CORPORATE INDEBTEDNESS IN THE EURO AREA

Since the second half of 2009 the debt ratios of non-financial corporations have gradually declined from the high levels of indebtedness accumulated previously. This occurred in an environment that changed with the outbreak of the financial crisis in the late summer of 2007 and is characterised by substantially increased credit risk and risk aversion, as well as stronger debt sustainability concerns in general. The ratio of debt to total assets of non-financial corporations has declined somewhat, from 46% in the second quarter of 2009 to 43% in the first quarter of 2011, stabilising in the second quarter.[1]

The gradual decline in debt ratios reflects both demand and supply-side factors affecting credit to the corporate sector. As regards the demand side, lower levels of economic activity and, in particular, weaker capital formation, as well as a higher propensity to retain earnings have contributed to firms' reduced need for external financing. On the supply side, the tighter credit standards applied by banks have curtailed the growth of bank loans to the non-financial corporate sector. This has contributed to firms' deleveraging, but also to a change in the capital structure of firms overall towards a lower share of bank loan financing relative to market-based financing. At the same time, corporate debt ratios are substantial by historical standards. This can be seen, in particular, in long-term comparisons with non-financial businesses in the United States.

An important aspect of corporate indebtedness in the euro area relates to the high degree of heterogeneity across euro area countries, mainly in terms of the levels of corporate debt upon the outbreak of the financial crisis, but also with respect to the pace of deleveraging since mid-2009. Nevertheless, firms in most of the largest euro area countries started to deleverage gradually in mid-2009, thus reflecting the overall euro area picture. Another important dimension of heterogeneity in euro area corporate indebtedness relates to the role played by the size of the firm. According to survey evidence, on balance, a higher percentage of large firms indicated a decline in their debt-to-assets ratios from 2009 to 2011 than small and medium-sized enterprises (SMEs).

Looking at the impact of this deleveraging on the outlook for debt sustainability, non-financial corporations have reduced somewhat their vulnerability in this respect, as shown by the fact that their debt service burden has declined from a peak in 2009. Notwithstanding this positive signal, the still very high level of indebtedness of non-financial corporations by historical standards points to remaining vulnerabilities, in particular in scenarios of higher costs of debt financing.

1 INTRODUCTION

The indebtedness of non-financial private sectors (i.e. households and non-financial corporations) in the euro area increased rapidly over the past decade, broadly until 2009. This rise in indebtedness to high levels has heightened the vulnerability of the non-financial private sector to interest rate developments and negative credit risk assessments by market participants.

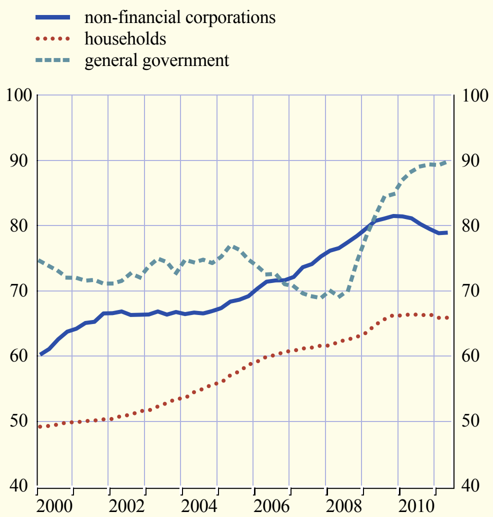
While debt has positive implications for growth up to a certain degree, as it helps investors to finance growth via taking up loans or issuing debt securities, it becomes harmful for growth when it becomes too high.[2] The financial crisis, which started in mid-2007 and intensified in September 2008, brought about a rethink of what constitutes a sustainable level of debt, as well as a rediscovery of credit risks. This, in turn, led to efforts by debtors to reduce their indebtedness. While weak economic activity led to a further rise in debt ratios in the course of

1 This article includes data from the integrated euro area accounts up to the second quarter of 2011.

2 Cecchetti, S.G., Mohanty, M.S. and Zampolli, F., "The real effects of debt", *Working Paper Series*, BIS, No 352. See also Section 5 of this article.

Chart 1 Debt-to-GDP ratios of non-financial sectors in the euro area

(percentages)



Source: ECB.
Notes: Debt of households consists of loans. Debt of non-financial corporations and general government includes loans (excluding inter-company loans), debt securities and insurance technical reserves. General government debt-to-GDP ratio is according to the integrated euro area accounts.

2009, the non-financial corporate debt-to-GDP ratio started to decline gradually, from 81% in the last quarter of 2009 to 79% in the second quarter of 2011 (see Chart 1). Households' debt-to-GDP ratio continued to increase up to the second quarter of 2010, but declined slightly thereafter until the second quarter of 2011. In contrast to the non-financial private sectors, during the crisis, general government debt went in the opposite direction.[3] The economic downturn and, related to this, weaker government revenues and higher expenditures, led to a steep increase in general government debt ratios during the financial crisis up to the second quarter of 2011. The increase in public sector debt has repercussions on private sector funding when country risk premia increase and when sovereign risks spill over to bank lending conditions and to conditions for market-based funding of corporations. Hence, the financial crisis has pointed clearly to the interconnectedness of private and public sector balance sheets.

Based on this general picture of debt developments across sectors, this article focuses on debt developments for non-financial corporations in the euro area. Section 2 describes in detail non-financial corporate debt developments in the euro area and across euro area countries during the past decade and gives reasons for these developments. In addition, this section includes a box comparing non-financial corporate debt developments in the euro area and the United States. Section 3 turns to the composition of external financing and the role of debt in the financing of euro area non-financial corporations. In particular, it looks at changes in the funding structure of non-financial corporations during the financial crisis. Section 4 investigates the external financing needs and debt developments of small and medium-sized enterprises and large firms in the euro area based on firm-level data, as well as debt financing across the main industry sectors. Section 5 focuses on the crucial question of debt sustainability and discusses indicators that may help to assess corporate debt sustainability. Finally, Section 6 concludes by summarising the key points of this article.

2 DEVELOPMENTS IN CORPORATE INDEBTEDNESS IN THE EURO AREA

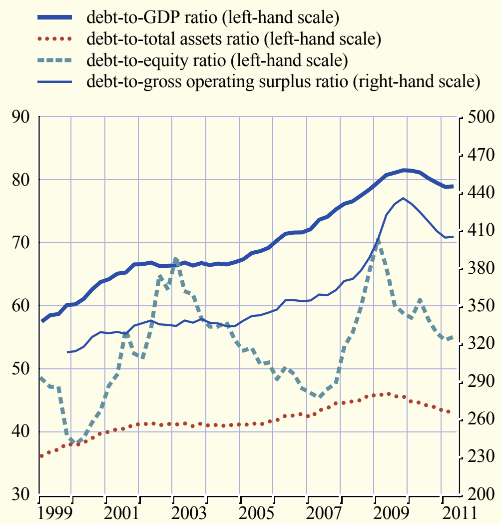
The sharp increase in euro area non-financial corporate debt, from a debt-to-GDP ratio of 57% in the first quarter of 1999 to a peak of 81% in the fourth quarter of 2009, reflected a build-up of corporate debt over different phases (see Chart 2; see also the box for a longer-term perspective).[4] From the second half of the 1990s until the beginning of 2002, non-financial corporate debt ratios increased in the environment of the "new economy boom", when

3 The definition of general government debt based on the integrated euro area accounts differs from the Maastricht definition of government debt in that it is non-consolidated and at market value.

4 Non-financial corporate debt includes loans (excluding inter-company loans, i.e. loans extended between non-financial corporations), debt securities issued by non-financial corporations and pension fund reserves of non-financial corporations.

Chart 2 Debt ratios of non-financial corporations in the euro area

(percentages)



Source: ECB.
Notes: Debt of non-financial corporations includes loans (excluding inter-company loans), debt securities and insurance technical reserves. Financial assets have been consolidated with inter-company loans, shares and other accounts receivables excluding trade receivables.

conditions for financing firms' real and financial investment were favourable and loan growth was high. After a subsequent period of balance sheet consolidation, euro area non-financial corporate debt-to-GDP ratios increased again from 2005 onwards and peaked in 2009. This development is reflected by a variety of debt indicators. While the debt-to-GDP ratio relates corporate indebtedness to economic activity, the ratio of debt to gross operating surplus of non-financial corporations reflects corporate debt relative to income generation. This ratio is particularly informative for the assessment of debt sustainability, as the gross operating surplus is used for debt repayment (see Section 5). The debt-to-gross operating surplus ratio rose from 313% in 1999 to 437% in the fourth quarter of 2009 and fell thereafter, to 405% in the second quarter of 2011 (see Chart 2). The sharp increase in the second half of 2008 and in 2009 was driven mainly by a decline in the gross operating surplus as a result of weak economic activity. The increase was less pronounced for the debt-to-assets ratio, which includes both fixed and financial assets, and is thus more comprehensive regarding the assets of non-financial corporations that generate income or may be sold if necessary. The debt-to-total assets ratio[5] increased from 36.2% in the first quarter of 1999 and peaked in the second quarter of 2009 at 46.2%. It declined gradually thereafter, to 43% in the second quarter of 2011. In contrast to other debt ratios, the debt-to-equity ratio of non-financial corporations is more volatile, largely driven by valuation effects owing to movements in equity prices.

Hence, most of the debt ratios of euro area non-financial corporations peaked in the course of 2009 and fell back somewhat until 2011, when some stabilisation seems to have occurred. This reflects the impact of the business cycle and non-financial corporations' efforts to deleverage in an environment of increased sensitivity towards credit risks. The rise in the debt-to-assets ratios was generally more moderate than that in the ratios of debt to economic activity. This shows that the rise in non-financial corporations' indebtedness was backed to a large extent by an increase in assets, which can be used as collateral and allowed firms to take up more debt. At the same time, the rise in indebtedness relative to firms' income raises concerns regarding corporate debt sustainability (see Section 5).

The strong decline in economic activity in 2008 and 2009 led to a substantial fall in the demand for credit owing to lower capital formation and less need for working capital by non-financial corporations. In addition, the substantial decline in non-financial corporations' merger and acquisition activity from 2008 until the first quarter of 2010 reduced non-financial corporations' demand for external financing. The accumulation of debt thus declined considerably driven by the demand side. This is also evident from the bank lending survey, in which participating banks reported a decline in net demand for loans from enterprises from

5 Debt and assets exclude inter-company loans. Shares and other equity (excluding mutual fund shares) and other accounts (without trade credit) were netted in the definition of assets.

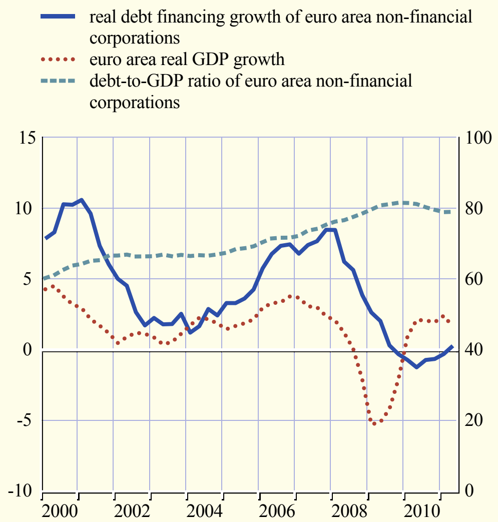
the first quarter of 2008 to the second quarter of 2010, and again in the third quarter of 2011.

Moreover, constraints in the supply of bank loans may have contributed to firms' deleveraging. In the period before the financial crisis, the rise in firms' debt levels received limited attention, in particular, as the cost of debt financing and the interest payment burden of non-financial corporations stood at moderate levels. However, the attitude of banks and market participants changed during the financial crisis, when banks themselves came under pressure in their access to funding in relation to balance sheet concerns. Banks participating in the euro area bank lending survey reported in 2008 and 2009, and again in the third quarter of 2011, that the cost of funds and balance sheet constraints that they were experiencing contributed considerably to the net tightening of credit standards on loans to enterprises.[6] In addition, during the same period, a substantial net percentage of banks reported a widening of margins on loans, which was greater for riskier loans than for average loans. As regards market-based financing of non-financial corporations, the cost of debt securities financing for non-financial corporations rose considerably in 2008 in the context of increasing market concerns about the creditworthiness of borrowers. As a reaction to such developments in bank lending and market-based debt financing, and in addition to the cyclical decline in demand for external financing, firms may have increased their efforts to deleverage in order to secure or improve their creditworthiness.

Debt deleveraging by non-financial corporations can also be seen from developments in real debt financing growth and real GDP growth (see Chart 3). In 2008 and 2009 the real debt financing growth of non-financial corporations declined markedly and turned negative from the fourth quarter of 2009 until the first quarter of 2011. In addition, the decline in real debt financing growth continued until the second quarter of 2010, whereas GDP growth had already started to recover in 2009. This is in line with evidence on historical patterns of loans to non-financial corporations, which tend

Chart 3 Real debt financing growth of non-financial corporations and real GDP growth

(annual percentage changes, deflated by the GDP deflator; percentages)



Source: ECB.
Note: Debt financing includes loans (excluding inter-company loans), debt securities and pension fund reserves.

to lag the cycle by about three quarters.[7] It can also be seen from Chart 3 that the decline in the debt-to-GDP ratio of euro area non-financial corporations from its peak in the last quarter of 2009 started around one to two years after the decline in GDP growth.

Debt deleveraging by non-financial corporations was helped by the considerable internal funds that firms had accumulated. From the third quarter of 2009 to the second quarter of 2010 non-financial corporations increased markedly their retained earnings, which was reflected in corporate saving (and net capital transfers). Corporate saving remained broadly stable in relation to GDP from that time until the second quarter of 2011 (see Chart D in the box). This led, in combination with strongly declining capital formation, to a substantial narrowing of the financing gap of non-financial corporations (which is the ratio of

6 See the results of the euro area bank lending survey on the ECB's website.
7 See the article entitled "Recent developments in loans to the private sector", *Monthly Bulletin*, ECB, January 2011.

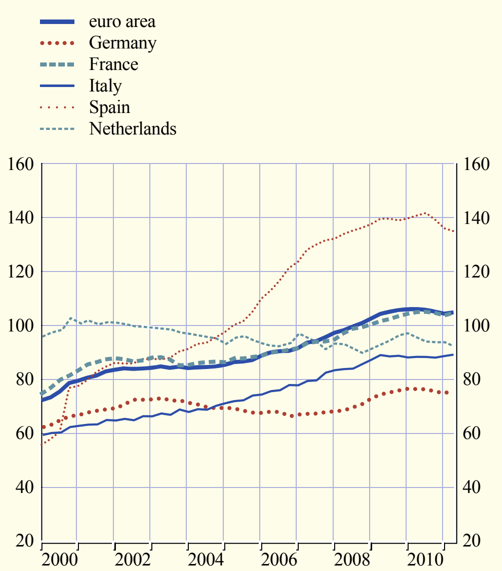
net lending (+)/net borrowing (-) to GDP), which even turned temporarily into a surplus (from the fourth quarter of 2009 to the fourth quarter of 2010). The development of corporate earnings is broadly in line with evidence on corporate profit developments based on firm-level data. According to this evidence, the return on firms' assets increased from the second half of 2009 to mid-2010 and then remained broadly stable until mid-2011 in an environment of increasing cost pressures and a slowdown in the growth of sales.

While there was a moderation in the levels of various debt indicators for non-financial corporations in 2010 and the first quarter of 2011 at the euro area level, the picture is heterogeneous across euro area countries.[8] First, as regards the level of debt ratios, non-financial corporations in Germany have had the lowest debt-to-GDP ratio out of the five largest euro area countries since the fourth quarter of 2004 (see Chart 4). By contrast, in Spain the ratio was considerably above the euro area level for most of the period under review. At the same time, with regard to the ratio of debt to financial assets, French non-financial corporations were below the euro area average throughout the entire period under review, whereas Italian non-financial corporations were considerably above the euro area level (see Chart 5). Looking at debt developments from 2000 to the second quarter of 2011, of the five largest euro area countries, the debt-to-financial assets ratios of non-financial corporations increased most in Italy and Spain, whereas they were more stable in France and Germany. In all four countries, non-financial corporations' debt ratios started to decline in the second quarter of 2009, reflecting euro area developments. However, while the debt-to-financial assets ratio of non-financial corporations in Germany, France and Spain remained broadly stable in 2011 up to the second quarter, for Italian non-financial corporations

8 This article focuses mainly on the five largest euro area countries.

Chart 4 Debt-to-GDP ratio of non-financial corporations in selected euro area countries

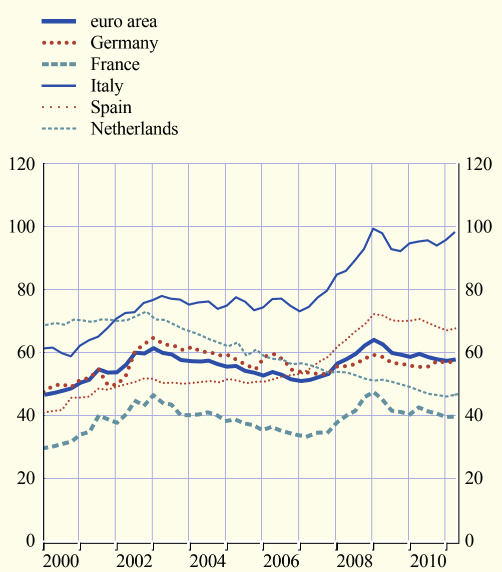
(percentages)



Sources: ECB and Eurostat.
Note: Debt includes all loans, debt securities and pension fund reserves.

Chart 5 Debt-to-financial assets ratio of non-financial corporations in selected euro area countries

(percentages)



Sources: ECB and Eurostat.
Notes: Debt includes all loans, debt securities and pension fund reserves. Financial assets include currency and deposits, loans, debt securities, shares and other equity, other accounts receivable and insurance technical reserves.

this ratio started to build up again this year. In addition, based on the debt-to-financial assets ratio, Dutch non-financial corporations started to deleverage much earlier (from the first quarter of 2003) than non-financial corporations in the other four largest euro area countries.

Box

COMPARISON OF CORPORATE INDEBTEDNESS IN THE EURO AREA AND THE UNITED STATES

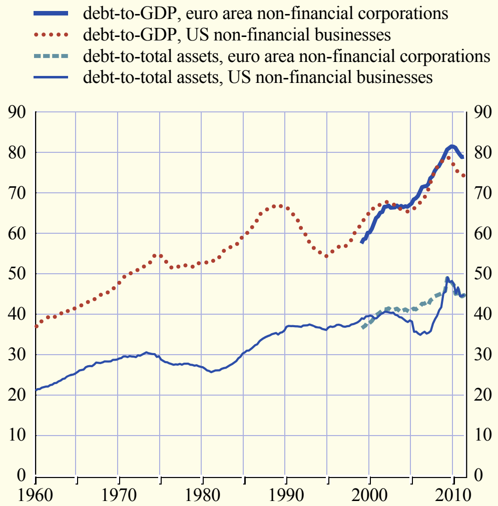
This box compares the indebtedness of euro area non-financial corporations with that of non-financial businesses in the United States, which is the most comparable sector.[1] At the time of the outbreak of the financial crisis non-financial corporations in both economies had a high level of debt and started to deleverage from 2009 in the context of the crisis. Both demand factors, given the sharp decline in economic activity since the last quarter of 2008, and supply constraints, in terms of the provision of bank lending, have contributed to the decrease in non-financial corporations' debt ratios. In addition, an increase in earnings has helped firms to deleverage.

Debt ratios of non-financial corporations in the euro area and the United States – a long-term perspective

Taking a long-term perspective, Chart A shows that the debt-to-GDP ratio of US non-financial businesses has broadly doubled during the past 50 years, from 37% in 1960 to 74% in the second quarter of 2011. The increase in the debt-to-total assets ratio has been similarly pronounced, from 21% in 1960 to 45% in the second quarter of 2011. The rise in the debt-to-GDP ratio of US non-financial businesses was particularly marked during the 1980s, in an environment of elevated inflation and interest rates, while it declined considerably in the first half of the 1990s. In the second half of the 1990s until 2002, the debt-to-GDP ratio quickly built up again in the context of the "new economy boom" and reached similar levels to those seen in 1989. This rise in debt mainly reflected very strong loan growth in the second half of the 1990s up to 2000 to finance substantial investment, driven by high levels of confidence in strong

Chart A Debt ratios of non-financial corporations in the euro area and the United States

(percentages)



Sources: Bureau of Economic Analysis, Board of Governors of the Federal Reserve System and ECB.
Notes: Debt excludes inter-company loans. For the euro area, assets have been consolidated with inter-company loans, shares and other accounts (excluding trade credit receivables). Shares and other equity (excluding mutual fund shares) and other accounts (without trade credit) were netted in the definition of assets, as these are not included in the US data.

1 The US non-financial business sector includes all corporate and non-corporate non-financial businesses. In contrast to the euro area non-financial corporate sector, it also includes sole proprietorships, which are in the household sector in the integrated euro area accounts. See also the box entitled "Corporate financing developments – a comparison between the euro area and the United States" in the article "Developments in corporate finance in the euro area", *Monthly Bulletin*, ECB, November 2005; and the box entitled "Comparability of the national account data of the United States and the euro area" in the article entitled "Developments in private sector balance sheets in the euro area and the United States", *Monthly Bulletin*, ECB, February 2004.

productivity growth. After a period of balance sheet consolidation, US non-financial businesses' debt-to-GDP ratio increased again to 79% in the second quarter of 2009, which was its highest level in 50 years.

While no comparable data is available for such a long period for the euro area, Chart A shows that debt-to-GDP ratios of euro area non-financial corporations and US non-financial businesses have evolved at similar levels since 1999. In the second quarter of 2011 the debt-to-GDP ratio of non-financial corporations in the euro area (78.9%) was somewhat higher than the ratio for US non-financial businesses (74.3%). The ratio of debt to total assets was broadly similar in both economies, standing at 43.4% for euro area non-financial corporations and at 44.7% for US non-financial businesses.

While the economic structures and environment have changed fundamentally over this 50-year period, the very high level of indebtedness reached by non-financial businesses in 2009, as well as the high levels that continue to prevail today, make them vulnerable to increases in the cost of funding.

Evidence of corporate deleveraging during the financial crisis

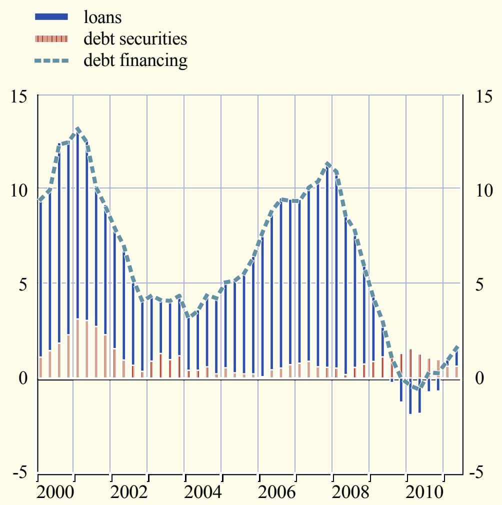
In the context of the financial crisis, non-financial corporations' debt-to-GDP ratios started to decline in both economies in 2009. As can be seen from Charts B and C, the annual growth rate of debt financing fell markedly from the second half of 2007, when the financial crisis started, to the first quarter of 2010. The annual rate of change of debt financing declined more sharply in the United States than in the euro area and, in particular, was negative for US non-financial businesses from the third quarter of 2009 to the third quarter of 2010. For euro area non-financial corporations, it was only slightly negative in the first half of 2010. This implied a somewhat sharper fall in the debt-to-GDP ratio of US non-financial businesses from its peak in the second quarter of 2009 to the second quarter of 2011, whereas for euro area non-financial corporations the decline in this ratio (from its peak in the fourth quarter of 2009) was more gradual.

The decline in debt financing in the two economies was driven by the substantial downturn in economic activity during the financial crisis. In addition, there is evidence from the US senior loan officer survey and from the euro area bank lending survey that credit standards on loans to enterprises were tightened considerably by banks during the financial crisis, starting in the third quarter of 2007 and reaching a peak in the fourth quarter of 2008. This is especially relevant for euro area non-financial corporations and, in particular, for smaller enterprises, as they rely to a large extent on bank loans for their external financing. From 2009 to 2011 the net tightening of credit standards for loans to enterprises mostly declined and turned into a net easing in the United States, whereas there was a rebound in the net tightening of credit standards for loans to euro area enterprises in the third quarter of 2011. Hence, particularly in the first phase of the financial crisis, bank loan supply appeared to be constrained. Both demand and supply of debt financing have therefore contributed to the decline in debt financing growth in both economies.

During the financial crisis, important changes occurred relating to the composition of the external financing of non-financial corporations in the euro area and the United States. Market-based financing of non-financial corporations gained importance in both economies during the crisis (see Charts B and C). By contrast, US non-financial businesses reduced their bank loan financing from the second quarter of 2009 to the second quarter of 2011. Euro area

Chart B Contributions to debt financing growth of non-financial corporations in the euro area

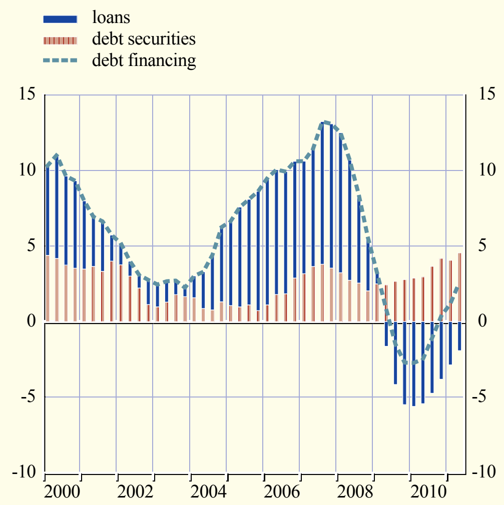
(annual percentage changes; percentage points)



Source: ECB.
Note: Debt financing includes loans (excluding inter-company loans) and debt securities.

Chart C Contributions to debt financing growth of non-financial businesses in the United States

(annual percentage changes; percentage points)



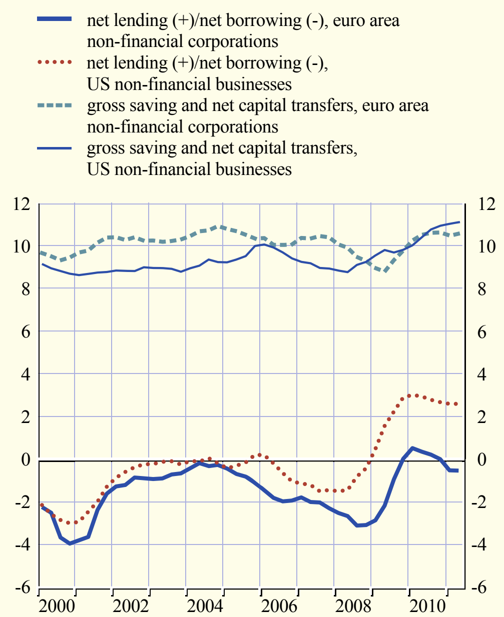
Source: Board of Governors of the Federal Reserve System.
Note: Debt financing is defined as credit market instruments according to the US flow of funds statistics.

non-financial corporations also reduced their bank loan financing from the third quarter of 2009 to the fourth quarter of 2010, but to a lesser extent than US firms.

In both economies, substantial increases in retained earnings were conducive to the reduction by non-financial corporations of their debt ratios and thus also their debt dependency. In the United States, the rise in corporate earnings is reflected in the ratio of gross saving and net capital transfers to GDP of non-financial businesses, which increased from 8.7% in the second quarter of 2008 to 11.1% in the second quarter of 2011 (see Chart D). For euro area non-financial corporations, the rise was similar, from 8.8% in the second quarter of 2009 to 10.5% in the second quarter of 2011. In addition, capital formation declined severely in 2008 and 2009 in the context of the crisis. Both developments imply that non-financial corporations' need for external financing decreased very substantially. The financing gap (defined as the ratio of net lending (+)/net borrowing (-) to GDP), which is typically negative for corporations that need

Chart D The financing gap and retained earnings of non-financial corporations in the euro area and the United States

(percentages of GDP)



Sources: Board of Governors of the Federal Reserve System and ECB.
Notes: The financing gap is defined as the ratio of net lending (+)/net borrowing (-) to GDP and broadly equals gross saving and net capital transfers minus gross capital formation in relation to GDP.

to finance their investments with external funds, turned positive for US non-financial businesses from the first quarter of 2009 (0.5%) to the second quarter of 2011 (2.6%) and for euro area non-financial corporations from the fourth quarter of 2009 to the fourth quarter of 2010.

Conclusions

Overall, in terms of both their levels and the way in which they have developed, the debt ratios of non-financial corporations in the euro area and the United States appear broadly comparable. In both economies, non-financial corporations had accumulated a very high level of debt by historical standards prior to the outbreak of the financial crisis in the late summer of 2007, but debt ratios started to decline thereafter. This notwithstanding, debt ratios continue to be high by historical standards and constitute an important source of vulnerability for the outlook of the corporate sector, in particular with respect to risks associated with increased costs of debt financing.

3 THE ROLE OF DEBT IN THE EXTERNAL FINANCING OF EURO AREA NON-FINANCIAL CORPORATIONS

Determining the shape of a firm's capital structure is one of the most important decisions that managers take. Following the seminal contribution of Modigliani and Miller[9] in the form of their irrelevance proposition that dates back to 1958, it is now widely recognised that capital market imperfections make the capital structure of a firm relevant to its value. Various theoretical approaches, based on the relaxation of the assumption of Modigliani and Miller, consider, in alternative scenarios, the presence of agency costs, asymmetric information, corporate control considerations and taxes as factors governing firms' decisions on their capital structure. According to the pecking order theory, managers perceive that information asymmetries are such that markets generally underprice a firm's shares, then they prefer internal financing to external financing and debt to equity.[10] According to this theory, a firm's leverage reflects mainly historical profitability and investment opportunities. When, instead, managers try to exploit asymmetric information to benefit current shareholders, they tend to sell shares when the firm's value is high, linking in this way the capital structure to share price fluctuations.[11] In both theories, managers are not really interested in setting a specific debt target and, furthermore, there is no reason for them to try to reverse leverage changes owing to changes in the firm's value. Alternatively, another theory, known as the trade-off theory, maintains that market imperfections generate a link between leverage and the value of a firm.[12] This theory suggests that the optimal capital structure for any particular firm will reflect the balance between the tax shield benefits of debt and the increasing agency and financial distress costs (such as bankruptcy costs) associated with high debt levels. In this case, managers actively act to offset deviations from their optimal debt ratios.

According to recent surveys,[13] most firms reported that they do have specific targets for the mixture of fixed/floating debt, short-term/

9 Modigliani, F. and Miller, H.M., "The Cost of Capital, Corporation Finance and the Theory of Investment", *American Economic Review*, Vol. 48(3), June 1958, pp. 261-297.

10 Myers, S.C., "The capital structure puzzle", *Journal of Finance*, No 39, 1984, pp. 575-592.

11 Baker, M.P. and Wurgler, J.A., "Market timing and capital structure", *Journal of Finance*, Vol. 57(1), 2002, pp. 1-32.

12 DeAngelo, H. and Masulis, R., "Optimal capital structure under corporate and personal taxation", *Journal of Financial Economics*, Vol. 8, 1980, pp. 3-29.

13 Graham, J.R. and Harvey, C.R., "The theory and practice of corporate finance: evidence from the field", *Journal of Financial Economics*, No 60, 2001, pp. 187-243; Brounen, D., de Jong, A. and Koedijk, K., "Capital structure policies in Europe: Survey evidence", *Journal of Banking and Finance*, Vol. 30(5), 2006, pp. 1409-1442; and Servaes, H. and Tufano, P., *The Theory and Practice of Corporate Debt Structure*, Deutsche Bank, 2006.

long-term debt, average maturity, duration, and the proportion of borrowing from the banking sector. Focusing on the determinants of the target ratios, financial flexibility, credit ratings, earnings volatility, as well as on the tax advantages of interest expenses is deemed to be most important when considering the appropriate amount of debt.

Non-financial corporations' debt-to-equity ratios provide some information about the importance of debt compared with the equity holdings of the firms and, hence, on the capital structure of the firms. Since 2000 this ratio has stood on average at 69% for euro area non-financial corporations (see Chart 6). While the ratio fluctuates considerably owing to the volatility of equity prices, this implies that a firm's capital structure generally consists of a higher share of equity, especially unquoted equity,[14] than of debt. During the period under review the share of debt relative to firms' equity has been below the euro area average in France and above the euro area average in Germany. Overall, there appears to be some heterogeneity in the capital structure across euro area countries.

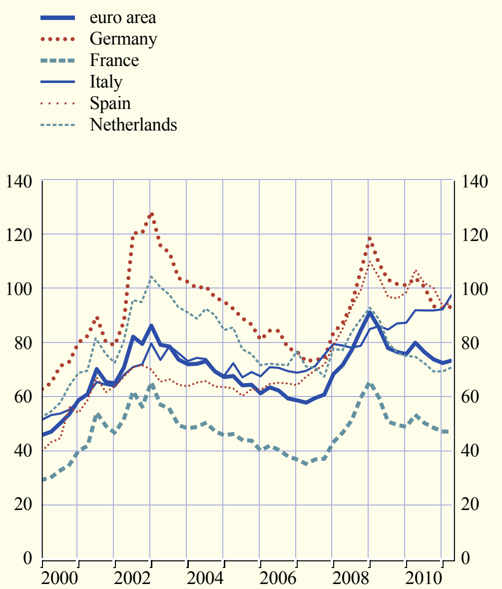
With respect to firms' debt structure, traditionally, euro area non-financial corporations' debt consists to a large extent of bank loans.[15] Smaller firms, in particular, often use this source of external financing, as their access to market-based funding is limited. However, during the financial crisis this pattern changed markedly (see Chart 7). The contribution of bank loan financing to overall debt financing declined from the second quarter of 2008 onwards, indicating a tendency towards disintermediation, and turned negative from the

14 While quoted shares accounted for 17% of non-financial corporations' total liabilities on average from 2000 to the second quarter of 2011, unquoted equity accounted for 34%.

15 Debt is defined here as loans (including inter-company loans), debt securities and trade credit (net of trade credit receivables) in order to reflect the relative importance of the various instruments.

Chart 6 Debt-to-equity ratio of non-financial corporations in selected euro area countries

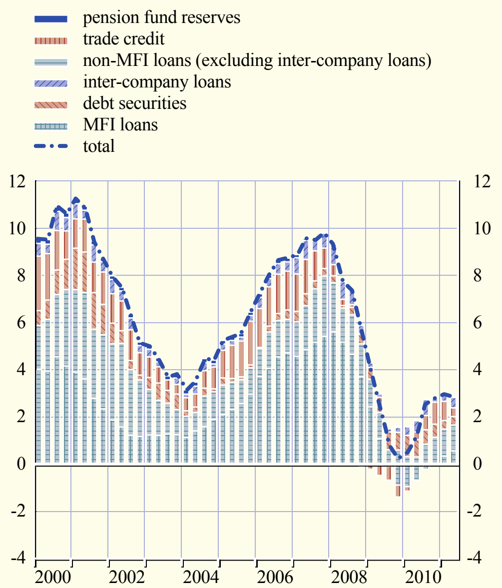
(percentages)



Source: ECB.

Chart 7 Contributions to the annual growth rate of debt financing of non-financial corporations in the euro area

(annual percentage changes; percentage points)



Source: ECB.
Note: Debt financing includes all loans, debt securities, trade credit and pension fund reserves.

third quarter of 2009 to the third quarter of 2010. Instead, other sources of debt financing became more important. In particular, the issuance of debt securities by non-financial corporations gained importance during the financial crisis. As regards the cost of financing, from a peak in November 2008, shortly after the bankruptcy of Lehman Brothers, the cost of market-based debt of non-financial corporations declined considerably up to September 2010 and increased moderately thereafter. Similarly, after some increases in bank lending rates up to October 2008, the monetary policy measures adopted by the ECB's Governing Council led to a decline in bank lending rates until early 2010, which increased moderately thereafter until mid-2011. While cost of financing developments therefore provide little indication of a change in the debt financing structure of non-financial corporations, information from the euro area bank lending survey suggests that the change in the debt financing structure of non-financial corporations away from bank loans may have been related to restrictions in bank loan supply (see Section 2).

In addition, financing between firms may have served as a buffer for less available bank credit.[16] In particular, loans from parent companies to subsidiaries (inter-company loans) may have helped small companies to access funding. In addition, trade credit, which is linked to the exchange of goods, gained in importance, and thus suggests some buffer role.[17]

4 EXTERNAL FINANCING NEEDS AND DEBT DEVELOPMENTS BY SIZE OF FIRM AND MAIN INDUSTRY SECTOR IN THE EURO AREA

An importance source of heterogeneity in the degree of corporate indebtedness in the euro area relates to the size of firms. It is well accepted that small firms face different and often greater financing problems than large firms owing mainly to specificities in their financing.[18] First of all, small firms are often believed to be more opaque and to be more at risk of failure than large firms. Second, small firms are often less established and have not had the time to build up a track record and reputation. Third, SMEs do not normally issue traded securities that are continuously priced in public markets, so that they cannot rely on this to provide the market with information. At the same time, small firms rely on external financing, in particular bank loans, to fund their growth. Therefore major financing obstacles can be a considerable challenge for SMEs, which in turn can increase credit risks in the corporate sector and also negatively affect productivity in the economy. This seems to be even more relevant today, as sources of firm financing have become scarcer and the availability of financing instruments has deteriorated during the financial crisis.

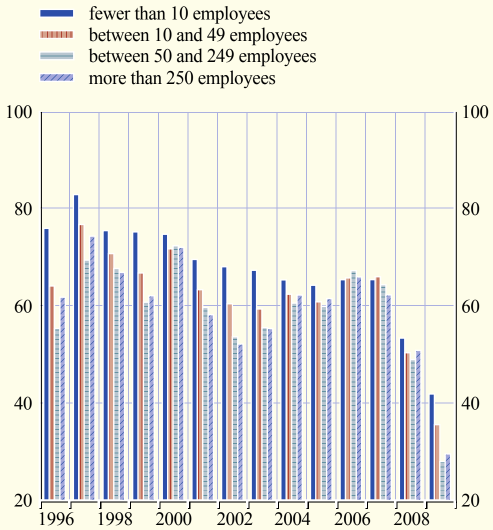
In order to give an idea of the importance of external financing for firms according to their size, Chart 8 shows the percentage of firms using external financing to fund their growth.[19]

Two stylised facts emerge from the figure. First, a large proportion of small firms tended to use external finance at the end of the 1990s in order to grow at a rate that was higher than that determined by their internal resources alone. Second, this proportion has declined over time as the capacity of firms to meet their interest payments with the income they generated has reduced. In fact, the interest payment burden ratio, which reflects the combined impact of changes in interest rates (related to general credit conditions at country level), as well as

16 See also the article entitled "The financial crisis in the light of the euro area accounts – a flow-of-funds perspective", *Monthly Bulletin*, ECB, October 2011.
17 On recent developments in trade credit, see the box entitled "The use of trade credit by euro area non-financial corporations", Monthly Bulletin, ECB, April 2011.
18 For a review, see "Corporate finance in the euro area", *Occasional Paper Series*, ECB, No 63, June 2007.
19 The analysis presented in this section relies on firm-level data, which is derived from the AMADEUS database compiled by Bureau van Dijk. The sample comprises mostly non-listed non-financial enterprises, excluding in the agriculture, forestry, fishing and mining sectors, from nine euro area countries (BE, DE, ES, GR, FR, IT, NL, PT and FI). The sample contains around 300,000 firms that are present for at least four consecutive years during the period 1994-2009.

Chart 8 Firms growing faster than predicted by their internal funds [1]

(percentages of firms)



Sources: Bureau van Dijk (AMADEUS database) and ECB calculations.
1) Following Demirgüç-Kunt and Maksimovic's approach in "Funding growth in bank-based and market-based financial systems: evidence from firm-level data", *Journal of Financial Economics*, Vol. 65, pp. 337-363, the "percentage of sales" financial planning model is used to calculate for each firm the maximum rate of growth at which it can grow when only internal funds are available.

companies' profitability and their levels of indebtedness, had already started to rise in 2005 and peaked in 2009, which is the last year under observation (see Chart 9). While, overall, the interest payment burden has been proportionally higher for small-sized firms, their indebtness ratios were increasing during the financial crisis up to 2009.

The information provided directly by the firms through a firm-level survey based on a sample of non-financial corporations in the EU (survey on the access to finance of SMEs in the euro area)[20] give some insights into more recent developments of corporate debt across firm sizes. This survey was carried out five times between the summer of 2009 and September 2011 and therefore reflects firms' assessments of short-term developments regarding their financing needs and access to finance as the financial crisis has intensified. In particular, firms indicated that the amount of their debt compared with their assets had tended to decline at the euro area level since the beginning of the survey (see Chart 10), pointing to some deleveraging efforts, which seem to have been stronger for large firms than for SMEs. At country level, Spanish and, to a lesser extent, Italian companies reported that they were still increasing their debt ratios during 2010 and 2011. It is interesting that these developments mimic the macro-developments reported in Chart 5.

The survey also provides useful information on the factor that most limited access to financing by SMEs between 2009 and 2011. While more than a third of firms reported that they had not encountered any obstacles in receiving financing at the euro area level, existing financing difficulties were mainly related to having insufficient collateral or guarantees and to interest rates or prices that were judged to be too high.

With regard to main industry sectors, Chart 11 shows the development over time of the financing gap of large listed companies. The indicator displays the percentage of firms with a positive financing gap, i.e. the percentage of firms whose investment cannot be financed internally through their cash flow, and hence has to be financed with external sources of finance. As listed companies have access to a variety of financing sources (both securities and loans) and can take best advantage of global growth opportunities through international markets, it is assumed that these firms face the least frictions in accessing external finance. Consequently, the reliance on external financing of the listed firms belonging to a given sector should closely reflect the sector's need for external finance.[21]

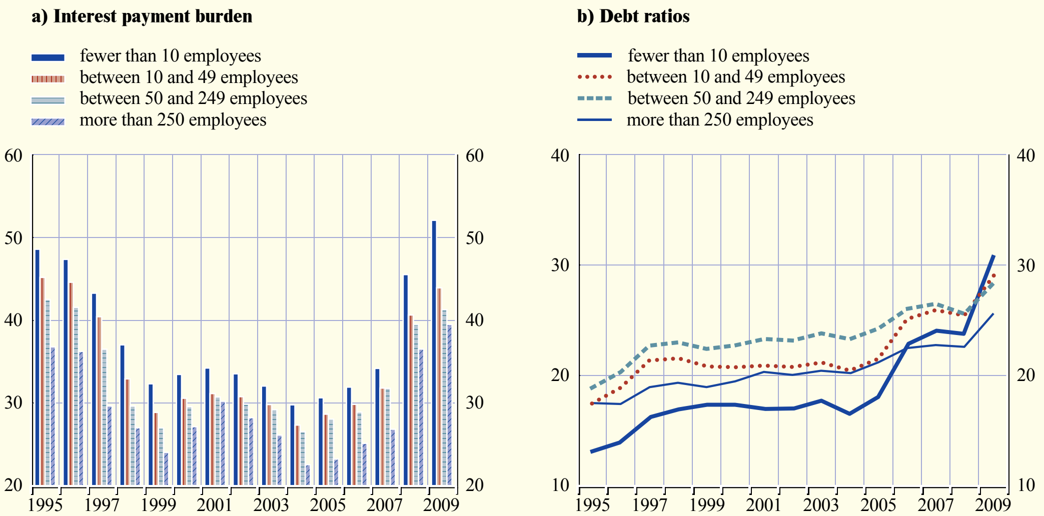
The indicator clearly indicates pro-cyclicality in the financing gap, but it also displays structural

20 For more information regarding the survey, as well as the reports on the individual waves, see http://www.ecb.europa.eu/stats/money/surveys/sme/html/index.en.html.

21 The approach is similar to the one proposed by Rajan, G.R. and Zingales, L., "Financial Dependence and Growth", *The American Economic Review*, Vol. 88(3), pp. 559-586, for US-listed companies.

Chart 9 Interest payments and debt ratios across firm size

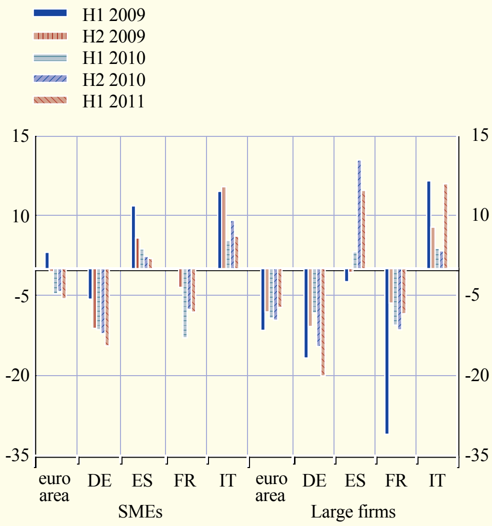
(percentages)



Sources: Bureau van Dijk (AMADEUS database) and ECB calculations.
Note: The interest payment burden is defined as the ratio of interest payments to earnings before interest, taxes, depreciation and amortisation plus financial revenues.

Chart 10 Ratio of debt to total assets

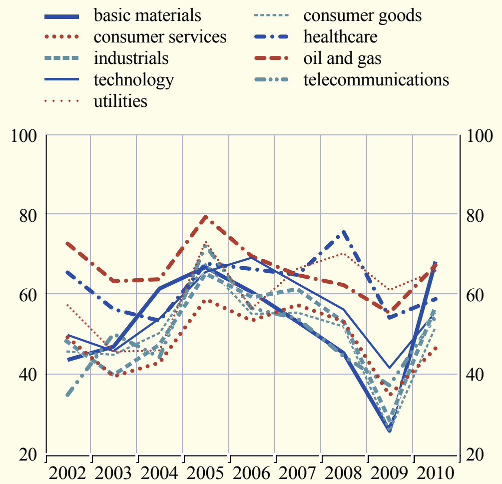
(over the preceding six months; net percentage of respondents)



Source: ECB and European Commission survey on the access to finance of small and medium-sized enterprises in the euro area.
Note: Net percentages are defined as the difference between the percentage of firms reporting an increase and that reporting a decrease.

Chart 11 Firms with a positive financing gap across sectors

(percentages)



Sources: Thompson Datastream and ECB calculations.
Notes: The indicator shows the percentage of firms with a positive financing gap. A financing gap is defined as the difference between fixed investment and firms' available internal funds divided by the fixed investment. Investment in non-financial fixed assets is calculated as the first difference in tangible and intangible fixed assets plus depreciation. Net cash flow is defined as cash flow (profit for the period plus depreciation) minus the increase in non-cash current assets (inventories plus receivables) plus the increase in trade credit.

differences across sectors. Firms in the oil and gas, and healthcare and utilities sectors rely more intensively on external financing, which could reflect the exceptionally high investment rates in these sectors. By contrast, firms in the basic materials and consumer goods sectors make less intensive use of external finance, but most probably this results not from high profits, but from low investment. The economic and financial crisis has had an impact on the sectoral financing needs that is broadly similar across sectors. In 2009 the percentage of firms that needed external finance reached the lowest level since the beginning of 2000 in all sectors except utilities.

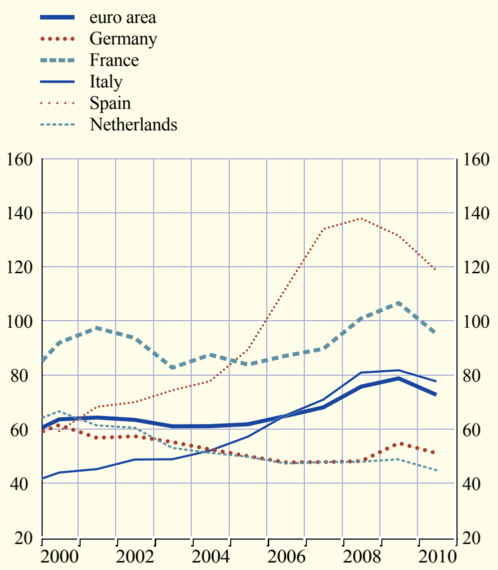
5 DEBT SUSTAINABILITY OF EURO AREA NON-FINANCIAL CORPORATIONS

While non-financial corporations' debt ratios have declined somewhat since 2009 in the context of the financial crisis, they remain high by historical standards (see the box in Section 2). At the same time, data on the level of the debt ratios alone are insufficient for assessing debt sustainability. The strength of a firm in terms of income generation, as well as the interest environment and the maturity composition of the firms' debt also contribute to the assessment of whether the level of debt appears sustainable.

An important factor for assessing debt sustainability is the debt service burden of firms. It reflects the combined burden of non-financial corporations arising from their interest payments and their debt repayment obligations. Chart 12 shows the debt service burden in relation to the gross operating surplus of non-financial corporations. The debt service burden of euro area non-financial corporations has tended to decline from its peak in 2009. This relates to a decline in gross interest payments by euro area non-financial corporations from the last quarter of 2008 to the second quarter of 2010 and to a rebound in the gross operating surplus in 2010, whereas the debt repayment

Chart 12 Debt service burden of non-financial corporations in selected euro area countries

(as a percentage of gross operating surplus)



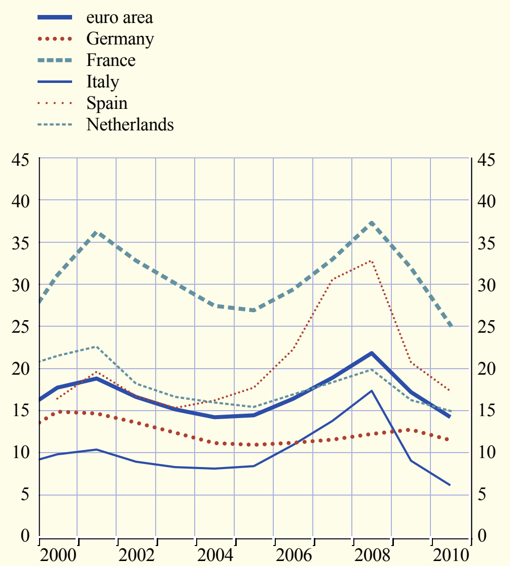
Sources: ECB, Dealogic (debt securities maturity), ENSR Survey 2002 (bank loan maturity).
Note: The debt service burden is defined as the sum of gross interest payments and estimated debt repayments (based on amounts outstanding for long-term loans (net), long-term debt securities and pension fund reserves and average maturities for the debt), as a percentage of the gross operating surplus.

remained broadly stable. Across the five largest euro area countries, the debt service burden of non-financial corporations increased until 2008 in Spain and until 2009 in France and Italy, declining somewhat thereafter. In line with the evidence presented in Chart 13 on the interest payment burden, the debt service burden is above the euro area average for French and Spanish non-financial corporations. By contrast, it is below the euro area average for Germany and the Netherlands. In these two countries, the debt service burden declined slightly during most of the period under review.

When focusing only on the interest payments of non-financial corporations, the decline in the interest payment burden (as a percentage of the gross operating surplus) in 2009 and 2010 is shown clearly in Chart 13. For euro area non-financial corporations, this ratio declined from a peak of 22% in the last quarter of 2008

Chart 13 Interest payment burden of non-financial corporations in selected euro area countries

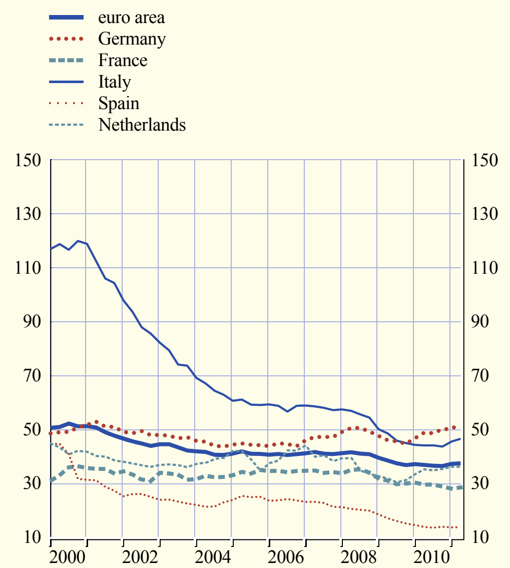
(as a percentage of gross operating surplus)



Source: ECB.
Note: Ratio of gross interest payments to gross operating surplus.

Chart 14 Ratio of short-term to long-term debt of non-financial corporations in selected euro area countries

(percentages)



Source: ECB.
Note: Debt includes all loans, debt securities and pension fund reserves.

to 15% in the second quarter of 2011. In the five largest euro area countries the interest payment burden declined markedly after 2008, with the exception of Germany, where it remained broadly stable.

The maturity profile of corporate debt also provides some indications on the presence of interest rate risks and liquidity risks and is therefore important for an assessment of debt sustainability. Generally, a smaller share of short-term debt reduces corporate vulnerabilities as debt repayments and a prolongation of debt occur less frequently.

During the financial crisis, the maturity structure of non-financial corporations' debt changed in that the proportion of short-term debt to long-term debt declined, from 42% in the second quarter of 2008 to 37% in the fourth quarter of 2010, remaining broadly stable thereafter until the second quarter of 2011 (see Chart 14). The decline in the share of short-term debt of non-financial corporations was widespread across the largest euro area countries (except for Germany). In Germany and Italy, firms had the highest share of short-term debt, whereas the share was below the euro area average for French and Spanish firms.

With respect to market-based debt, the average maturity of corporate bond debt declined between 2010 and 2011 in most of the euro area countries shown in Table 1. At the same time, there was considerable heterogeneity across euro area countries. Among the five largest euro area countries, the average maturity of corporate bond debt declined considerably from 2010 to 2011 in France and Italy, whereas it increased in particular in Spain. The average maturity remained broadly stable from 2010 to 2011 in Germany and the Netherlands. Moreover, of the five largest euro area countries, the average maturity of corporate bond debt was lowest in Germany.

While there is no firm evidence from the literature on an optimal level of debt in

Average maturity of corporate bond debt in selected euro area countries

(in years)

	1999-2007	2008	2009	2010	2011
Belgium	12,4	6,0	8,7	6,0	7,1
Germany	4,7	5,1	5,9	5,0	4,8
Ireland	8,8	9,0	7,0	8,4	9,0
Greece	7,8	5,0	7,5	8,5	5,8
Spain	7,3	10,1	8,0	6,2	9,2
France	6,3	6,7	7,5	9,2	8,3
Italy	8,5	8,8	8,9	8,3	7,3
Luxembourg	7,5	5,7	8,9	11,2	10,2
Netherlands	7,6	9,7	8,3	8,6	8,7
Austria	7,6	5,3	7,3	8,1	7,8
Portugal	7,5	7,2	7,8	7,8	7,0
Finland	6,8	5,0	8,0	5,7	6,1

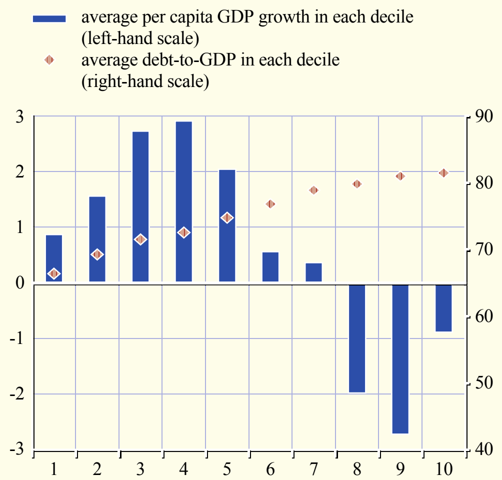
Source: Dealogic.

the economy, high debt levels constitute a vulnerability *per se* as they increase the fragility of corporations to changes in the business cycle, inflation and interest rates. Moreover, when debt ratios rise beyond a certain level, financial crises become more likely and also more severe and they tend to be followed by protracted periods of debt reduction.[22] Certain economies, however, may be able to sustain much higher levels of leverage than others, owing to country-specific institutional features, in particular regarding the financial system, or owing to productivity differentials that turn into higher relative economic growth. Thus, the leverage ratio should not be considered as a precise indicator of sustainability, but should be assessed in conjunction with other factors. Nonetheless, significant or rapid increases in a leverage ratio compared with its historical trend, or compared with the respective increases in comparable countries, may indicate a credit boom that may not be justified by macroeconomic fundamentals.[23]

A recent analysis carried out by the BIS on the impact of debt on economic activity for a sample of OECD countries shows that there are debt thresholds beyond which increases in debt reduce trend growth.[24] Chart 15 displays the relationship between the euro area debt-to-GDP

Chart 15 Debt and output growth

(percentages and annual rate of growth)



Sources: ECB and Eurostat.
Note: Debt includes loans (excluding inter-company loans), debt securities and pension fund reserves, while output is given by the per capita GDP growth. Data refer to the period March 1999-June 2011.

22 See Tang, G. and Upper, C., "Debt reduction after crises", *Quarterly Review*, BIS, September 2010.

23 For instance, in the preparation of the scoreboard for the surveillance of macroeconomic imbalances, the European Commission has recently considered some thresholds related to debt-to-GDP and credit flow-to-GDP for the private sector (non-financial corporations and households) as a whole. The threshold related to debt to GDP (160%) is calculated as the upper quartile using information for the period 1994-2007 in the EU 27.

24 Cecchetti, S.', Mohanty, M.S. and Zampolli, F., "The real effects of debt", *Working Paper Series*, No 352, BIS, 2011. In the BIS research, the estimated threshold for the corporate sector beyond which an increase in the debt-to-GDP ratio will determine a decline in GDP growth is around 90%. The debt series is defined on a non-consolidated basis.

ratio and per capita GDP growth over the period 1999-2011. This is calculated by splitting the euro area per capita GDP growth on the decile distribution of the euro area aggregated debt-to-GDP ratio (which is defined as excluding inter-company loans). The average per capita GDP growth increases from the first decile to the fourth decile, which corresponds to an average debt-to-GDP ratio of 73%. As the leverage ratio increases the rate of GDP growth declines and in the last deciles turns negative. For a comparison with the latest available data, aggregated debt to GDP in the euro area reached 79% in the second quarter of 2011, while the per capita GDP annual rate of growth was 1.6%. Chart 15 shows that, historically, higher levels of debt to GDP have indeed been associated in the euro area with lower (and negative) rates of growth of output per capita. However, this simple analysis cannot provide any indication of future paths of leverage and likely impact on output growth.

6 CONCLUSION

Overall, euro area non-financial corporations accumulated high levels of debt prior to the beginning of the financial crisis in the late summer of 2007. While non-financial corporations' debt ratios started to decline gradually in the context of the financial crisis, their level remained substantial until the second quarter of 2011. This can be seen by means of a historical comparison using data on US non-financial businesses.

Across euro area countries and sectors, the debt ratios of non-financial corporations are heterogeneous, mainly as regards the levels at which they stood at the time of the outbreak of the financial crisis, but also with respect to the pace of deleveraging since mid-2009. Nevertheless, broadly in line with overall euro area developments, from mid-2009 non-financial corporations' debt-to-financial assets ratios started to decline in most of the five largest euro area countries. Similarly, non-financial corporations' need for external financing has declined across sectors since 2009.

With respect to debt sustainability, euro area non-financial corporations have reduced somewhat their vulnerability since 2009 as their debt service burden has declined. This notwithstanding, the substantial level of debt of non-financial corporations by historical standards implies that it remains an important source of vulnerability for the outlook of the corporate sector, in particular with respect to risks associated with increased costs of debt financing.