 employees	There is one question that looks at the evolution of credit standards (interest rates, charges and fees, credit volume, collateral) over the previous six months.	General credit conditions have been improving since 2002. Smaller firms tend to evaluate credit conditions less favourably than large firms.
Finland	Survey of Business Finances	Suomen Pankki, Confederation of Finnish Industries, and Ministry of Trade and Industry	Annually, 2006	Around 1,000 firms in manufacturing and service sectors	Micro <10, small between 10 and 49, medium-sized between 50-249 and large ≥250	Has your company encountered any problems in acquiring new external financing during the last 12 months?	Very few firms, even in the micro-firm class, claim to have encountered any problems in obtaining external financing (around 3% of service firms and 5% of manufacturing firms). Thus, financial factors do not seem to constrain firms' activities significantly.
France	(a) Quarterly survey of invest-ment, margins and liquidity (b) Yearly review based on balance sheet data	Banque de France	(a) Quarterly survey (b) Yearly review ("spot" review in June, compre-hensive review in September) – last review Sep. 2006	All sectors FIBEN data = About 90% of value added and employees (review based on a representative sub-sample)	Several definitions of size can be used: on the basis of employment, total assets, or turnover	A scoring of risk and default probability (with horizons of 1, 2, 3 years) is annually computed based on the balance sheet data. The balance sheet data completed with interview-based evidence are used to construct credit ratings at the firm level, which are provided to the banking sector (updated on a daily basis).	A low credit rating can be considered as an indicator of financing constraints. The credit rating distribution highlights a relationship between size and default as well as a relationship with the sector of activity.
Germany	a) Investment survey b) Mittel-stands Monitor Report	a) Ifo Institute b) KfW Bankengruppe	a) Twice a year, 2006 b) Annually, March 2006	a) About 2000 enterprises of manufacturing b) Databases of the Creditreform, IfM Bonn, RWI Essen, the Center for European Economic Research and KfW	a) size classes by employees: <50, between 50 and 199, between 200 and 999 and ≥1000	a) have financing restrictions influenced investment?	a) SMEs investment is more volatile than investment of large firms. b) In the 2005 report, SMEs listed the lack of financing as a obstacle to innovation.

Table 18 Overview of national surveys on investment/business constraints (cont'd)

Country	Title	Conducted by	Periodicity/ last date	Sample size and sectors	Definition of size	Questions more directly related to business constraints	Results
Italy	Survey of Industrial and Service Firms	Banca d'Italia	(not regular) 2003	3,143 firms in industry excluding construction, 994 non-financial service firms (C, D, E, G, H, I and K of NACE)	Four classes based on number of employees: [20-49], [50-199], [200-499], [≥250]	1. State whether, at the terms and conditions (cost and collateral) currently applied, the firm would like to borrow more from banks or other lenders. 2. If you answered yes to the above question, please say whether the firm would be willing, at present, to pay a slightly higher rate of interest or to accept slightly harsher terms and conditions (e.g. extra collateral) in order to borrow more.	1. The survey reveals that some 11% of firms, in industry and services alike, wish to borrow more from banks and financial institutions at current conditions regarding cost and collateral (this figure is 2.3% lower than in 2002). Regarding size, this figure is 10% of firms with less than 49 employees and 14% for firms with more than 50 employees. This may suggest that larger firms may be more constrained than smaller ones. 2. Only 3.2% of firms willing to accept slightly worse credit conditions were denied a loan.
The Nether-lands	Financing of business invest-ment: problematic or not? (translated from Dutch)	EIM	No periodicity, 2005	950 firms in manufacturing, construction and services	Three classes based on number of employees: [1-9], [10-49] and [50-499]	The sample is divided into four categories: firms that have obtained bank finance (34%), firms that are declined bank finance (4%), firms that avoid bank finance due to earlier negative experiences with banks (3%), and firms that rely on other financing sources, but not because of earlier negative experiences with banks (59%). The research looks into the following questions: What are the main bottlenecks for obtaining bank finance? According to banks, what should firms do to become eligible for finance? According to firms, what should banks do to become eligible as financiers?	Very few firms report to have encountered problems in obtaining external financing (3% of the sample), and few firms have avoided applying for bank financing purely because of difficulties in the past with obtaining bank finances (just 4% of the sample).

Table 18 Overview of national surveys on investment/business constraints (cont'd)

Country	Title	Conducted by	Periodicity/ last date	Sample size and sectors	Definition of size	Questions more directly related to business constraints	Results
Portugal	Survey on invest-ment	National Statistical Institute	Twice a year/ October 2005	Around 2,770 firms in sectors C, D, E, F, G, H, I, J, and K of NACE	Six classes based on number of employees: [4-19], [20-49], [50-99], [100-249], [250-499], [≥500]	1. Were your investment decisions constrained for any reason? 2. If yes, for what reason? 3. Out of the reasons mentioned, please indicate the most important one.	1. Around 50% of firms with less than 49 employees answered positively, while 46% of firms with more than 250 also answered the same way. 2. Three main reasons can be identified: decreasing sales, uncertain returns, and self-financing restrictions. Around 14% of firms mentioned the difficulty in obtaining credit. 3. However, this is "the most" important factor for only 4% of firms. [In the 1990s the ranking for the main reasons was: high level of interest rates, self-financing capacity, difficulty in obtaining credit.]
Spain	a) Survey on Industrial Investment b) Business confidence indicator	a) Ministry of Trade, Tourism and Industry b) Chamber of Commerce	a) Twice a year. September 2006 b) Quarter-ly / September 2006	a) Around 2100 Industrial firms b) Manu-facturing construction, trade, hotel and catering trade, other services,	a) Four classes based on number of employees: [49], [50-249], [250-499], [≥500] b) Four classes based on number of employees: [1-9], [10-49], [50-249], [≥250]	a) How are each of the four factors considered (demand, financial situation, technical factors and other factors) influencing investment? b) What factors limit your firms' activity?	a) In recent years, financial situation is ranked in second or third place as a factor influencing investment, after the evolution of demand and the category "other factors" (which includes economic policy, fiscal rules, etc). b) Financial difficulties are ranked in fourth place by around 11% of firms. This factor is among the most important factors that firms quote as limiting their activity in recent years, after the weakness of demand, the increase in competition and shortage of qualified workers. In general, smaller firms and firms in the manufacturing and construction sectors perceive themselves to be slightly more constrained by financial difficulties.

ANNEX 6

SELECTED EMPIRICAL STUDIES ON FINANCING CONSTRAINTS

Table 19 Selected empirical studies on financing constraints (mainly in euro area countries), by factor and methodology

		Mainly euro area countries		Other countries	
		Investment equation	Other methods	Investment equation	Other methods
Size	Smaller firms	Harhoff (1997) DE Galeotti et al. (1994) IT Bianco (1997) IT Gaiotti and Generale (2001) IT Beaudu and Heckel (2001) AT, BE, FR, IT,DE, ES, NL and PT Lünnemann and Mathä (2001) LU Butzen et al. (2001) BE Cincera (2002) BE Gérard and Verschueren (2002) BE Fuss and Vermeulen (2006) BE	Hyytinen and Pajarinen (2003) (micro firms) FI Hyytinen and Toivanen (2005) FI Hyytinen and Väänänen (2005) FI Athanasoglou et al. (2006) GR Wagenvoort (2003)		Almeida et al. (2004) Ayyagari et al. (2006) Beck et al. (2006) Beck et al. (2005) Carpenter et al. (1994) Demirgüç-Kunt and Maksimovic (1998) (in developing countries) Gilchrist and Himmelberg (1998) Opler et al. (1999) US
	No size effect	Bond et al. (2003a) BE, FR, DE and UK Bond et al. (2003b) DE and UK Chatelain et al. (2003) Van Ees et al. (1998) NL Carpenter and Rondi (2000) IT Chatelain and Tiomo (2001) FR Valderrama (2001) AT Chirinko, and von Kalckreuth (2003) DE von Kalckreuth (2001) DE Mizen and Vermeulen (2005) DE andUK	Pál and Ferrando (2006) AT, BE, FR, IT, DE, ES, NL and PT	Bond and Meghir (1994) UK Fazzari et al. (1988) Oliner and Rudebusch (1992)	Demirgüç-Kunt and Maksimovic (1998) (in developed countries)
	Other size effect	Kadapakkam et al. (1998) FR, DE, CAN, UK, US and JP Audrestch and Elston (2002) DE Drakos and Kalandranis (2005b) GR		Kadapakkam et al. (1998) FR, GR, CAN, UK, US and JP Devereux and Schiantarelli (1990) UK	Hu and Schiantarelli (1994)
Dividend payout	Low	Van Ees et al. (1998) NL		Bond and Meghir (1994) UK Fazzari et al. (1988)	Almeida et al. (2004)
	No dividend effect	Chatelain and Tiomo (2001) FR Chirinko, and von Kalckreuth (2003) DE Drakos and Kalandranis (2005b) GR Gaiotti and Generale (2001) IT			Gilchrist and Himmelberg (1998)
No bond rating		von Kalckreuth (2001) DE		Cummins et al. (2006) Whited (1992)	Almeida et al. (2004) Carpenter et al. (1994) Gilchrist and Himmelberg (1998) Hu and Schiantarelli (1994)
Age - Newer firms		Valderrama (2001) AT Carpenter and Rondi (2000) IT Lünnemann and Mathä (2001) LU Cincera (2002) BE Drakos and Kalandranis (2005b) GR	Hyytinen and Pajarinen (2003) FI	Devereux and Schiantarelli (1990) UK Oliner and Rudebusch (1992)	Beck et al. (2006)
Firms that do not belong to a group		Becker and Sivasadan (2006) (Amadeus) Carpenter and Rondi (2000) IT		Hoshi et al. (1991) JP	
Bank relationship	No stable relationship	Bianco (1997) IT García-Maro and Ocaña (1999) ES Valderrama (2001) AT			
	Other effects	Fuss and Vermeulen (2006) BE			
Leverage/bankruptcy risk		Van Ees et al. (1998) NL Gérard and Verschueren (2002) BE Drakos and Kalandranis (2005b) GR Fuss and Vermeulen (2006) BE Hernando and Martinez-Carrascal (2005) ES Chatelain and Tiomo (2001) FR			Hu and Schiantarelli (1994)

Table 19 Selected empirical studies on financing constraints (mainly in euro area countries), by factor and methodology (cont'd)

		Mainly euro area countries		Other countries	
		Investment equation	Other methods	Investment equation	Other methods
Sectoral		Butzen et al. (2001) BE Chatelain and Tiomo (2001) FR Cincera (2002) BE	Hyytinen and Pajarinen (2003) FI Bruinshoofd and Kool (2004) NL	Devereux and Schiantarelli (1990) UK	Rajan and Zingales (1998)
Low creditworthiness		Chirinko and von Kalckreuth (2003) DE Chirinko and von Kalckreuth (2002) DE Mizen and Verrmeulen (2005) DE and UK			
More uncertainty		Bo et al. (2003) NL			
Domestic ownership/ fewer shareholders		Cincera (2002) BE			Beck et al. (2006) Hu and Schiantarelli (1994)
Exchange listing	Unquoted	Cincera (2002) BE	Wagenvoort (2003)	Oliner and Rudebusch (1992)	
	No listing effect		Vermeulen (2002) Pál and Ferrando (2006) AT, BE, FR, DE, IT, NL, PT and ES		

Table 20 Short description of selected empirical studies on financing constraints (mainly in euro area countries)

Author(s)	Country (database), period	Methods	Dependent variable	Explanatory variables	Impact/ Main findings	Observations:
Almeida et al. (2004)	Compustat, 1971-2000	Estimates a model of liquidity demand with OLS and IV with fixed effects.	Δ cash holdings [cash holdings = (cash+ mark stable securities)/A]	CF/A, Q, Size (log of assets), Δ STD/A, Δ non-cash net working capital/A	Use five alternative approaches to divide the sample between constrained and unconstrained firms: payout policy, asset size, bond rating, commercial paper rating, Kaplan and Zingales (KZ) index. Constrained firms show a positive relation between cash and cash flow [smaller, with lower payout ratio, no rating]. The KZ index produces contradictory results.	Manufacturing listed firms. Size is measured by natural log of assets.
Athanasoglou et al. (2006)	Greece, 1998-2002	1) Relationship between the observed growth rate with the maximum growth rate obtainable with internal funds. 2) Estimate of the determinants of external financing – fixed effects	2) TD/A; LTD/A; STD/A	2) ROA; Tangible Assets/ A; size (log of sales); short-term assets/A; Growth prospects	1) The first part uses a financial planning model based on Demirgüç-Kunt and Maksimovic (1998). Most firms are not able to finance growth exclusively with internal resources. Results suggest that small firms may be more financially constrained. 2) The larger the size of a firm (log of sales), the higher its short term and long term indebtedness.	Only listed firms. Size is measured in terms of market value for the first part of the article.
Audrestch and Elston (2002)	Germany; 1970-1986	Accelerator model, including Q, by GMM estimates	I/K	(I/ K) t-1; Qt-1; (CF/K) t-1; (net sales/K) t-1; ownership concentration ; size (log of net sales)	Medium-sized firms appear to be more liquidity-constrained than either the smallest or the largest firms [the class identified as small size firms, already includes firms that can be considered as medium].	Size based on number of employees: the smallest firms have less than 500 employees. Considers the largest firms in Germany [1].
Ayyagari et al. (2006)	WBES survey on 80 countries in 1999 and 2000	Regressions (random effects and fixed effects) and the Directed Acyclic Graph methodology as a robustness test.	Firm growth	GDP per capita; firm size (log of sales); obstacles	Finance, crime and political instability are the obstacles which directly affect firm growth. Larger firms are less financially constrained.	In the survey, small firms employ 5 to 50 employees, medium: 51 to 500; large: more than 500. The survey covers many small and medium-sized firms.
Beaudu and Heckel (2001)	BACH database: Austria, Belgium, France, Italy, Germany, Spain, the Netherlands and Portugal; 1981-1996	Accelerator model (test the prediction of the credit channel)	ΔK t/ K t-1	ΔCA/CA t-1; ΔC /C t-1; (CF /K) t-1 [CA= turnover, C= cost of capital]	Smaller firms show greater sensitivity to higher investment cash flow	
Beck et al. (2006)	WBES survey on 80 countries in 1999 and 2000	Probit model	Financing obstacle	Country and firm characteristics (such as age, firm size, ownership, exchange listing, sector, etc.)	Older, larger and foreign-owned firms report lower financing constraints. [The size conclusion is robust for both definitions of size]. Monotonic relationship between size and financing obstacles.	Size is measured by log of sales and size dummies.

Table 20 Short description of selected empirical studies on financing constraints (mainly in euro area countries) (cont'd)

Author(s)	Country (database), period	Methods	Dependent variable	Explanatory variables	Impact/ Main findings	Observations:
Beck et al. (2005)	WBES survey on 54 countries in 1999 and 2000	Regressions	Firm growth	Firm characteristics (size = log of sales), sector, competition, inflation and obstacles	Survey results indicate that in the large majority of countries, the financing obstacle is the most important one to growth. Smaller firms are more constrained, and are also the ones that benefit most from a reduction in any obstacle.	Divides the sample in terms of number of employees (small <50; medium <500).
Becker and Sivasadan (2006)	AMADEUS, (26?) European countries, 1995-2003	Error correction model and Euler equation. GMM estimator	I/FA	1) (I/FA)t-1 ; log output; log output-1; log output-2; CF/FA; (CF/FA)t-1; error term 2) (I/FA)t-1; (I/FA)t-2; (EBITDA/FA)t-1; log outputt-1; log Kt-1	In general, there are financing constraints which are felt to be less severe when there is better financial development. Conglomerate firms face lower financing constraints (perhaps because they have access to internal capital). Do not study age or size.	Use a sample of large firms, as data quality is better than for small firms.
Bianco (1997)	Italy, 1983-1992	Euler equation	I/K	(I/K)t-1; (I/K)2t-1; (S/K)t-1; (CF/K)t-1; (D/K)2t-1	Firms with a stable relationship with a bank are less responsive to financial constraints. Smaller firms are more financially constrained than large ones.	Small firms are defined as having < 100 employees, large firms have > 500.
Bo et al. (2003)	The Netherlands, 1990-1997	1) Estimates threshold values for uncertainty variables; 2) GMM estimator of an investment equation	2) I/Kt-1	2) Market to book equity value; (S/K) t-1; Δ working capital/ K t-1; liquid assets/K t-1; CF (parameter estimated from the threshold estimation); It-1/ Kt-2	For reasonable assumptions, investment-cash flow sensitivities are a good measure of financing constraints. Firms confronted with greater uncertainty suffer more financing constraints.	96 listed firms
Bond et al. (2003a)	Belgium, France, Germany and the UK, 1978-1989.	Error correction model and Euler equation (GMM, within)	1) I/Kt-1; 2) (I/K)	1) It-1/Kt-2; sales growth; sales growth t-1; CF/Kt-1; CFt-1/ Kt-2; error term 2) (I/K)t-1; (I/K)t-12; (Gross operating profit/K)t-1; (output/K)t-1	The sensitivity of investment to financial variables is more significant in the UK than in the other countries. Results are consistent with differences in the financial systems of these countries. There is no size effect.	They investigate the effect of using consolidated or unconsolidated account data, and they conclude that this is not the reason t for the difference in results.
Bond et al. (2003b)	Germany and the UK, 1985-1994	Error correction model, estimated with GMM	I/Kt-1	It-1/Kt-2; sales growth; sales growtht-1; CF/ Kt-1; CFt-1/Kt-2; error term	Financial constraints are more relevant in the UK. British firms with no R&D are more constrained. There is no size effect, although this may be because there are no really small firms in the sample.	The sample may not include really small firms. Size is defined in terms of real sales. Discuss if results are derived from using consolidated or unconsolidated accounts

Table 20 Short description of selected empirical studies on financing constraints (mainly in euro area countries) (cont'd)

Author(s)	Country (database), period	Methods	Dependent variable	Explanatory variables	Impact/ Main findings	Observations:
Bond and Meghir (1994)	UK, 1974-1986	Euler equation estimated by GMM	I/K	(I/K)t-1; (I/K)t-12; (CF/K)t-1; (output/K)t-1; (D/K)t-12 ; dividends/K ; (dividends/K)t-1; share issue/K ; (share issue/K)t-1	There is excess sensitivity of investment to cash flow, no size effect but a dividend effect – there is an excess sensitivity of investment to cash flow concentrated among firms paying low dividends. Results are sensitive to the definition of financial constraints.	Listed firms, manufacturing
Bruinshoofd and Kool (2004)	The Netherlands, 1977-1997	Error correction model of liquidity holdings (fixed effects)	Liquidity holdings (log of liquid assets)	Size (log Assets); TD/A; STD/ (LTD+STD); ROA, average interest rate, sector, earnings uncertainty	Larger firms tend to hold less liquidity than smaller firms. This effect disappears when sector dummies are included.	The results may not be generalised as the dataset includes only the largest Dutch firms. Most are manufacturing firms
Butzen et al. (2001)	Belgium, 1985-1998	Neoclassical model augmented by cash flow, GMM estimation	I/Kt-1	Several lags of I/Kt-1; UCC growth; value added and CF/K	Estimate separate equations for different sizes and sectors. They work with the population and not a sample. Small firms' investment depends heavily on cash flow.	Covers almost all Belgian firms. A firm is considered large if it has at least 100 employees (and meets other criteria).
Carpenter and Rondi (2000)	Italy, 1977-1993	1) Accelerator model and 2) Euler equation estimated by GMM	1) I/Kt-1, 2) I/K	1) It-1/Kt-2; It-2/Kt-3; CF/Kt-1; sales growth; sales growth t-1; sales growth t-2; 2) (I/K)t-1; (I/K)t-2; (CF/K)t-1; (output/K)t-1	Size is not the most important dimension to consider. Age is a much more relevant dimension, and young firms face financing constraints. When combining both dimensions they say that a new, small firm's investment tends to be more sensitive to internal funds. Affiliation with pyramidal business groups appears to reduce the effect of financing constraints.	Manufacturing firms. The sample may not include small firms as it excludes firms with total sales beneath a certain threshold. Size is measured in terms of sales. Small firms have on average 250 employees, and large firms have 500.
Carpenter et al. (1994)	Compustat, 1981-1992	Estimates inventory investment model augmented by measures of internal finance (fixed effects, instrumental variables)	InvI / TA	Invt-1/TA, S/TA, (S/TA) t-1, (S/TA) t-2, CF/TA, (CF/TA) t-1, (CF/TA) t-2	Internal financing is relevant for all firms, but small firms have larger internal finance effects. Split the data into three panels: 1981:1-1983:4; 1984:1-1988:3 and 1988:4-1992:4. Also split the sample by bond ratings. Non-rated firms have larger cash flow effects than rated firms in all periods. Between periods, the effect is greater in Period 1 and smaller in the last period.	Manufacturing firms. Size is measured according to the value of total assets. Listed firms, quarterly data.

Table 20 Short description of selected empirical studies on financing constraints (mainly in euro area countries) (cont'd)

Author(s)	Country (database), period	Methods	Dependent variable	Explanatory variables	Impact/ Main findings	Observations:
Chatelain and Tiomo (2001)	France, 1990-1999	Several specifications of the neoclassical model.; error correction model and ADL. GMM and within estimates	I/Kt-1	Several lags of I/Kt-1; sales growth; CF/Kt-1; UCC; UCC growth and error term in ECM model	There is excess investment-cash flow sensitivity, but firm size is not a relevant issue. When the sample was split with respect to size, share of intangibles and the dividend payout ratio did not bring relevant results. Investment is more sensitive to cash flow for firms facing a high risk of bankruptcy, belonging to the equipment good sector and using more trade credit.	Only manufacturing firms. The authors say that there is a sample bias that could affect results. Size is measured in terms of number employees, S: 0-50; M:50-250, L:>250)
Chatelain et al. (2003)	Germany, France, Italy and Spain, 1985-1999	Neoclassical model – ADL specification by GMM and within estimates	I/Kt-1	Several lags of I/Kt-1; CF/Kt-1; UCC growth and sales growth	Investment is sensitive to cash flow movements in all countries. A small size-effect only exists in Italy.	
Chirinko and von Kalckreuth (2003)	West(ern) Germany, 1988-1997	ADL model, GMM estimates	I/Kt-1	Several lags of I/Kt-1; CF/Kt-1; UCC growth and sales growth	There is investment-cash flow sensitivity. The sample splits with respect to size, and payout ratios may not be relevant. A measure of creditworthiness could be used to sort firms. It can be concluded that financially constrained firms have greatly increased their sensitivity to cash flow.	Manufacturing firms. Firms are small if they have less than 100 employees.
Chirinko and von Kalckreuth (2002)	West(ern) Germany, 1988-1997	ADL model, OLS and GMM estimates	I/Kt-1	Several lags of CF/Kt-1; UCC growth and sales growth, interacting with credit worthiness information	Investment cash flow sensitivity is higher for financially constrained firms (as indicated by firms' creditworthiness). Use firms' credit- worthiness to discriminate firms. Do not study the size effect.	Manufacturing firms. To characterise the sample, assume that firms are small if they have <100 employees.
Cincera (2002)	Belgium, 1991-2000	Error correction model, GMM and other estimators	I/Kt-1	It-1/Kt-2; CF/Kt-1; CFt-a/Kt-2; sales growth, sales growth t-1 and error term	There are investment-cash flow sensitivities. Split the sample in terms of size, age, region, sector, ownership, exchange listing. Smaller, unquoted, domestic, younger, agricultural firms show more sensitivity.	Firms with more than ten employees.
Cleary (1999)	US, 1988-1994	Q (adjusted) model, Fixed effects	I/ Kt-1	CF/ Kt-1; "Q" = equity market-to book ratio; D/TA	The least constrained firms are the ones that are more sensitive to internal funds. Split firms in terms of dividends. Those decreasing dividends are considered financially constrained. Do not study size. No leverage effect.	.
Cummins et al. (2006)	US (Compustat and I/B/E/S), 1982-1999	Q (adjusted) model, GMM	I/K	QA or QM, CF/K, (I/K)t-1	After controlling for fundamentals using the analyst-based average q, investment is found to be insensitive to cash flow, even for firms typically thought to be liquidity constrained. The investment of unrated firms is more cash-flow sensitive.	Divide the sample in terms of bond rating.

Table 20 Short description of selected empirical studies on financing constraints (mainly in euro area countries) (cont'd)

Author(s)	Country (database), period	Methods	Dependent variable	Explanatory variables	Impact/ Main findings	Observations:
Demirgüç-Kunt and Maksimovic (1998)	30 countries, starting around 1980 and finishing around 1990	Financial planning model and regressions; OLS estimates	Proportion of firms that grow faster than predicted	Indicators on country and firm characteristics	The majority of firms grow more than they could have with only internal financing – this is true for AT, FI, FR, DE, NL and SP, but is not true for BE and IT. The relevant dimensions in terms of explaining results are associated with the country's legal and financial system, more than on firm characteristics. Size may of course matter, depending on the degree of country development. In developing countries, it seems that smaller firms may face higher financing restrictions; in developed countries this may not be the case.	
Devereux and Schiantarelli (1990)	UK, 1969-1986	Extended Q model GMM	Δ(I/K)	First differences of (I/K)t-1, Q, Qt-1, CF/K, (CF/K) t-1, Liquid assets/K, Liquid assets/K t-1, Debt/K, (Debt/K) t-1, Output/K, (output/K) t-1, (*)	Newer, larger firms seem to be more sensitive to cash flow.	Listed, manufacturing firms. Size is measured in terms of capital stock.
Drakos and Kallandranis (2005a)	Greece, 1993-2001	Sales accelerator model, estimated by GMM	I/Kt-1	It-1/Kt-2, CF/Kt-1, ΔS/Kt-1 leverage, age, size, confidence index	There is investment cash flow sensitivity.	Listed firms, size measured as value of total assets.
Drakos and Kallandranis (2005b)	Greece, 1993-2001	Sales accelerator model, estimated by GMM	I/Kt-1	It-1/Kt-2, CF/Kt-1, ΔS/Kt-1 leverage, age, size, dividend payout	There is investment cash flow sensitivity. Size and dividend payout do not appear relevant. New and highly leveraged firms are more financially constrained. Study size, age, leverage and dividend payout behaviour.	Results may reflect the sample selection bias. Size is measured by the value of total assets (small are below percentile 15).
Van Ees et al. (1998)	The Netherlands, 1983-1992	GMM estimates of a debt-constraint-augmented Euler investment equation			Employ factor analysis to create sub-samples. Debt constraints are relevant for firms with low dividend payout and high leverage firms, but firm size does not appear to be relevant.	Manufacturing firms. There may not be enough small firms and there may be a selectivity bias towards healthy firms. Size is measured by the value of capital stock.
Fazzari et al. (1988)	US, 1969-1984	1) Q model, 2) sales accelerator model, and 3) neoclassical model using fixed effects	I/ Kt-1	1) Q; CF/ Kt-1; lags of Q and CF/ Kt-1; 2) Q; CF/Kt-1; S/ Kt-1; lags of S/ Kt-1; 3) Q; CF/ Kt-1; S*/ Kt-1; lags of S*/ Kt-1 (S*=S/cost of capital)	The investment cash flow sensitivity is higher for firms paying fewer dividends. There is no size effect.	Manufacturing, listed, "typically" large firms. Samples are based on dividends.

Table 20 Short description of selected empirical studies on financing constraints (mainly in euro area countries) (cont'd)

Author(s)	Country (database), period	Methods	Dependent variable	Explanatory variables	Impact/ Main findings	Observations:
Fuss and Vermeulen (2006)	Belgium, 1997-2002	1) Error correction model; 2) probit estimation	1) I/Kt-1 2) extra bank credit	1) It-1/Kt-2, sales growth, sales growth t-1, CF/Kt-1, error term 2) size t-1; Bank debt/TA t-1; credit lines/TA t-1; CF/TA t-1; number of bank relationships	The number of bank relationships does not affect the degree of financial constraints, either in normal times or in cases of adverse liquidity shocks. Leverage is however relevant.	Do not consider very small firms. Size is measured by total assets.
Gaioti and Generale (2001)	Italy, 1989-1999	Error correction model and sales accelerator model, GMM estimator (within)	I/Kt-1	Several lags of I/Kt-1; CF/Kt-1, sales growth, UCC growth, UCC, and error term in the ECM	The impact of financial variables is stronger for smaller firms, i.e. firms with fewer tangible assets. The sample split based on dividends may not seem relevant.	Firms are small if they have less than 200 employees
Galeotti et al. (1994)	Italy, 1983-1987, (for large firms 1980-1987)	Q and Euler equations	Δ(I/K) and a function of Δ(I/K, I/Kt+1, I/K2)	First differences of Qt-1, Debt/K, CF/K, real discount rate, (B/K)2, (liquid assets /K)2, operating profits/K	Small firms are more sensitive to fluctuations in cash flow than large ones.	Manufacturing firms with more than 20 employees. Small firms have < 100 employees
García-Marco and Ocaña (1999)	Spain, 1990-1994	Euler equation (based on Whited 1992)	Estimates of an Euler investment equation including the effect of a debt constraint.		Study the impact of the bank relationship on investment decisions. The limits to the borrowing capacity of firms in which a bank exercises a control over its shareholding are relaxed or disappear. It is not possible to study size.	Size is measured by number of workers.
Gérard and Verschueren (2002)	Belgium, 1985-1999	Euler and reduced-form equations, GMM estimator	A function of It+1/K	Functions of CF/Kt-1; output ratio, user cost of capital, and uncertainty	Small firms, higher indebted firms, show more sensitivity.	Size is measured in terms of capital stock.
Gilchrist and Himmelberg (1998)	Compustat, 1980-1993	VAR	The VAR variables are I/K, marginal profit of capital, and CF/K		Smaller firms, and firms with no bond rating, show more investment cash flow sensitivity. It does not seem relevant to split the sample in terms of dividend payout.	Listed Manufacturing firms. Size is measured by sales.
Harhoff (1997)	Germany, 1990-1994,	Accelerator model, error correction model and Euler equation GMM estimator	1) I/Kt-1 2) I/Kt-1 3) (I/K)t+1;	1) It-1/Kt-2; CF/Kt-1; CFt-1/Kt-2; output growth; output growth t-1; 2) It-1/Kt-2; CF/Kt-1; CFt-1/Kt-2; output growth; output growth t-1; error term 3) I/K; (I/K)2; gross profit/K; Output/K; R&D/K; (R&D/K)2	Depending on methodologies, smaller firms' investment is more sensitive to cash flow. Also survey evidence can be presented that smaller firms may be facing financing constraints	More large firms in the sample. Size is measured in terms of sales.

Table 20 Short description of selected empirical studies on financing constraints (mainly in euro area countries) (cont'd)

Author(s)	Country (database), period	Methods	Dependent variable	Explanatory variables	Impact/ Main findings	Observations:
Hernando and Martinez-Carrascal (2005)	Spain, 1985-2001	Error correction model	I/K	(I/K)t-1; sales growth; sales growth t-1, debt burden t-1; (net indebtedness/A) t-1; (gross revenue/A)t-1; probability of default t-1; error term;	Study the sensitivity of fixed investment to firm indicators on profitability, the financial burden and indebtedness. The financial position of a firm affects its real activity, and the impact is more intense when financial pressure exceeds a certain threshold. Use alternative indicators to proxy the degree of financial pressure (debt burden; indebtedness). Do not study size or other dimensions.	Employment decisions can also be studied.
Hoshi et al. (1991)	Japan, 1977-1982	Q model	I/Kt-1	CF/K, STD/K, Q, Production/K	Independent firms are more sensitive to liquidity measures than firms belonging to a group. The results do not change when dividends are included in the model.	Listed, manufacturing firms
Hu and Schiantarelli (1994)	US, 1978-1987 (balanced panel) and 1960-1987 (unbalanced panel)	Estimates a switching regression model	I/K	Q, CF/K, (CF/K)t-1. The switching function includes firm variables (indebtedness, liquidity) sector and year dummies	Larger firms are more likely to belong to a class of firms with higher investment sensitivity to cash flow. This may be due to the fact that the ownership of small firms may be more concentrated, which could mitigate agency problems. Firms with more leverage, and unrated, are associated with greater sensitivity.	Relatively large, quoted firms. Genuinely small firms are not included. Size is measured by the log of capital stock s.
Hyytinen and Pajarinen (2003)	Finland, surveys conducted between 2001 and 2002	Descriptive analysis and logit regressions	Indicator variable =1 if a firm reports that passed projects because of financial constraints	Age, size, structure of assets, profits, growth prospects, etc.	10% of SMEs perceives themselves as financially constrained. Representative SMEs, however, do not seem to be financially constrained, although smaller, newer, more R&D-intensive and growth-oriented SMEs may indeed be financially constrained.	A SME is a small SME if it has les than 20 employees and 1 million euros in turnover.
Hyytinen and Toyvanen (2005)	Finland, surveys conducted in Dec. 2001 and Jan. 2002	Tobit regressions	Firm growth	Age, size, government funding, external dependence, ownership structure, etc.	The growth of small firms is constrained by access to external finance.	Size is measured by number of employees.
Hyytinen and Väänänen (2005)	Finland, surveys conducted between Dec. 2001-Aug. 2003	Probit regressions	Indicator variable =1 if a firm reports that it has passed on projects because of financial constraints	Measures of moral hazard and adverse selection; age; size; growth	Surveys point to that roughly 10% of SMEs are financially constrained. Conditioning to the firms that reported a need for external finance, this figure increases to 20%. The probability that a SME is financially constrained is more related to the problem of adverse selection than to moral hazard. Younger firms also face more financing constraints.	Small firms report financial constraints. Size is measured by number of employees.
Kada-pakkam et al. (1998)	Canada, France, Germany, Japan, the US and the UK, 1982-1991	"Investment" equation, within the estimator	ΔFA/FA	CF/FA, (cash/ FA)t-1, Qt-1 , (sales/FA)t-1	Internal financing affects investment, except in Japan. Larger firms display more investment cash flow sensitivity than smaller firms. Results are ensured by management agency issues and the greater flexibility of large firms in timing their investments.	Industrial firms. Results apply for three definitions of size based on firm value, sales and total assets.

Table 20 Short description of selected empirical studies on financing constraints (mainly in euro area countries) (cont'd)

Author(s)	Country (database), period	Methods	Dependent variable	Explanatory variables	Impact/ Main findings	Observations:
von Kalckreuth (2001)	Germany, 1988-1997	ADL model estimated by GMM	I/Kt-1	Several lags of I/Kt-1; CF/Kt-1; UCC growth and sales growth	Financially constrained firms (based on their rating) are more sensitive to internal funds. There is no small size effect. In one case, large firms were even more sensitive.	Size is measured by the number of employees.
Kaplan and Zingales (1997)	Compustat, 1970-1984 ("part" of the sample of Fazzari et al. 1988)	Q model, fixed effects	I/Kt-1	CF/K t-1 ; Qt-1	Qualitative and quantitative information can be obtained from annual reports and used to rank firms in terms of the degree of financial constraint. There is a negative correlation between the degree of financing constraints and investment-cash flow sensitivity. Investment CF sensitivities do not provide useful measures of financing constraints.	.
Love (2003)	36 countries (Worldscope database), 1988-1998	Euler equation, GMM estimates	I/K	I/Kt-1; I/Kt+1; S/K t-1; Cash t-1, Cash t-1*Financial Development	Financial development diminishes financing constraints. Small firms are disproportionately more disadvantaged in less financially developed countries than are large firms.	Listed firms.
Lünnemann and Mathä (2001)	Luxembourg, 1992-1998	Sales accelerator model, OLS and within an estimator (not GMM)	I/Kt-1	It-1/Kt-2; Cash t-1/ K t-1; sales growth, UCC growth	Weak evidence that smaller firms are more sensitive to cash. Younger firms are more financially constrained. The results regarding sector and governance structure are not clear.	Size is measured by total assets.
Mizen and Vermeulen (2005)	The UK and Germany, 1993-1999	Error correction model, GMM estimator	I/Kt-1	It-1/Kt-2; Sales growth; sales growtht-1; CF/ Kt-1; CFt-1/ K t-2; error term	The investment of UK firms is more sensitive to cash flow than the one of German firms. Study reasons such as financial system, firm size, industrial structure, creditworthiness. Size and differences in the financial system are not relevant. Creditworthiness (measured by sales growth and operating profits) is the main driving force.	Size is measured by log of sales. Use consolidated accounts.
Nilsen and Schiantarelli (2003)	Norway, 1978-1991	Switching regression model, logit model	I/Kt-1	Operating profit t-1 /Kt-2, (Operating profit t-1/Kt-2)2; St-1/Kt-2; (St-1/ Kt-2)2	Concludes on the importance of investment irreversibility and no convexities in adjustment costs.	
Oliner and Rudebusch (1992)	United States; 1977-1983	Reduced form model, estimated by OLS with fixed effects	I/K	Q, S/K, CF/K and firm characteristics: age, exchange listing, inside behaviour, equity ownership and size (as a proxy for transaction costs)	Study age, exchange listing, inside behaviour and equity ownership. Firms facing severe asymmetric information reveal more investment cash flow sensitivity (younger, unlisted firms and firms with a pattern of insider trading consistent with the existence of privately held information). Use firm size as a proxy for transaction costs. There is no size effect.	99 listed, 21 unlisted. Size is measured by the replacement value of fixed capital stock.

Table 20 Short description of selected empirical studies on financing constraints (mainly in euro area countries) (cont'd)

Author(s)	Country (database), period	Methods	Dependent variable	Explanatory variables	Impact/ Main findings	Observations:
Opler et al. (1999)	US; 1971-1994	Liquidity model, OLS, fixed effects	Natural log of Cash/ (Assets-cash)	Market to book ratio, CF/A, net working capital / A, leverage, R&D/S	Firms with strong growth opportunities, with riskier activities, and small firms, hold more cash than others. Firms that have the greatest access to the capital markets, such as large firms and those with high credit ratings, tend to hold lower ratios of cash to total non-cash assets. Results are consistent with the view that firms hold liquid assets to ensure that they will be able to keep investing when cash flow is too low, relative to investment, and when outside funds are expensive.	Listed firms; size is measured by the book value of assets.
Pál and Ferrando (2006)	AMADEUS database: Austria, Belgium, France, Germany, Italy, Netherlands, Portugal and Spain; 1994-2003	Liquidity model, GMM estimator, fixed effects,	Δcash/ TAt-1;	CF/TAt-1; Sales growth, Sales growtht-1, Δintangible fixed assets/ TAt-1; Δtangible fixed assets/ TAt-1; Δfinancial fixed assets/ TAt-1; Δnon cash working capital/ TAt-1; ΔSTD / TAt-1; (log TA = proxy for size)	The propensity to save cash out of cash flow is positive regardless of financing conditions. Small and unlisted firms do not have worse financial conditions. However, the results may be driven by the use of consolidated accounts. The significance of cash flow sensitivity of cash savings does not provide reliable evidence to distinguish euro area firms experiencing different financing conditions.	Use consolidated accounts. Size is measured by total assets and follows European Commission Standards. Results for SMEs may be peculiar to the sample.
Rajan and Zingales (1998)	41 countries, 1980-1990	Fixed effects	Industry growth	Country indicators, industry indicators and interactions between both	Questions whether industries that are relatively more in need of external finance develop disproportionately faster in countries with more developed financial markets. To do so, it takes US firms as a benchmark, but concludes that financial development facilitates growth.	Manufacturing firms.
Valderrama (2001)	Austria, 1979-1999	Accelerator error correction model, GMM estimator	I/Kt-1	It-1/Kt-2; sales growth; sales growtht-1; ΔUCC; ΔUCCt-1; liquid assets, liquidity ratio, error term	Firm characteristics that determine access to financial markets can be studied, such as size, age and relationship to another firm or a bank. Financial variables are significant determinants of investment demand, and there are differences across groups of firms. Age and size seem relevant but small firms are able to overcome liquidity constraints by using trade credit or having close relationships with a house bank.	Small firms have < 55 employees.
Vermeulen (2002)	Germany, France, Italy and Spain, 1995-1998	Estimates non-parametric kernel densities of the difference between investment and cash flow. The direct observation of financial constraints avoids the controversy around the investment-cash flow sensitivity debate.			It shows that a clustering of firms invests at a level below the level of cash flow. This indicates the presence of severe financing constraints for a fraction of firms (for all years, for all countries).	The sample does not include many small firms.

Table 20 Short description of selected empirical studies on financing constraints (mainly in euro area countries) (cont'd)

Author(s)	Country (database), period	Methods	Dependent variable	Explanatory variables	Impact/ Main findings	Observations:
Whited (1992)	US, 1972-1986	Euler equation	Estimates an Euler investment equation including the effect of a debt constraint.		This studies the size, bond rating and two measures of financial distress (D/A, interest coverage). Size is important but not the dominant factor determining access to financial markets. Both small and large groups of firms contain constrained firms. The effect of financial constraints appears to be stronger for firms that do not have ratings	Manufacturing, listed large firms, but the sample also includes unlisted firms. Size measured by capital stock and market value.
Whited (2006)	Compustat, 1983-1997	Hazard model	Examine the effect of financing constraints on the timing of large investment projects. The model establishes the hypothesis that external finance constraints lower a firm's investment hazard (the probability of undertaking a large project today as a function of the time since the last project).		Small firms that distribute cash to shareholders face more of a hazard than small firms that do not; very small firms have lower hazards than small firms; small stand-alone firms have significantly lower hazards than small segments of conglomerates. Cash flow sensitivities are not interesting measures of finance constraints (either they lack the power to detect financial frictions, or suffer from misspecification problems).	Size measured by total assets. A Euler equation is also estimated.
Wagenvoort (2003)	Amadeus, 1993-2001	Growth model, OLS and IV	Growth rate of assets	CF/At-1; Qt-1; (Equity book value / A)t-1; Size (logarithm of total assets)	The sensitivity of company growth to cash flow rises as company size falls, which suggests that SMEs have indeed encountered finance constraints. Quoted firms tend to suffer less from financial constraints than unquoted ones.	Excludes very small firms. Size measured by the number of employees and total assets.

Notes: CF = cash flow; FA = fixed assets; I = investment; Inv = inventory; K = stock of capital; LTD = long-term debt; Q = market value/book value of assets; QA = a Q-type measure based on analysts forecasts; QM = a Q-type measure based on market value; S = sales; STD = short-term debt; TA = total assets; TD = total debt; UCC = user cost of capital
1) Q is a function of market value, debt, liquid assets, K, tax rates and others.

ANNEX 7

METHODOLOGY AND RESULTS FOR THE ANALYSIS OF THE FINANCING OF SMES: A REGRESSION STUDY

This annex presents the methodology and the results of the regression analysis performed with unadjusted data from the BACH database. Several financing indicators over the period 1999-2005 are regressed on country, sector, size and year dummies. The estimated equation is

$$Y_{c,s,d,t} = \alpha + DumC_{c=1,...9} + DumS_{s=1,...6} + DumD_{d=1,..3} + DumT_{t=1,...6} + \varepsilon$$

where Y is the unadjusted financing indicator obtained from BACH, DumC is a dummy variable for country, DumS is a dummy variable for sector, DumD is a dummy variable for size and DumT is a dummy variable for year. The OLS estimation of this equation implies that one dummy per category needs to be dropped. In all estimations, the categories dropped are the ones for Country = Germany, Sector = Construction, Year = 1999 and Size = Large.

A summary of results is presented in Table 21 First, the table shows the estimated coefficients for the size dummy variables (* indicates a 1% significance level, ** indicates a 5% significance level, "ns" is reported otherwise). The coefficients should be interpreted in comparison to the omitted categories. That is,

Table 21 Regression analysis of selected financing indicators

	Gross operating profit to value added		Return on assets		Return on equity		Investment in tangible fixed assets to value added	
Model with all dummies	coef	st dev	coef	st dev	coef	st dev	coef	st dev
Schwarz medium-sized	-6.3	0.64 *	-0.3	0.17 **	-0.9	0.55 ns	4.5	3.71 ns
Small	-9.2	0.64 *	0.0	0.17 ns	1.2	0.55 **	10.6	3.70 *
Adj R-squared	0.68		0.28		0.26		0.09	
Number of observations	1130		1130		1129		1128	
Likelihood ratio test (Is size jointly significant?)	yes,*		ns		yes,*		yes,**	
Schwarz criteria (The best model considers:)	size, sector, country		sector, country, year		size, sector, country		sector, country	

	Bank loans to total debt		Bonds to total debt	
Model with all dummies	coef	st dev	coef	st dev
Schwarz medium-sized	10.8	0.80 *	-4.0	0.39 *
Small	14.3	0.84 *	-5.1	0.39 *
Adj R-squared	0.49		0.28	
Number of observations	1005		1130	
Likelihood ratio test (Is size jointly significant?)	yes,*		yes,*	
Schwarz criteria (The best model considers:)	size, sector, country		size, sector, country	

	Debt to equity		Debt to cash flow		Cash to total assets		Short term debt to total debt		Tangible fixed assets to total assets		Financial fixed assets to total assets	
Model with all dummies	coef	st dev	coef	st dev	coef	st dev	coef	st dev	coef	st dev	coef	st dev
Schwarz medium-sized	-5.0	9.3 ns	67	59.1 ns	1.9	0.2 *	0.6	0.8 ns	5.7	0.8 *	-10.3	0.7 *
Small	42.6	9.3 *	125	59.0 **	4.5	0.2 *	-0.7	0.8 ns	3.9	0.8 *	-9.1	0.7 *
Adj R-squared	0.31		0.17		0.64		0.67		0.68		0.45	
Number of observations	1130		1129		1130		1130		1130		1130	
Likelihood ratio test (Is size jointly significant?)	yes,*		ns		yes,*		ns		yes,*		yes,*	
Schwarz criteria (The best model considers:)	size, sector, country		sector, country		size, sector, country		sector, country		size, sector, country		size, sector, country	

the results report the difference between the value of the financing indicator for medium - sized (and small firms, respectively) and the value of the financing indicator for large firms.

In order to answer the question whether firm size is important, two different tests have been computed. The first is the likelihood ratio test of the joint significance of each dummy variable. Entries with "ns" mean that the size dummies are not jointly statistically significant. The second is Schwarz's information criterion (SIC). This is used to identify the set of dummies which best fit the data. As can be seen, the results are generally in line with the ones presented in Chapter 3.

ANNEX 8

RECENT CORPORATE GOVERNANCE REFORMS IN EURO AREA COUNTRIES

Table 22 The main characteristics of recent corporate governance reforms

(relating to enforcement and boards of directors)

	Companies	Enforcement	Composition and minimum number of independent directors	Disclosure of conflict of interest
AUSTRIA				
2002 Code of Corporate Governance (amended 2005 and 2006)		comply or explain for most rules	X	X
2005 Market Abuse Directive	listed	legal consequences		
BELGIUM				
2004 Code Lippens	listed	comply or explain	X	X
2005 Code Buysse	non-listed	recommendations	X	X
2006 Royal Decree on Market Abuse	listed			
FINLAND				
2003 Corporate Governance Recommendations for Listed Companies	listed	comply or explain	X	X
2006 Improving Corporate Governance of Unlisted Companies	non-listed	voluntary		
GERMANY				
2002 Corporate Governance Code (amended 2003, 2005 and 2006)	listed	comply or explain for most rules (otherwise voluntary)	X	X
GREECE				
2002 Company Law			X	X
2005 Prospectus Directive	listed			
2005 Market Abuse Directive	listed	Administrative and penal sanctions		X
2006 Takeover Bids	listed	sanctions		
IRELAND				
2001 Company Law Enforcement Act	All	Legally enforceable (the Office of the Director of Corporate Enforcement was set up under this Act) (see http://www.odce.ie/)		
Decision Notices issued by the Office of the Director of Corporate Enforcement (see http://www.odce.ie/publications/decision.asp)				X Notice on transactions with directors
2003 Companies (Auditing and Accounting) Act			X (For Audit Sub-Committees of the Board)	
2006 Revised Combined Code June		comply or Explain		
LUXEMBOURG				
2006 Ten Principle of Corporate Governance	listed	comply or explain		
NETHERLANDS				
2003 Corporate Governance Code	listed	comply or explain	X	
PORTUGAL				
1999 CMVM's Recommendations on Corporate Governance (last updated in 2005)	listed	comply or explain	X	
2006 Important changes to the Companies Code	all Listed and large-size companies	civil liability and penal sanctions	 X	X
SPAIN				
2003 Aldama Report	listed	comply or explain		X
2005 Conthe Code	listed	comply or explain	X	
2002 Financial system reform measures	listed	legally binding		
2003 Transparency Law	listed	X		X

Sources: NCBs and authors' own assessment.
Note: an "X" implies that the Law or Code in the first column addresses the issue.

Table 23 The main characteristics of recent corporate governance reforms

(relating to shareholders' rights and auditors)

	Shareholders' rights	Information disclosure	Audit Committee	Auditors	Market abuse
AUSTRIA					
2002 Code of Corporate Governance (amended in 2005 and 2006)		X			
2005 Market Abuse				X	X
BELGIUM					
2004 Code Lippens	X	X	X		X
2005 Code Buysse	X		X	X	
2006 Royal Decree on Market Abuse					X
FINLAND					
2003 Corporate Governance Recommendations for Listed Companies		X	X	X	X
2006 Improving Corporate Governance of Unlisted Companies					
GERMANY					
2002 Corporate Governance Code (amended 2003, 2005 and 2006)	X	X	X	X	
2004 Accounting Legislation Reform Act				X (conflict of interest of auditors)	
2004 Accounting Enforcement Act		X (external control of financial statements)			
2005 Act on corporate integrity and modernisation of the right to challenge resolutions of shareholders' meetings (UMAG)	X				
2005 Act on disclosing the remuneration of executive board members of listed companies (VorstOG)		X			
2005 Act on class action litigation for investors (KapMuG)	X				
GREECE					
2002 Company Law		X	X		
2005 Prospectus		X			
2005 Market Abuse Directive					X
2006 Takeover Bids	X				
IRELAND					
2001 Company Law Enforcement Act		X			
Decision Notices issued by the Office of the Director of Corporate Enforcement. http://www.odce.ie/publications/decision.asp					
2003 Companies (Auditing and Accounting) Act			X	X	
2006 Revised Combined Code, June	X				

Table 23 The main characteristics of recent corporate governance reforms (cont'd)

(relating to shareholders' rights and auditors)

	Shareholders' rights	Information disclosure	Audit Committee	Auditors	Market abuse
ITALY					
2003 Company Law Reform	X	X (disclosure at group level)	X		
2006 Code for Corporate Governance			X	X	
2005 Law for the Protection of Savings	X (lower thresholds for company actions against directors and for proxy voting)	X (disclosure of equity-based incentive plans)	X	X (assignment and incompatibility requirements)	X
LUXEMBOURG					
2006 Ten Principles of Corporate Governance		X (Corporate Governance Charter, remuneration policy)	X		
NETHERLANDS					
2003 Corporate Governance Code			X (only for boards with more than four members)		
PORTUGAL					
1999 CMVM's recommendations on corporate governance (last updated in 2005)	X	X (Corporate Governance Report and remuneration schemes)	X		
2005 Transpositions of Market Abuse Directive					X
2006 Important changes to the Companies Code	X	X	X	X	
SPAIN					
2003 Aldama Report		X			
2005 Conthe Code		X (remuneration of directors)			
2002 Financial system reform measures			X	X	
2003 Transparency Law	X	X (Annual Corporate Governance Report)			X

Sources: NCBs and authors' own assessment.
Note: an "X" implies that the Law or Code in the first column addresses the issue.

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