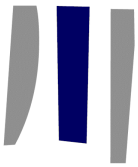


European Investment Bank

**Economic and Financial Report 2001/01**

# The "savings gap" of European Corporations: A first look at the available data


**Federico Galizia***

with Thomas Steinberger

**European Investment Bank**
**100, blvd. Konrad Adenauer**
**L-2950 Luxembourg**

**Email:** infoefs@eib.org


Notes


Federico Galizia is an Economist at the EIB. Thomas Steinberger is a Ph.D. candidate in Economics at the European University Institute in Florence. He collaborated to the initial phase of the project.




---


* Insightful comments from Chris Hurst, Eric Perée and Elmar Stöss are gratefully acknowledged.

Abstract

- While notable differences exist among countries and time periods, internal finance is the principal source of funds for the corporate sector in the main European economies. The importance of internal finance has been increasing through the mid 1990s, in coincidence with a slowdown in investment.
- Among the sources of external finance, loans are by far the most used, with medium-long term (MLT) loans being the most important component in France and Germany. Equity issues are a second sizable source. Bond issues are minimal.
- Analysis of yearly flows shows that the savings gap can vary enormously over the business cycle. Compared to business cycle variation, differences in the savings gap across countries, company size or sectors are minor.
- Among listed companies, the smallest display the fastest growth and the highest savings gap. The largest companies rely almost entirely on internal finance.

# The "savings gap" of European Corporations: A first look at the available data

The "savings gap" is generally defined as the difference between the "capital formation" and the "savings" of an economic sector over a given period and it measures the need of external funds of that sector[1]. The interpretation of this measure is straightforward; for a given level of capital formation, whatever funds a sector cannot generate from internal sources ("savings"), it has to raise from other sectors. An important savings gap measure is actually computed at a national level and is best known as the balance of payments. Another widely followed measure is computed for the corporate sector within a country and it is used by at least two areas of the economic profession. Applied macroeconomists look at it as a synthetic indicator of the "interacting movements in business profits, investment and credit" that are "at the center of business cycles" (Zarnowitz 1999). Eckstein and Sinai (1986) have labeled such interacting movements as "flow-of-funds cycle" or "credit cycle". Fixed income analysts have found it to have strong predictive power in equations explaining corporate bond spreads (Bevan and Garzarelli 1999).

Unfortunately, while quite a lot is known about the related concepts of "savings gap" and "credit cycle" for the U.S. corporate sector, much fewer studies have analysed it for European corporations. Lack of data both at a macro and at a company level is the main culprit. The Federal Reserve has been publishing quarterly flow of funds figures for the non-financial non-farm corporate sector since at least 1952. On the European side of the Atlantic, the coverage has not been systematic across countries and available on a harmonized basis only at annual frequencies[2]. Similar considerations apply to data obtained from the company-level sources. The goal of this paper is to provide several measures of the savings gap of European corporations by making the most of all available flow-of-funds information. We consider both aggregate and firm-level sources of data. Aggregate sector-level information is assembled in the New Cronos Database, published by Eurostat. The corporate sectors of the largest European countries, notably Germany, France, U.K., Italy and Spain (EU5 henceforth) are covered at annual frequencies. Company-level cash-flow information is provided in the Worldscope database from Bureau Van Dijk and Disclosure, again at annual frequencies, for companies that are listed on a European stock market. While results from the two different sources are not immediately comparable, they are obviously complementary and do provide consistent information, especially concerning the business cycle dynamics. One final word of caution is in order, to emphasize the "first step" nature of our study. At this stage, we are primarily concerned with getting our stylised facts right, and we do so by assembling and comparing evidence from several sources. Since this first step already implies a sizable amount of work we choose to restrict attention to a descriptive analysis and not to add too

[1] The main sectors of the economy are households, non-financial corporations, financial institutions, the government and the rest of the world.

[2] Quarterly flow of funds data are collected by several European central banks but are often not made available publicly and suffer from lack of harmonization.

much in the ways of interpretation. Interpretation will follow as a topic of further research.

The paper is organised as follows. In section 1, we present an historical analysis of the savings gap and in section 2 we discuss the way in which it has been financed. This first analysis is conducted at the level of the corporate sector. In section 3, we propose a classification of the available information from company-level cash-flow statements that is consistent with the macroeconomic flow-of-funds framework and we use both frameworks to describe the business cycle behaviour of the savings gap. In section 4, we restrict attention to company-level information to discuss the way in which the gap is financed across different countries, sectors and size classes. Section 5 concludes.

## 1. AGGREGATE INVESTMENT, SAVINGS AND BORROWING FLOWS

We begin our analysis by comparing corporate investment to retained earnings flows. The former is an important component of total capital formation at a national level. Similarly, retained earnings are an important component of national savings. Hereafter, we will use the terms investment and capital formation interchangeably. We will also use the terms retained earnings, corporate savings or internal sources to indicate the same economic variable.

*The framework for the analysis*

The analysis of this section is based on a *capital account*, perfectly analogous to the one compiled at a national level, except that the variables are measured at the level of the corporate sector. If corporate investment is higher than corporate savings, it will have to be funded by *net borrowing* from other sectors of the economy (bank loans, issues of shares or bonds that are bought by households, government transfers, FDI, etc). Eurostat compiles harmonised sector-level capital accounts at annual frequencies, according to the scheme in Table 1a. To simplify the analysis that follows we adjust the reported figures for gross savings by adding capital transfers from other sectors (mainly government subsidies) and by subtracting capital transfers to other sectors (mostly taxes paid to the government). We also add net purchases of land and intangible assets to gross capital formation.

**Table 1a. Capital account (simplified ESA79 format)**

| **Uses** | **Resources** |
|---|---|
| Gross capital formation* | Gross saving |
| Capital transfers [to other sectors] | Capital transfers [from other sectors] |
| *Net lending* (+) or *net borrowing* (-) | |
| **Total uses** | **Total resources** |

* Including net purchases of land and intangible assets from other sectors

Eurostat defines the corporate sector as follows. "The sector *non-financial corporate and quasi-corporate enterprises* (S10) consists of enterprises which are institutional units - i.e. enterprises whose distributive and financial transactions are distinct from those of their owners – and which are principally engaged in the production of goods and non-financial market services …" Public corporations and enterprises are included provided they are "… recognized as independent legal entities and are principally engaged in the production of goods and non-financial market services."[3] Data are available from 1970 to 1997 for the largest EU economies[4] and corporate sector definitions are reasonably uniform across countries, with a caveat. Firstly, for some countries the corporate sector is evaluated as a residual and therefore it may be distorted by the presence of errors and omissions. Secondly, the demarcation line between the households and corporate sectors is sometimes blurred. For instance, in Germany the housing activities of private households are included as part of the corporate sector in our accounts[5]. Therefore the data on corporate investment and savings in Germany are typically higher than it is the case in other countries. Partially for this reason, in this paper we do not make any systematic attempt to explain differences in corporate investment and savings across countries. To the best of our knowledge, this would be a worthwhile effort, as little seems to be known on the topic[6].

*Investment and savings flows*

Figure 1 plots corporate investment and savings flows by country, as a percentage of GDP. The data shown are averaged over the last three decades. Savings are sufficient to cover a majority of investment in all countries. UK and Spanish companies are almost able to finance all of their investment internally. Italian, German and to a lesser extent French companies have instead to rely on significant flows of external finance.

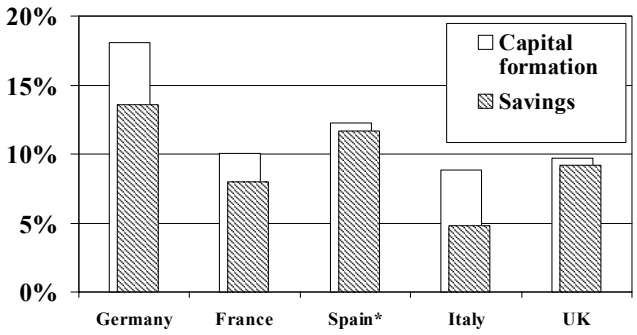
3 European system of integrated economic accounts ESA (1978), pp. 26-7

4 The series for Spain start in 1980. For Italy and the UK 1996 is the last available year.

5 This problem has been corrected in the new ESA95 accounts for Germany. In this paper, we rely on ESA79 data since the ESA95 standard has only recently become mandatory and most countries have not yet published long enough series.

6 Notable exceptions are Catinat et al. (1987) and European Commission (2001). These studies however focus on aggregate investment.

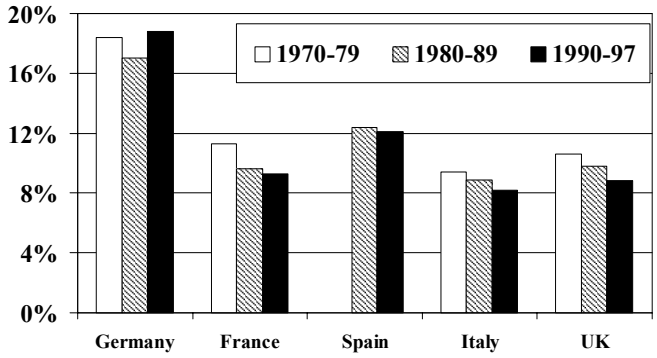
Figure 1. Average corporate investment and savings 1970-97, percentage of GDP




*Source: Eurostat* * 1980-97*

Average figures conceal important evolutions in investment that took place over the last three decades. These developments are shown in Figure 2. With the exception of Germany, corporate investment as a percentage of GDP decreased steadily over the last three decades. The declines were of the order of 2 percentage points (a large magnitude, considering that this is measured as a percentage of GDP!) for France and the UK, and little over 1-percentage point for Italy. As explained above, cross-country comparisons should be taken with caution. There is however little doubt that German companies are the ones investing the most in the last decade, followed by Spanish ones. French, Italian and UK companies invested the lowest, between 8 and 9% of their GDP.

Figure 2. Average capital formation by corporates, percentage of GDP



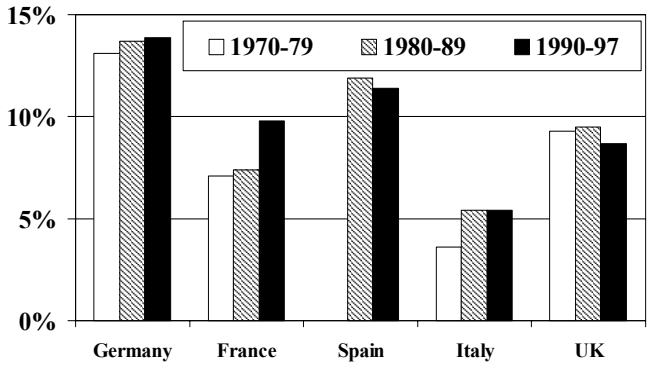

*Source: Eurostat*

While explaining investment dynamics is outside the scope of our study, there is a general consensus on the reasons behind for declining investment. Prospects of lower growth following oil shocks in the 1970s in conjunction with deteriorating corporate balance sheets are at the root of the sharp drop in the 1980s. Tighter monetary and fiscal policies were the main culprit in the 1990s. While the former were successful in curbing inflation, they resulted in higher real interest rates that discouraged investment. Tight fiscal policies depressed demand from the government and household sector thus further

reducing profitability prospects for corporate investment[7]. These factors operated in all countries except Germany where restructuring of the corporate sector following unification was accompanied by higher investment rates, partially financed through public subsidies.

Corporate savings dynamics were less uniform. Figure 3 shows that the most dramatic developments occurred in France and Italy. In France, savings increased by over 2-percentage points of GDP from the 1980s to the 1990s. In Italy, an analogous transformation took place a decade earlier. Despite the increase, corporate savings in Italy remain by far the lowest in our sample, slightly above 5% of GDP compared to levels above 8% in all other countries. Understanding the reasons for the different savings rates across countries requires a detailed analysis of the income accounts for the corporate sector. Unfortunately, the most important ingredient for the exercise, that is profitability, cannot be calculated due to lack of data[8]. The increase of savings in Germany is largely due to important government transfers in connection with the liquidation of the Treuhand agency[9]. In the UK and Spain, savings decreased.

Figure 3. Corporate savings, percentage of GDP




*Source: Eurostat*

7 In the 1990s, investment in software and internal corporate IT services ranges between 0.5% and 1% of GDP in most European countries. If these were added to investment, the resulting decline from the 1970s to the 1990s could be reduced to 1 percent of GDP, most of it taking place in the 1980s. In other words, the bars in the graph will be higher for the 1990s, approximately at the same level as in the 1980s. Note that the difference between investment and savings would not change, as corporate savings would be adjusted in the same proportion.

8 In general, calculating profitability involves a ratio between and income and an output measure. The New Cronos database contains operating income figures for the corporate sector, but no output data. A discussion of profitability should then be based on data for individual enterprises. For an example see "The profitability and investment behaviour of non-financial corporations" in Deutsche Bundesbank Monthly Report October 2000.

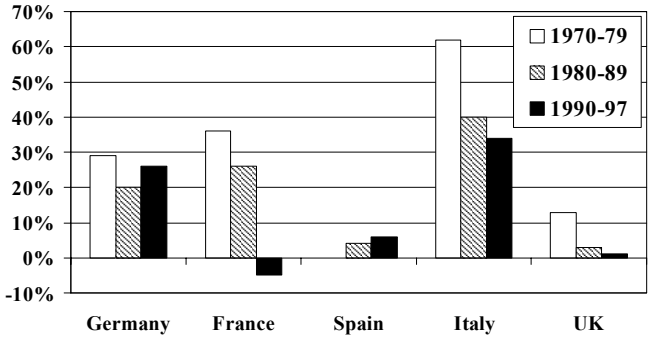
9 The agency had been constituted after unification, with the task of privatising East German companies. The Treuhand issued bonds and used the proceeds to re-capitalize East German companies that were subsequently privatised. In 1995 the securitized debt of the Treuhand agency was assumed by the Redemption Fund for Inherited Liabilities, thus generating a massive capital transfer from the government to the corporate sector (well over 100 billion euros). Part of the old liabilities of east German housing enterprises were also transferred to the Redemption Fund for Inherited Liabilities in that year, generating an additional transfer.

*Illustration of the savings gap*

The combined effect of lower investment and higher savings resulted in diminished needs for external finance in most countries. Evolutions in external finance needs are best illustrated in terms of the "savings gap". The savings gap of the corporate sector is computed as the difference between corporate investment (comprehensive of both capital expenditures and increase in inventories) and corporate savings (i.e. retained earnings plus subsidies and other transfers). As already mentioned in the introduction, this measure is widely watched in the United States and it is often used as an input in credit spread models. For an example see Bevan and Garzarelli (1999), where the term "financing gap" is used instead of "savings gap". Below, we use the two terms interchangeably. The savings gap is reported in Figure 4 as a percentage of investment. In the last period for which sector data are available, 1990-97, the financing gap was very small in Spain and the UK. France is currently running a surplus, down from a gap of over 35% in the 1970s. Italy and Germany are currently the only countries whose corporate sectors made use of a significant share of external finance, but Italy has reduced its financing gap dramatically, from 62% of investment to 34% in the 1990s.

The conclusion from our analysis of the savings gap confirms that significant amounts of external finance were and are still needed in Italy and Germany, and were needed in France in the 1970s and 1980s. The next section tries to explain how these gaps were financed.

Figure 4. Average corporate savings gap, percentage of total capital formation




*Source: Eurostat*

## 2. HOW IS THE AGGREGATE SAVINGS GAP FINANCED

Whatever funds the corporate sector is not able to generate internally, it will have to raise from other sectors of the economy, thus financing its savings gap with an increase in its financial liabilities. In this section, we examine the aggregate composition of such increases by relying on the transaction data published in Eurostat's "Financial Account" tables.

*Description of the Financial Accounts*

The Financial Accounts detail the net increase in financial assets and in financial liabilities for the corporate sector. A net increase in financial liabilities is a source of funds, additional to the internal funds or "savings" described in section 1, while a net increase in financial assets is a use of funds, in addition to "capital formation". The main financial liabilities are loans (both short-term and medium/ long-term), bonds and shares. The main assets are again loans (to other sectors, like consumer credit or trade credit owed by foreign companies), bonds (typically government, bank and insurance bonds held by the non-financial corporate sector), shares (of foreign companies), deposits and other short-term investments. Table 1b presents a simplified version of the financial account.

**Table 1b. Financial account (simplified ESA79 format)**

| Change in assets | **Transactions** | Change in liabilities |
|---|---|---|
| | Currency and deposits<br>Bills and short-term bonds<br>Long-term bonds<br>Shares and other equities<br>Short-term loans<br>Medium and long-term loans<br>Other (insurance technical reserves) | |
| Total change in assets | | Total change in liabilities |
| | *Net change in financial assets and liabilities* | |

The presence of financial assets complicates the answer to our base question, as the increase in financial liabilities is used to finance both the savings gap and the increase in financial assets, and the latter is often of non-negligible order of magnitude. This implies that we expect the increase in financial liabilities of the corporate sector to be larger than the savings gap. However, since the scope of this paper does not allow for a full examination of financial assets, we choose to net out the increase in some financial assets from the corresponding increase in financial liabilities in order to simplify the analysis. Such netting is also supported by a loose economic rationale, and gives rise to the following taxonomy:

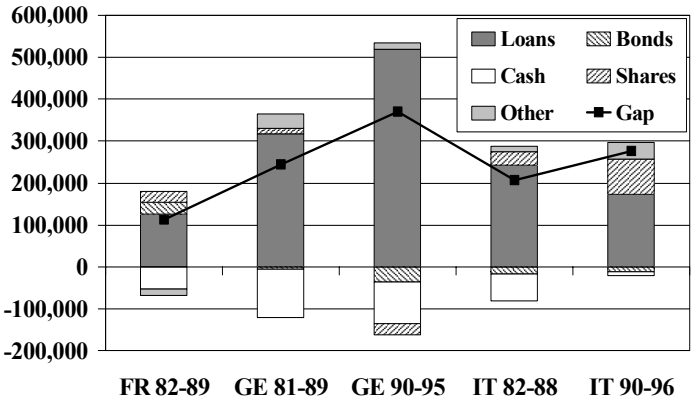
- The figure for the increase in **loans** received by the corporate sector is net of loans given to other sectors and it includes both short and long-term loans. Since for most countries trade credit is lumped together with bank loans, we are not able to distinguish between the two, on either the assets or the liability side. Netting of

loans to other sectors can be defended on the ground that if for instance a company receives a new loan, while at the same time it extends further credit to its customers, the new loan cannot be used to finance the savings gap.

- On similar considerations, the figure for **medium-long term bonds** issued is net of the increase in bonds purchased from other sectors.
- **Shares** is the difference between new share issues and repurchases, with further subtraction of shares in domestic and foreign financial institutions or foreign companies.
- **Cash** (including deposits, bills and short-term bonds), is kept distinct, but it appears with a negative sign, as it is obtained by subtracting the increase in cash and other investments from analogous liabilities (mostly overdraft facilities and commercial paper). It is important to keep cash and other short-term investments as a distinct use, since internal funds that are not immediately needed to finance capital expenditures are often stored as short-term assets.

*Average financing of the savings gap*

Figure 5. Composition of the financing gap, EUR millions




*Source: Eurostat*

Harmonized data on the flows of funds for the corporate sector are available over the period 1982-96 for the five largest EU economies (1981-95 in the case of Germany). As expected, we find the increase in financial liabilities of the corporate sector to be larger than the financing gap. Figure 5, drawn for the countries/ periods for which the savings gap is most important, also shows that most of the gap is covered by an increase in loans[10]. Several elements are worth stressing, beyond the primary role of loan finance:

10 There are two different aggregate estimates of corporate financial needs. One, called net borrowing comes from the Capital Account and is obtained by subtracting savings from investment, the other, called net increase in financial liabilities, is obtained in the Financial Account by subtracting the increase in financial assets from the increase in financial liabilities. While in theory these two estimates of corporate financing needs should give identical results, in practice they differ. As information for the Capital and Financial Accounts is derived by different, often-inconsistent sources, such statistical discrepancies can be quite sizable and need to be treated with care. In section

- Bond finance did not play a significant role covering the gap in any country. This however, should not be a surprise as the development of a corporate bond market for continental European corporations is a more recent phenomenon than it can be captured through our data. We will see below (Table 3) that even in the UK bond issues are far less important than loans.
- One should not fail to notice the important amounts of equity finance in Italy especially in the 1990s, a period in which several large agencies in the public sector were incorporated and gradually privatised. Incorporation meant that the former public agency is re-classified as part of the corporate sector while at the same time its net worth is converted into equities that are held by the public sector. Privatisation involved issuing new equities for sale to the household and financial institution sectors of the economy. Share issued to other sectors rise as a result.
- In Italy and to a minor extent Germany, pension liabilities and severance packages kept on the balance sheet also play a significant role (they are classified as "Other").
- Finally, in all three countries an important share of Loans, Bonds and Shares is used to finance cash holdings of the sector, in the form of deposits, bills and short-term bonds.

One may worry that netting increases in assets from increases in liabilities yields a distorted picture in Figure 5. Also it is interesting to see the flow of funds for countries that, like the UK and Spain, do not run significant savings gap. Table 3 below reports separate data for all five countries in percentage of the total liabilities increase in each country. Increases in liabilities are reported under the column "Source" while increases in the corresponding asset are reported as "Use".

**Table 3 – Net external financial sources 1981-96**
Percent of total liabilities increase in each country

| | **Corporate loans*** | | **Bonds** | | **Shares** | | **Deposits** | | **Bills and ST Bonds** | | **Other** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Source | Use | Source | Use | Source | Use | Source | Use | Source | Use | Source | Use |
| **Germany** | 84% | 22% | 4% | 7% | 6% | 7% | 0% | 16% | 0% | 1% | 6% | 1% |
| **France** | 45% | 38% | 7% | 3% | 35% | 33% | 10% | 11% | 3% | 5% | 0% | 1% |
| **Spain** | 64% | 31% | 2% | 2% | 21% | 7% | 0% | 21% | 2% | 2% | 11% | 10% |
| **Italy** | 59% | 9% | 3% | 6% | 28% | 13% | 0% | 9% | 0% | 1% | 11% | 2% |
| **UK** | 56% | 5% | 9% | 1% | 32% | 34% | 0% | 25% | 3% | 2% | 0% | 3% |

* Including trade credit and other loans to/from non-financial sectors
**Source: Eurostat**

1, we have measured the "savings gap" by using the net borrowing estimate, to preserve consistency with the figures for savings and investment. The gap line in Figure 5 represents the net increase in financial liabilities to ensure comparability with the bars.

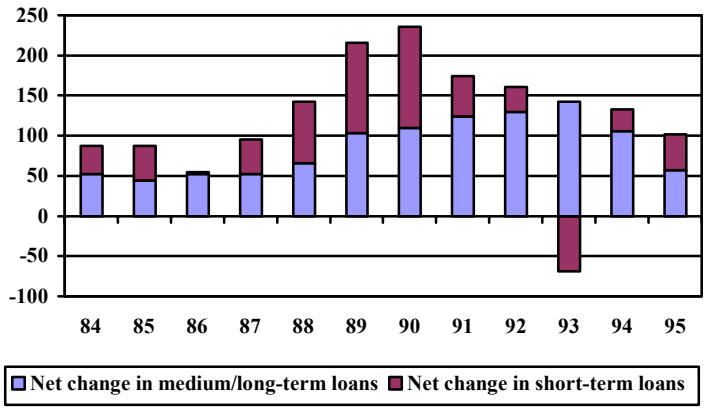
Observation of Table 3 yields a better understanding of the financing patterns that have already been outlined in Table 2, in particular:

- Corporate loans (inclusive of trade credit) are confirmed to be the largest component in the liability increase for all countries, ranging from 84% of total liabilities in Germany to 45% in France. In France, Germany and Spain, however, corporate loans are also an important use of funds mainly in the form of consumer credit and trade credit (or loans) to foreign companies (affiliates). In France, in particular, corporate loans as a use almost offset it as a source.
- As a percentage of total liabilities increase, the UK makes the largest use of bonds, followed by France. Purchases of bonds from other sectors (government, financial companies and rest of the world) are important in Germany and Italy, where they more than offsets issues of bonds by the corporate sector.
- Issuance of shares as a percentage of total liabilities is important in all countries except Germany, ranging from 21% in Spain to 35% in France. The high importance of shares in the UK is expected, given its more market oriented system and the higher number of listed companies. The potential role of privatisation as inflating share issues in Italy and Spain has already been pointed out above. An additional interesting insight from Table 3 is that French and UK companies purchase as many shares from other sectors as they issue. Other sectors that typically sell shares to companies are the rest of the world and the financial sector (banks and insurance companies). UK and French multinationals are likely to make a significant contribution to overall purchases of shares. Increased ownership of financial institutions by French and UK companies is more difficult to pin down.
- Short-term finance, commercial-paper-like, is not an important source of funds, as the low values of the "Bills and ST bonds – Sources" confirms for all countries. The only exception is France, where this type of short-term finance is recorded as "Deposits – Sources", which comprises an instrument known as "bon de caisse".
- Finally, accumulation of cash in deposits is significantly larger in the UK, Spain and Germany than they are in France and Italy.

*Long-term loans and other long-term sources of funds*

An additional question that can be investigated trough our data is the maturity of corporate loans. We are able to distinguish between loans with maturity at issue that is lower than one year and loans with maturity at issue above one year. Figure 6, aggregating the four largest economies shows that while in the 1980s half of the increase in corporate loans had short-term maturities, longer maturities have prevailed in the first half of the 1990s. Note that in 1993, the through of the recession in continental Europe, companies reimbursed short-term loans.

**Figure 6– Maturity composition of the increase in corporate loans, EU-4***
EUR billions




* Including net trade credit and other loans from/to non-financial sectors

**Source: Eurostat**

Table 4 reports the ratio between the increase in MLT loans and the increase in total loans by country, subdivided in periods of five years. The role of MLT loans appears to differ substantially across countries with Germany and France using mostly MLT loans, Italy and the UK mostly short-term loans. The breakdown is not available for Spain. Important variations are however observed across time. While a detailed discussion of the determinants of the choice of maturity is beyond the scope of this paper, we can outline the following main differences across countries and time periods.

- Throughout the last decade, German corporations have financed themselves almost exclusively with loans issued at maturities of one year of more.
- The development in France appears to be particularly dramatic and is explained by very particular circumstances. French companies actually reduced their total loans in all years except for 1992 and 1994, and in particular reduced short-term loans much more than they reduced their MLT loans. A particularly sharp reduction in short-term loans in the first half of the 1990s explains why the ratio for those two periods reaches 219%. It is worth noting here that French companies had already started reducing their short-term loans in the second half of the 1980s (ratio 100%).
- While Italy and the UK appear to use significantly less MLT loans than the previous two countries, the percentage of MLT finance roughly doubles from the second half of the 1980s to the first half of the 1990s. In both cases, the jump is explained by a constant flow of net MLT loans in the two periods coupled with lower volumes of short-term loans.

**Table 4– Maturity composition of the increase in corporate loans**
Increase in MLT loans as a percentage of increase in total loans*

| Country (period of data availability) | 1981-85 | 1986-90 | 1991-96 |
|---|---|---|---|
| **Germany (1981-98)** | 90% | 97% | 96% |
| **France (1982-99)** | 75% | 100% | 219% |
| **Italy (1982-96)** | 33% | 31% | 69% |
| **UK (1984-96)** | | 14% | 25% |

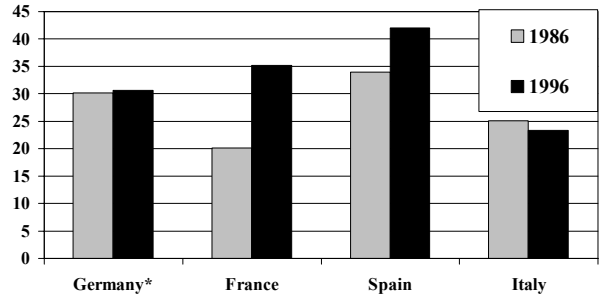
* Increases in loans received are net of increases in loans given and include trade credit and other loans from non-financial sectors

**Source: Eurostat Financial accounts (ESA79 for the 1981-96 period, ESA95 for 1995-99)**

*Consistent evidence from Central Balance Sheet Offices*

The main conclusion of section 1 was that all countries with the exception of Germany and Italy do not run a significant savings gap. The main conclusion of section 2 is that the gap is mostly financed by loans. Thus, if one were able to observe aggregate balance sheet for the corporate sector, one would expect countries with the lowest gap to present the highest percentage of equity in their balance sheet. High financing gaps dilute corporate equity, whenever companies have to increase their debt balances. Vice versa, low gaps enable companies to preserve their equity. We have illustrated the main developments in the equity base of European manufacturing companies in Figure 7 below. The graph is based on the study of a large sample of companies by the European Committee of Central Balance Sheet Offices. For each country, we plot the starting value of equity as a percentage of total assets (1986) as well as the value at the end (1996) of the period for which data are available.

Figure 7. Net equity in % of total assets.
Manufacturing companies




*Source: Central Balance Sheet Offices* ** 1987 and 1995*

Indeed, French and Spanish companies have the highest percentage of equity in their balance sheets, as they run the smallest gaps. Moreover, by running negative financing

gaps in the first half of the 1990s (and using the proceeds to repay debt), French companies were able to raise their equity on average by 15 percentage points. The economic motivation for this can be found in the concurrence of unfavourable economic conditions, which induced a slowdown in investment, with a concern for solvency coming from the high levels of debt accumulated in the past. Spanish companies also increased their equity. This was possible since privatisation-related equity issues more than compensated their small savings gap. To the opposite extreme, Italian companies saw their equity decrease slightly in the 1990s, as a by-product of running large financing gaps (as explained above, these were partially financed by issues of shares in connection with the privatisation process). Finally, despite running a gap German companies were able to preserve their equity largely as a result of injections of public money. The latter coincided with the privatisation of East German companies in the first half of the 1990s.

## 3. ANALYSIS OF THE SAVINGS GAP OVER THE BUSINESS CYCLE

In this section we discuss the dynamics of the savings gap. The approach followed is to plot the gap at an annual frequency against the GDP growth rate as a first attempt to spot business cycle patterns. Further, annual movements of the gap are decomposed in the movements of its two components, savings and investment. Although we recognize the need for a more formal macroeconomic modelling of the dynamics of corporate savings and investment, we choose to keep the analysis at a qualitative/ graphical level as a initial step. The reader will judge whether following such a simple approach proves to be worthwhile.

In addition to the aggregate corporate savings gap, we also report the corresponding figure for a sample of listed companies in each country. Cash flow statements for listed companies provide information on the capital expenditures as well as the retained earnings of each firm, which can be aggregated into a measure analogous to the savings gap. The interest of comparing the savings gap for listed companies with macro data is twofold. Firstly, size heterogeneity has been widely documented to be an important factor in corporate investment and borrowing patterns. Fazzari, Hubbard and Petersen (1989) and Gilchrist and Himmelberg (1992) find that investment for small companies is more sensitive to the availability of internal finance than it is the case for large companies. Gertler and Gilchrist (1994) find that while small companies are forced to reduce their borrowing during a recession, large companies are able to expand their use of debt in order to compensate for lower internal funds. Since in several countries small-unlisted companies account for a majority of investment, aggregate data will conceal possibly different dynamics that characterize large listed companies[11]. Secondly, while aggregate data for the corporate sector are not available after 1997, data on listed companies enable extending the period covered up to 1999, thus providing some insight into more recent dynamics. This extension is important as there is a widespread consensus that European

11 Large companies are typically also listed companies. This is not necessarily true in the UK where several small companies are listed. We address the objection below.

corporations have resumed their investment and borrowing in the late 1990s and it would be interesting to see whether this had an impact on their savings gap, or on the way it is financed. Our source for company-level cash flows is the Worldscope database by Bureau Van Dijk and Disclosure, covering companies listed on the main stock markets outside the US at annual frequencies. The period covered is 1989-99.

*Different levels of the gap between listed companies and the aggregate*

The country breakdown of the savings gap for listed companies is presented in Table 5, where as a reminder we have reported the average gaps from Figure 4. Some relevant summary statistics for the corporate sample are also reported.

Listed companies in continental Europe appear to run much smaller savings gap that the corporate sector did on aggregate in the 1990s. Actually, companies listed in Italy, France and Spain even generate internal funds in excess of investment. The size heterogeneity is likely to play a role here. It is well known, for instance, that the largest German companies use much less external finance than their smaller counterparts (see Sauvé and Scheuer 1999). The same seems to be the case for the other countries in Europe. The case for UK listed companies is slightly more difficult to interpret as they display a higher gap than the corporate sector as a whole. We do not have a good interpretation for this finding. We turn instead to examining the dynamics on a country-by-country basis.

**Table 5 – Savings Gap of listed companies (compared with corporate sector)**
Percent of Gross Capital Formation

| | **Corporate sector** | | | **Sample of listed companies 1989-99** | | |
|---|---|---|---|---|---|---|
| | **1970-79** | **1980-89** | **1990-97** | **Average* Savings gap** | **Average** number of companies** | **Average*** number of employees per company** |
| **Germany** | 29% | 20% | 26% | **1%** | 148 | 25,500 |
| **France** | 36% | 26% | -5% | **-11%** | 250 | 16,336 |
| **Spain** | n.a. | 4% | 6% | **-11%** | 60 | 5,860 |
| **Italy** | 62% | 40% | 34% | **-13%** | 105 | 12,445 |
| **UK** | 13% | 3% | 1% | **14%** | 976 | 7,330 |

* Weighted average of company-year observations

** Average of the number of companies in each year, since the sample is not balanced

*** Overall average on company-year observations

**Source: Eurostat; Worldscope**

*France*

Annual corporate sector data in Figure 8 show a stable high gap in the 1970s, followed by a first sharp drop in the mid-1980s and a second drop in the first half of the 1990s. All this has already been discussed in section 1. Data from the sample of companies listed in France, however, suggest that the trend might have been reversed in the second half of the last decade largely as the product of a boost in investment in turn due to an improved economic outlook in France. It is interesting to notice that the cyclical behaviour of the savings gap for listed companies is quite similar to the aggregate. We will see that this is case for most countries.

Comparing the relative dynamics of investment and savings over the three decades also details what we already know from section 1. Figure 9 below shows that while total capital formation and savings grew at roughly parallel rates in the 1970s, the former slowed down markedly in the 1980s and stagnated in the 1990s, to levels below savings. Figure 9 also helps understanding the cyclical dynamics, which see the savings gap grow at the beginning of a slowdown and decline quickly as the slowdown persists. This happens because corporate savings (i.e. profits) are the first ones to be hit in a slowdown while investment decisions made in the past are given course. Also, it is well known that the inventory component of investment increases in the initial phases of a slowdown. Subsequently, fixed investment as well as production and inventories are also reduced and the gap falls, often sharply. In conclusion, our data appear to be consistent with standard beliefs and stylised facts about the business cycle.

**Figure 8 – Corporate Savings Gap and the business cycle, France**
Percent of Gross Capital Formation; percentage growth

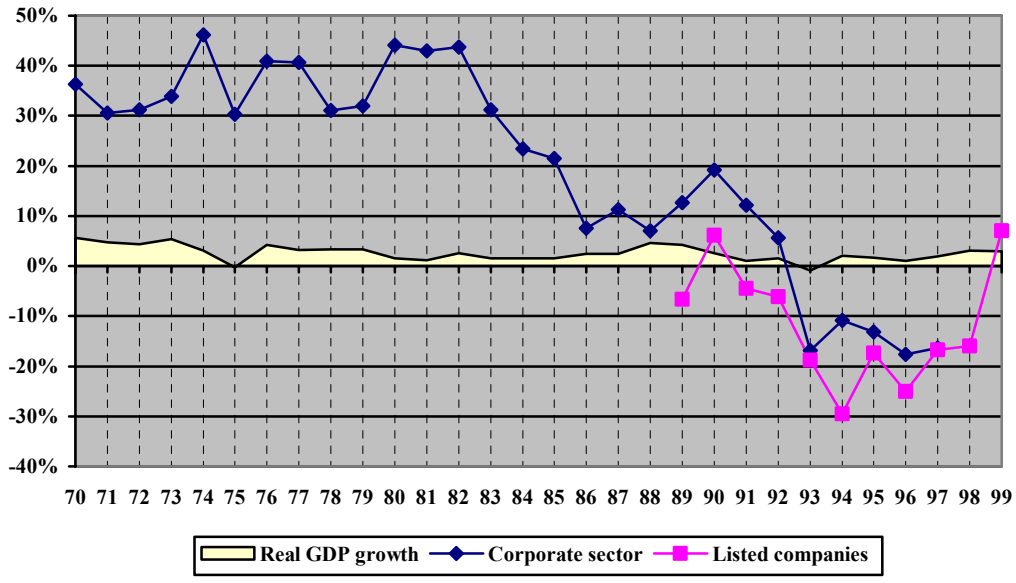
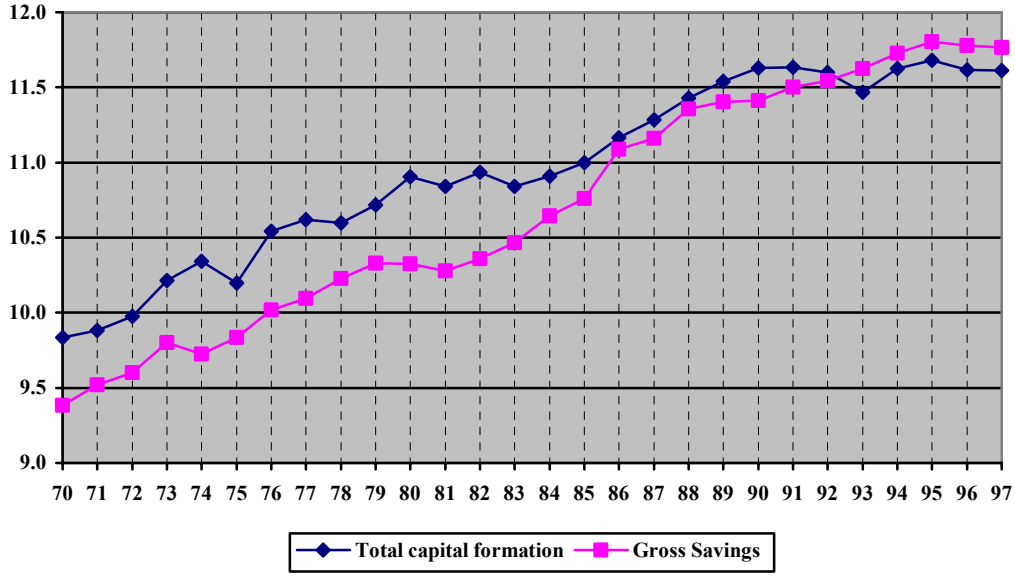


**Figure 9 – Total capital formation and gross savings, France**
Logarithms




**Source: Eurostat for the Aggregate, Worldscope for the sample savings gap**

*Italy*

Similarly to its French counterpart, the Italian corporate sector (Figure 10) has reduced its savings gap by almost 30 percentage points, from over 62% on average in the 1970s to 34% on average in the 1990s. These reductions, as in France, were concentrated in the mid 1980s and early 1990s, as investment grew less than savings on average. In Italy, however, the cyclical pattern is much more accentuated, marked by important jumps observed in coincidence with periods of slowdown (1973-75, 1980-82 and 1989-93), in turn followed by sharp reductions as growth resumed. As it is evident from Figure 11, such cycles are largely due to sharp drops in corporate savings, while investment followed an overall smoother path. A second important difference is that, while French companies were saving much more then they were investing in the 1990s, Italian companies continued to run a positive savings gap. This is because differently from France, both investment and savings dropped sharply in Italy in the early 1990s.

Concerning the sample of Italian listed companies, we point out three facts. First, as already mentioned, they run a much lower gap than it is the case for the corporate sector as a whole: notice that we have to use a different scale in order to plot both the aggregate and the sample in Figure 10. Secondly, as in France, their gap follows the same dynamics as the aggregate. Thirdly, they also display a sharp upturn in 1999, year in which investment resumed at full speed.

**Figure 10 – Corporate Savings Gap and the business cycle, Italy**
Percent of Gross Capital Formation; percentage growth

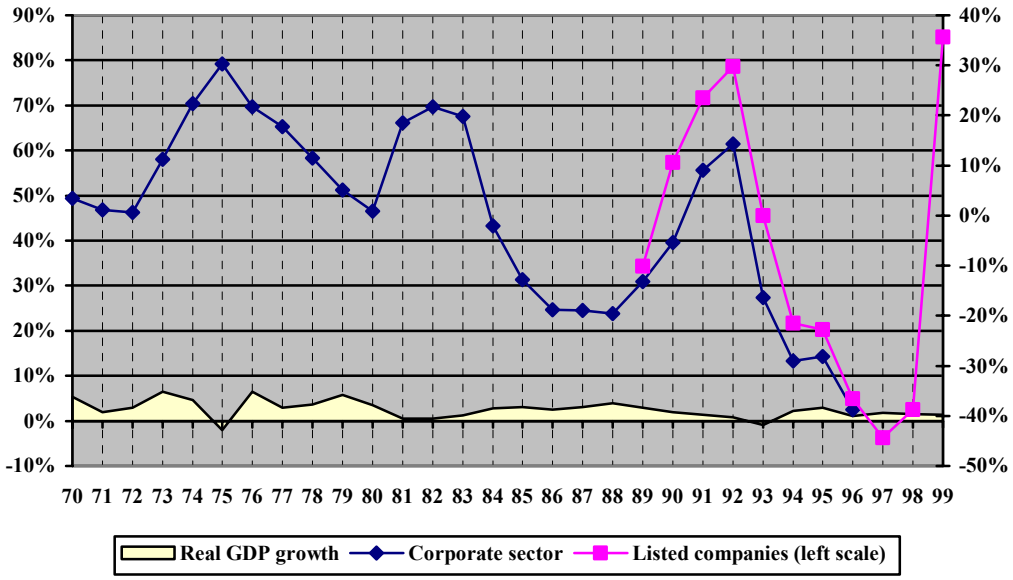
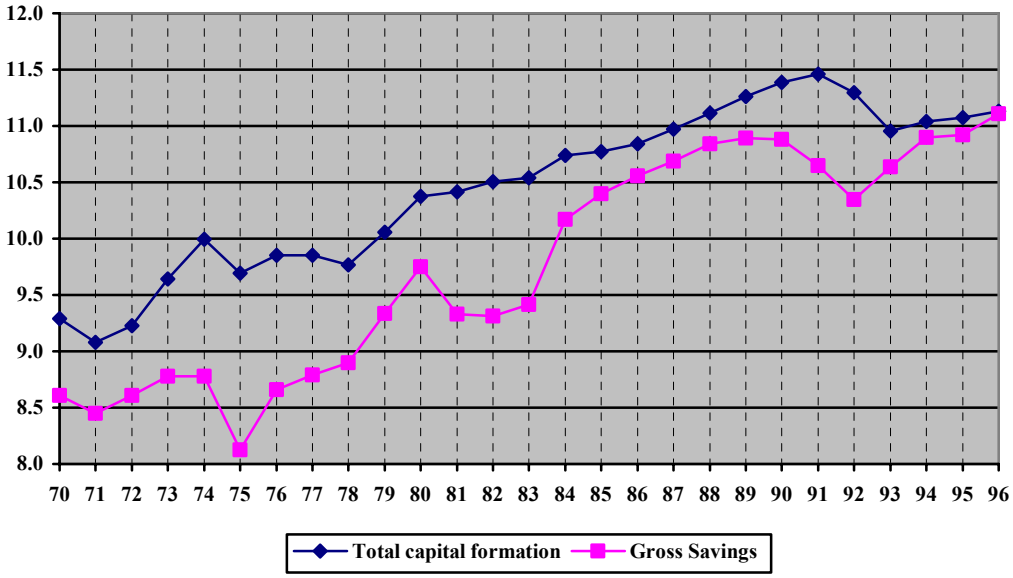



**Figure 11 – Total capital formation and gross savings, Italy**
Logarithms




**Source: Eurostat for the Aggregate, Worldscope for the sample savings gap**

*UK*

While on average UK companies ran much smaller savings gaps, the amplitude of their cycle is not unlike the one observed in Italy (Figure 12), presenting sharp peaks and

troughs. The peaks, in 1975 and 1990 coincide with sharp falls in savings. The cycles included prolonged periods of negative gaps in 1972, 1981-86, 1993-95.

**Figure 12 – Corporate Savings Gap and the business cycle, UK**
Percent of Gross Capital Formation; percentage growth

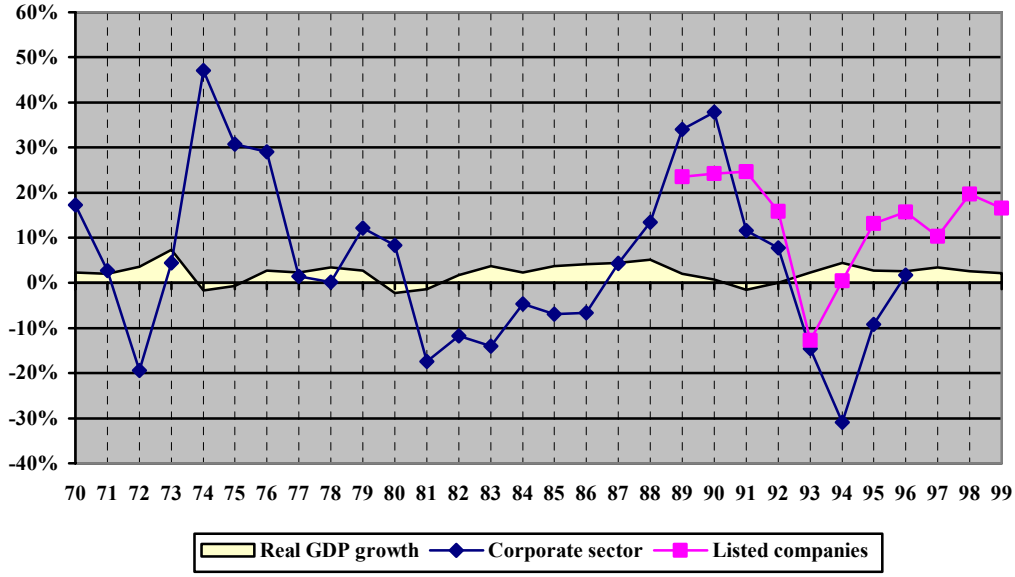
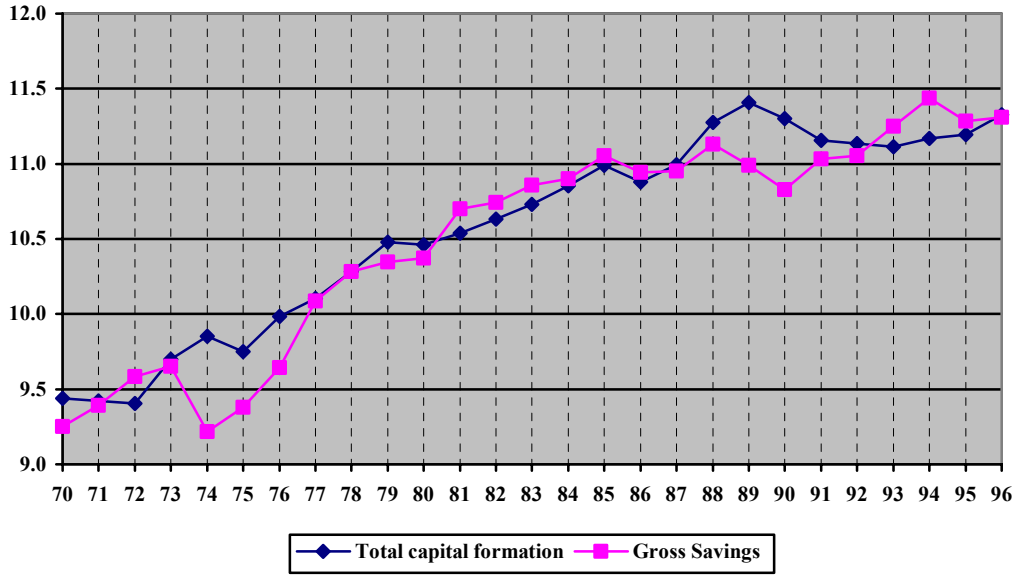



**Figure 13 – Total capital formation and gross savings, UK**
Logarithms




**Source: Eurostat for the Aggregate, Worldscope for the sample savings gap**

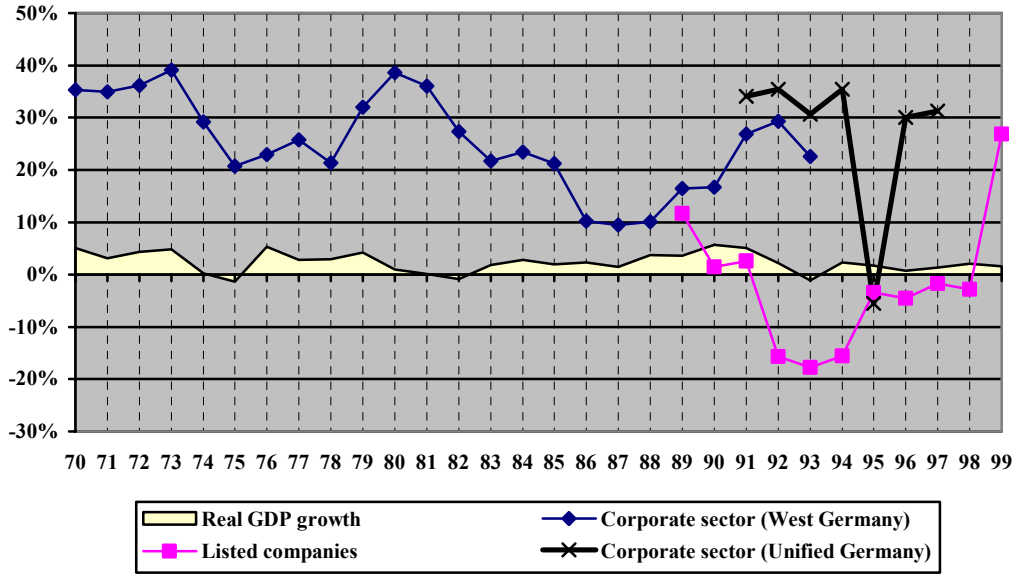
Figure 13 shows that all three episodes are attributable to slowing or receding investment. In the last episode, the UK cycle preceded the French and the Italian one by at least two

years, with corporate investment starting to decrease already in 1990 (in Italy and France investment does not show negative growth until 1992), and the sector savings gap bottoming out in 1994 (both France and Italy seem to have bottomed out only in 1996). The sample behaviour is not too dissimilar from the sector, except that the gap is positive in all years but 1993. This confirms the new expansion of the savings gap in more recent years, not covered by aggregate data.

*Germany*

Commenting on the developments in the German savings gap requires distinguishing the pre- and post- unification period. Not unlike France and Italy, West-German savings gap declined in the 1980s (to 20% on average, down from 29% on average in the 1970s). In the 1990s, reunification gave a new stimulus to corporate investment (Germany is the only country whose investment has not declined in coincidence with the 1993 recession). As the rate of growth of corporate savings did not follow suit, the savings gap climbed back to the levels of the 1970s.

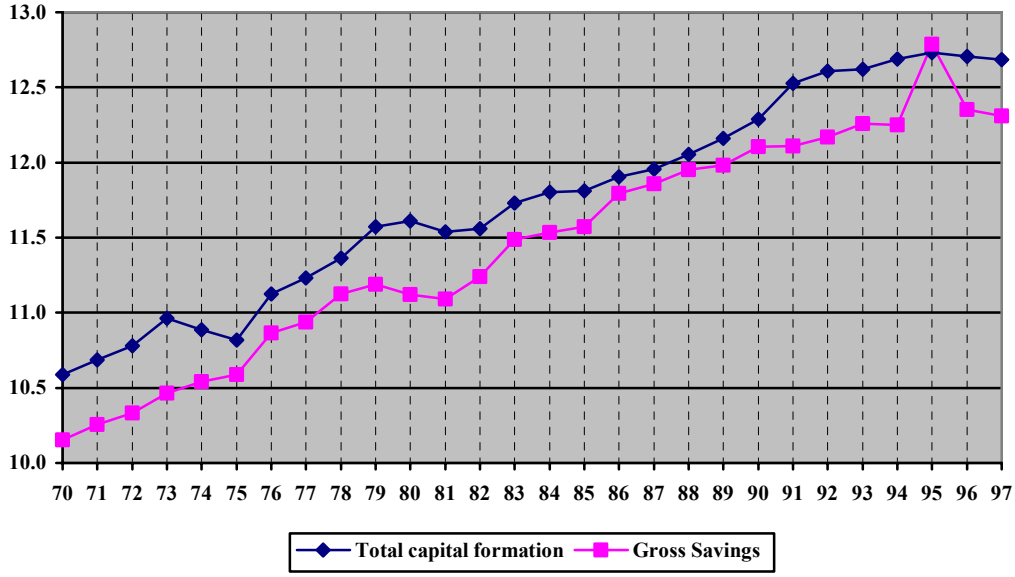
**Figure 14 – Corporate Savings Gap and the business cycle, Germany**
Percent of Gross Capital Formation; percentage growth




Concerning the cyclical patterns illustrated in Figures 14 and 15, three episodes are most notable in the aggregate data. A sharp drop in the gap, from 40% in 1973, to 20% in 1975 as investment shrank in coincidence with the recession trough. A full cycle, corresponding to the slowdown and recession of the late 1970s – early 1980s, as savings initially dropped faster than investment, and subsequently recovered faster. Finally a blip in 1995, coinciding with the liquidation of the Treuhand agency. Concerning the sample of German listed companies we note that while its dynamics is quite disconnected from the German aggregate -- a well-known fact in the empirical literature recently

documented in Sauvé and Scheuer (1999) -- it shows a similar U-shape as observed for French and Italian companies.

**Figure 15 – Total capital formation and gross savings, Germany***
Logarithms




* Until 1990, West Germany only

**Source: Eurostat for the Aggregate, Worldscope for the sample savings gap**

*Spain*

Data for the Spanish corporate sector are available only starting in 1980s. We have already noted that the aggregate gap does not change from the 1980s to the 1990s. Instead, one observes a remarkable cyclical behaviour, about a rather small average gap of approximately 5% (Figure 16). Such cycles are caused by two deep slowdowns in investment, one in the first half of the 1980s, and the other in the first half of the 1990s. The evolution of savings appears smoother (Figure 17).

The gap for listed companies follows a similar dynamics to the aggregate up to the mid 1990s, when the aggregate gap increases while the sample gap decreases. The estimate for 1999 is not reported as very few companies had reported data for the 1999 fiscal year at the time these data were extracted. For those few, the savings gap was positive, consistently with the pickup in investment already observed in other countries.

**Figure 16 – Corporate Savings Gap and the business cycle, Spain**
**Percent of Gross Capital Formation; percentage growth**

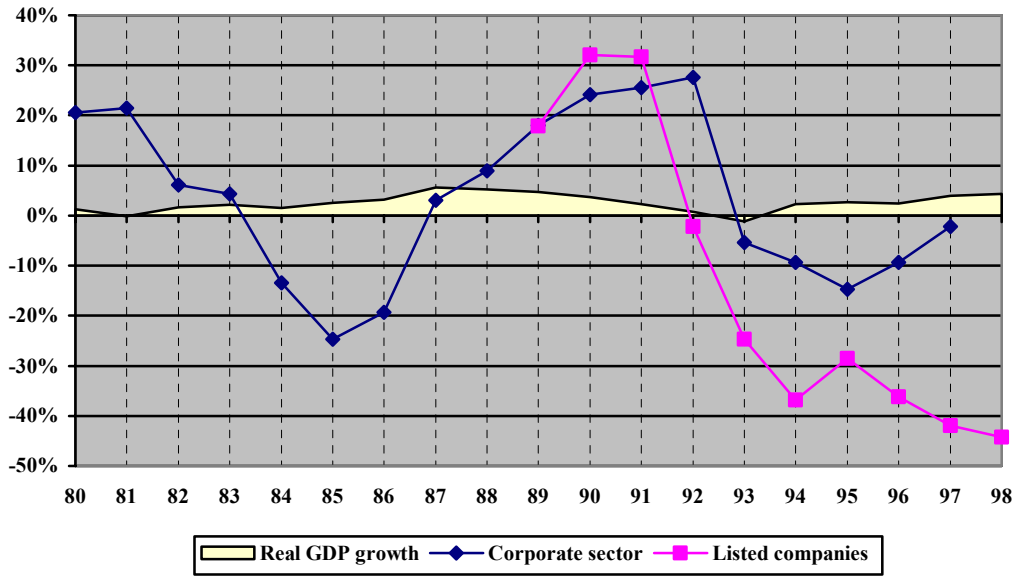
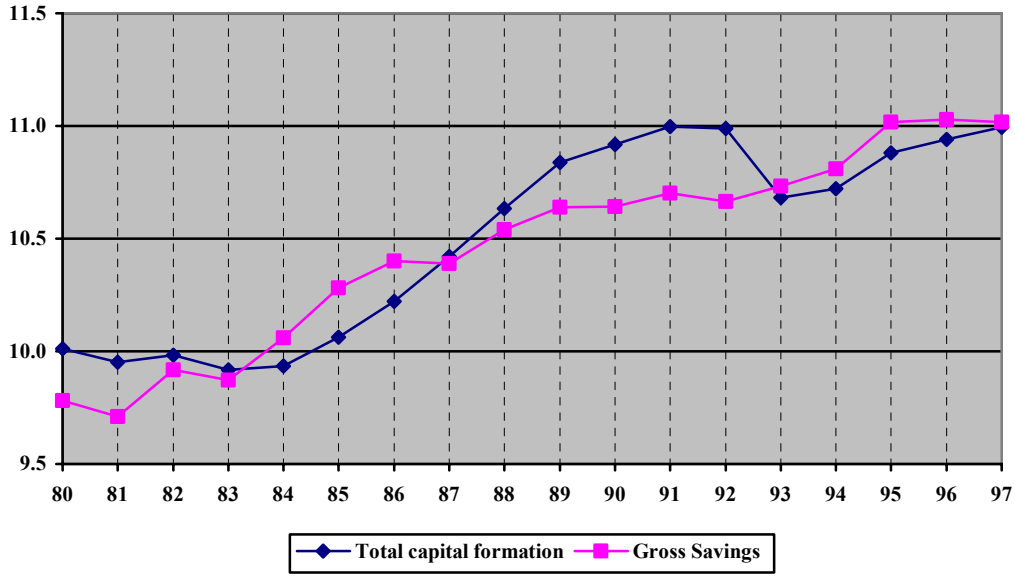



**Figure 17– Total capital formation and gross savings, Spain**
**Logarithms**




**Source: Eurostat for the Aggregate, Worldscope for the sample savings gap**

## 4. THE SAVINGS GAP OF LISTED COMPANIES

The business cycle analysis in section 3 has highlighted important similarities in the dynamics of the savings gap for listed companies and for the corporate sector as a whole.

In this final section, we leave aside the aggregate outlook and concentrate on listed companies. In particular, we analyse the companies' cash flow statements to discuss the way in which the savings gaps (surpluses) are financed (invested) across countries, and whether new insights may be obtained from a different grouping by sector and size. In general, we will see that similarities are more striking than differences, certainly among companies in continental Europe.

*A cash flow framework*

The starting point for the analysis is the simplified version of a cash flow statement in Table 1c below, where we have tried to preserve some comparability with the Capital and Financial Account described in Table 1a and 1b (introduced respectively in sections 1 and 2). The definitions for capital formation and savings are analogous to the corresponding aggregates in the Capital Account so that the difference between the two lines (indicated in the table as *net borrowing*) corresponds to the savings gap figure that we have used in section 3. Specifically, capital formation is the sum of capital expenditures plus the net increase in inventories, while savings is equal to retained earnings.

**Table 1c. A simplified statement of cash flows**

| **"Capital account" flows** | **"Financial account" flows** |
|---|---|
| + Capital formation | + Total borrowing |
| - Savings | + Net share proceeds |
| | + Net other sources |
| | - Cash and other investments |
| *= Net borrowing* | *= Net change in financial liabilities* |

Some clarification is instead needed concerning the financial flows. "Total borrowing" comprises all debt that is raised during the year, in the form of trade credit, loans and bonds. Available data enable breaking down the figure for Total borrowing as the algebraic sum of Gross MLT borrowing minus Repayments of long-term debt plus Net short-term borrowing. Thus, the only subdivision available is between instruments with residual maturity above one year (indicated as MLT or long-term) and funds with residual maturity below one year (short-term). Information on equity finance is available as "Net share proceeds" (from which we subtract repurchases). "Net other sources" groups all sources of funds that cannot be classified as borrowings or share issues. Financial uses denominated "Cash and other investments" are subtracted from the financial sources to obtain the net change in financial liabilities, which by definition equals net borrowing and the savings gap[12].

12 While the analogy between the macro and the company level financial flows is tight, an important difference remains with reference to aggregation. When aggregating company-level flows, we are unable to net out some transactions that take place between companies in the sample. Thus, for instance, a consolidated figure for share

*Analysis by country: similarities are more striking than differences*

Table 6 highlights how the savings gap is financed for the sample of listed companies in each different country. All data are normalized by capital formation. Details for the different components of total borrowing are also reported. Several similarities are observed across countries. Firstly, Total borrowing is quite small, ranging from 1% to 14%. This is due to Repayments of long-term debt of a similar order of magnitude as new issues, as well as small values for Net short-term borrowing. Secondly, the level of net share proceeds is of the order of 10% of gross capital formation in all countries, thus of the same order of magnitude as total borrowing and more important than bond finance (which is included in total borrowing and therefore smaller than the total). Finally, other sources are small everywhere.

**Table 6 – Corporate sample: Net external financial sources 1989-99**
**Percent of gross capital formation, weighted average of company-year observations**

| | Gross MLT borrowing | Repayment of long term debt | Net short term borrowing | **= Total net borrowing** | **Net share proceeds** | Net other sources | Cash and other investments | **Savings gap** |
|---|---|---|---|---|---|---|---|---|
| **Germany** | 20% | -15% | -4% | **1%** | **9%** | 2% | -12% | **0%** |
| **France** | 58% | -45% | -4% | **10%** | **14%** | -1% | -33% | **-11%** |
| **Spain** | 82% | -74% | 6% | **14%** | **10%** | -6% | -29% | **-11%** |
| **Italy** | 49% | -48% | 3% | **4%** | **9%** | 2% | -27% | **-12%** |
| **UK** | 49% | -42% | 1% | **8%** | **10%** | -2% | -2% | **14%** |

**Source: Worldscope company accounts**

The main differences are observed in the value of Gross MLT borrowing and Cash and other investments. Specifically,

- Germany has the lowest debt issuance activity, at 20% of capital formation, while Spain has the highest at 82%. The main explanation for such differences lies in much higher repayment of long term debt for Spain (74%) than Germany (15%) and it could be an indication that the stock of long-term debt has a lower maturity on average in Spain than in Germany. In turn, this could be due to the higher willingness of the typical German Hausbank to extend credit at longer maturities to its clients than banks in other countries do. France, Italy and the UK present intermediate levels of debt issuance and repayment compared to Spain and Germany.

---

issues net of the associated increase in cross-holdings by other companies in the sample cannot be computed. We are able to partially correct for this by excluding from our sample subsidiaries of large groups (for instance, we include Telecom Italia S.p.A. but not TIM S.p.A.). However, increases in cross-shareholding across independent groups in coincidence with issues of new shares could lead to an overestimation of share finance. A similar reasoning applies to trade credit.

- The increase in cash and investments is much higher for France, Spain and Italy than it is for Germany and the UK. Further analysis of the data reveals that large increases in investments, rather than in cash determine the pattern. One may speculate on the presence of important cross-shareholding among the main industrial groups in these three countries as a possible explanation. Any time new shares are issued by a major group, preserving undiluted cross-shareholdings requires an increase in investments by the major cross-shareholders. Further analysis is however needed to establish the argument.

*Analysis by size: the smaller the company the higher the gap*

On balance, our conclusion is that cash flows for listed companies in continental Europe are quite similar, while some differences are to be observed between the former and the UK. One possible explanation may lie in the fact that UK listed companies are smaller on average and smaller companies typically run a higher savings gap[13]. In order to explore this possibility in the most general terms, we extend the sample to include all companies listed on a European Exchange (limited to the EU15) and which also report cash-flow information on the main variables of interest[14].

We start by defining our size classes in Table 7 below, based on the average number of employees in the years over which the companies have been active. Five classes have initially been defined as to split evenly the distribution of the average number of employees. However, quite a few companies in each class have subsequently been discarded because they were not reporting all of the relevant data. Of the initial number of companies being above 4,000 on average only 2,000 reported all of the relevant data needed for our analysis. The overall average number of employees per company is approximately 6,000.

Table 8 details for each class the savings gap and its financing. The most striking observation is that the savings gap appears to decrease on average as the company size increases. Smaller companies are the ones that make the largest use of external borrowing and that issue the largest proportion of shares as a proportion of their capital formation. This is consistent with a model in which smaller companies are also younger and are growing at a faster pace compared to larger, mature companies. While the latter are more likely to generate stable and sizable cash flows that can be used to finance investment, the former need to rely to a larger extent on external finance, in the form of loans and shares.

---

13 On average, listed Spanish companies are smaller UK ones and still they run a negative savings gap. However, the Spanish sample is much smaller (only 60 companies on average) and the weighted average much more likely to be dominated by a few large companies running negative gaps than it is the case for the UK (almost 1000 companies in the sample).

14 As above, the sample is not balanced to require all companies to be present in all years. As Worldscope only reports data on companies that are active at the moment of the publication of the CD ROM, this implies that the size of our sample increases with time. On average, our sample includes over 2,000 companies, providing over 1,500 observations for 1989, a number which increases to 2,500 in 1998. At the moment the database was assembled, July 2000, only 1,500 had reported data for the 1999 fiscal year.

The last column in Table 7 confirms that companies with less than 100 employees have indeed expanded at a pace (11% per year) that is three times faster than the average (4% per year).

**Table 7 – Definition of our size classes**
Average number of employees in the 1989-99 period

| Name | Class definition based on average number of employees | Average number of companies in the sample | Average number of employees | Average employee growth rate 1995-98* |
|---|---|---|---|---|
| **Size class 1** | Less than 100 | 84 | 48 | 11% |
| **Size class 2** | Between 100 and 500 | 429 | 269 | 3% |
| **Size class 3** | Between 500 and 2000 | 612 | 1,035 | 3% |
| **Size class 4** | Between 2,000 and 10,000 | 504 | 4,486 | 4% |
| **Size class 5** | Above 10,000 | 375 | 43,499 | 4% |
| **Total** | **All** | **2,004** | **5,986** | **4%** |

* We compute growth over this period as it is the one over which the highest number of companies report relevant data.

**Table 8 – Corporate sample: Net external financial sources 1989-99**
Percent of gross capital formation

| | Gross MLT borrowing | Repayment of long term debt | Net short term borrowing | **= Total net borrowing** | **Net share proceeds** | Net other sources | Cash and other investments | **Savings gap** |
|---|---|---|---|---|---|---|---|---|
| **Size class 1** | 49% | -22% | -4% | **23%** | **58%** | 2% | -21% | **61%** |
| **Size class 2** | 43% | -32% | -5% | **6%** | **41%** | 3% | -17% | **33%** |
| **Size class 3** | 50% | -38% | -2% | **11%** | **21%** | 0% | -14% | **17%** |
| **Size class 4** | 51% | -37% | -2% | **12%** | **13%** | -1% | -10% | **14%** |
| **Size class 5** | 43% | -36% | -1% | **6%** | **8%** | 1% | -14% | **0%** |

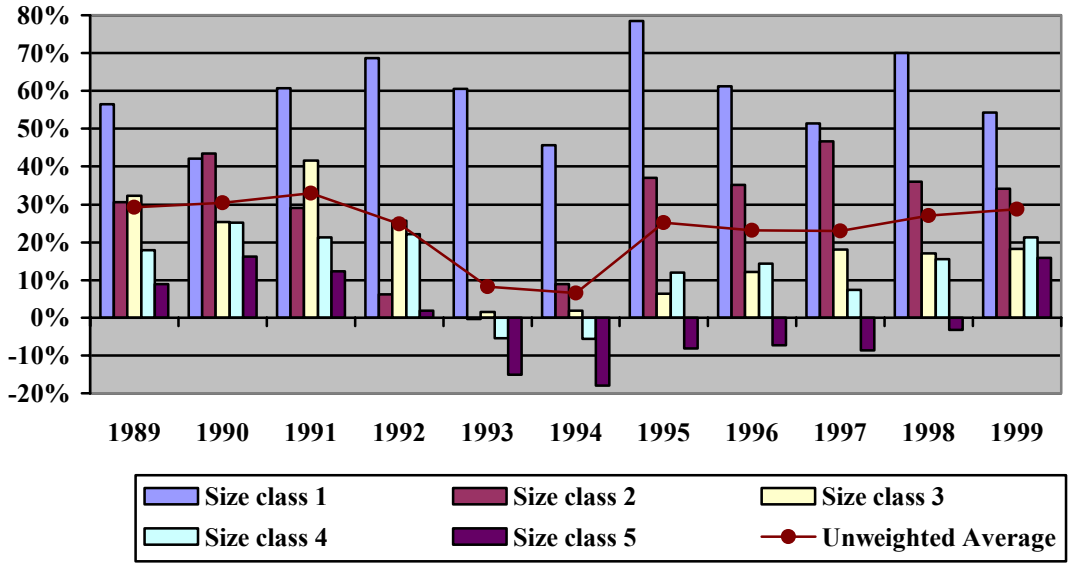
**Source: Worldscope company accounts**

One may find the above explanation to be at odds with the commonly held view that small companies are often financially constrained. The latter states that, due to

asymmetric information, smaller companies are more likely to be credit constrained than larger companies, and therefore need to be more reliant on internal funds in order to finance their investment. Especially in the case of companies in the US[15], such a view has been supported by a robust body of empirical evidence, finding that investment in smaller companies is more sensitive to the availability of internal sources, everything else being equal. Rigorously speaking the two views are not mutually exclusive, as there is no reason why small companies cannot display at once higher sensitivity to cash flows and higher savings gaps[16]. However, it could also be the case that European companies do not show the same patterns of "excess investment-cash flow sensitivity" as found in the US[17]. Clearly, further research is needed in this area.

*Variability over time is very important*

**Figure 18– Evolution over time of the savings gap by size class**
Percentage of total capital formation




**Source: Worldscope**

In figure 18, we have plotted the evolution of the saving gap over time. The well-known V-shape is found, with the average gap displaying a trough in 1994, and growing afterwards. Notice that the sharp pickup of the savings gap that we have documented as a weighted average for the EU-5 group is mainly due to the dynamics for companies in the

---

15 See Fazzari et al. (1988), Gilchrist and Himmelberg (1992) and Gertler and Gilchrist (1994) already cited above.

16 The interpretation of excess investment-cash flow sensitivities as a useful indicator of financing constraints may however be called into question. See Kaplan and Zingales (2000) and the references therein for a further discussion of such an interpretation.

17 Bond et al. (1997), comparing companies in the UK, Belgium, France and Germany, find that investment by UK companies is more sensitive to internal sources than it is the case for the European companies. Focussing on German companies, Stöss (1996) fails to find any discrimination of smaller enterprises by German banks.

largest group (and this in turn is due to a sharp increase in capital formation relative to internal funds). Other than that the dynamics is quite similar across size classes.

Figure 18 also enables us restating a point that we have already made in section 1. The most dramatic variability in the savings gap is the one across time. The un-weighted average of the gap across size classes drops from a level of 30% in the late 1989-91 period to less than 10% in 1993-94, to return close to its previous levels in 1995. This wide variation is encountered across all size classes. Thus the analysis cannot stop at the average values shown in Table 8.

*Analysis by sector*

To conclude this section, Table 9 presents a summary of financing patterns by aggregate sector, obtained by re-aggregating the full EU15 sample of 2000 companies according to their primary sector codes. Sectors are defined to group together NACE categories that are likely to be subject to similar cyclical dynamics and factor risks. The classification plan is available upon request. On average, the differences in the savings gap across sectors do not seem nearly as important as the ones that we have found across time periods, countries (aggregate data) and size classes. Needless to say, all sectors present a V-shaped time path for the savings gap, with a trough in the middle of the period (not shown, Tables available upon request). Oscillations in the gap from the beginning through the middle of the period can be quite dramatic, of the order of 20-30 percentage points. On average, the Automobiles and Air Transport sectors are the ones with the highest savings gaps, while the Energy and Telecommunication sectors present negative gaps. For the latter, we expect to observe a sharp reversal in 2000, due to mounting costs from the UMTS licence auctions. It is also noteworthy that some sectors (Waste recuperation, Drinking water and water treatment, Urban development) appear to borrow quite a lot, while keeping important offsetting amounts of cash and investment.

**Table 9 – Net external financial sources by sectors: 1989-99 corporate samples**
Percent of gross capital formation

| | Gross MLT borrowing | Repayment of long term debt | Net short term borrowing | **= Total net borrowing** | **Net share proceeds** | Net other sources | Cash and investments | **Savings gap** |
|---|---|---|---|---|---|---|---|---|
| **Automobiles** | 36% | -27% | 2% | **11%** | **7%** | -4% | -8% | **6%** |
| **Airlines and air transport** | 42% | -31% | 5% | **16%** | **8%** | -2% | -18% | **4%** |
| **Investment goods and consumer durables** | 35% | -28% | -4% | **3%** | **10%** | -1% | -10% | **2%** |
| **Tertiary and other** | 52% | -43% | -5% | **4%** | **11%** | 3% | -16% | **2%** |
| **Paper chain** | 41% | -38% | -1% | **2%** | **10%** | 1% | -12% | **1%** |
| **Waste recuperation, recycling** | 52% | -27% | 1% | **26%** | **21%** | -6% | -40% | **1%** |
| **Food chain** | 59% | -49% | -1% | **9%** | **8%** | 1% | -18% | **0%** |
| **Drinking water, water treatment** | 60% | -37% | 3% | **26%** | **18%** | -6% | -39% | **-1%** |
| **Marine transport** | 49% | -41% | 1% | **9%** | **13%** | -1% | -22% | **-1%** |
| **Chemicals and plastics** | 40% | -34% | -6% | **0%** | **6%** | 0% | -9% | **-3%** |
| **Construction** | 60% | -43% | 5% | **22%** | **21%** | -4% | -42% | **-3%** |
| **Consumer goods** | 42% | -31% | -4% | **7%** | **8%** | 0% | -20% | **-5%** |
| **Roads and motorways** | 53% | -44% | -1% | **8%** | **14%** | 1% | -28% | **-5%** |
| **Social infrastructure** | 48% | -44% | 4% | **8%** | **20%** | -1% | -32% | **-5%** |
| **Traditional and high speed railways** | 53% | -45% | -1% | **7%** | **14%** | 2% | -28% | **-5%** |
| **Materials processing, construction** | 55% | -48% | -2% | **5%** | **16%** | -1% | -26% | **-6%** |
| **Basic material and mining** | 42% | -40% | -3% | **-1%** | **7%** | -1% | -12% | **-7%** |
| **Electricity, coal and others** | 44% | -42% | -1% | **1%** | **8%** | 1% | -21% | **-11%** |
| **Telecommunications** | 40% | -38% | -1% | **1%** | **12%** | -2% | -22% | **-11%** |
| **Oil, gas and petroleum** | 32% | -34% | 1% | **-1%** | **4%** | -2% | -13% | **-12%** |

**Source: Worldscope company accounts**

## 5. CONCLUSIONS AND FURTHER RESEARCH

The overwhelming conclusion of this paper is that corporate investment is currently mostly financed through internal sources. Even in a country like Italy, whose corporations financed over half of their investment externally in the 1970s, firms have dramatically reduced reliance on external sources. The observation is somewhat counterintuitive. Financial markets have developed impressively over the same period

and one would expect that more sophisticated financial markets should free companies from over-reliance on internal cash flows. On aggregate this is not the case. In continental Europe, it also turns out that listed companies are the ones making the least use of external finance, while one would expect exactly the contrary. Another way of corroborating our conclusion is to compute the time-correlation between savings and investment at the corporate sector level. Table 10 shows that this correlation is quite high for the largest economies in continental Europe, and in particular for Germany and Italy. Exploring the implications of these stylised facts in the context of existing theories of investment and capital structure should make for an interesting research agenda. The case of UK, showing a negative correlation, may also provide an interesting counterfactual.

**Table 10 – Correlation between the growth rates of total capital formation and savings**

| | |
|---|---|
| Germany | 0.61 |
| France | 0.26 |
| Spain | 0.33 |
| Italy | 0.52 |
| UK | - 0.21 |

**Source: Eurostat**

Several additional stylised facts emerge from the analysis. Firstly, variation of the savings gap over the business cycle is way more important than variation across countries, sectors or size classes. This is due to high variability over time in corporate savings and investment. Further research should model these two components separately, and ideally embedded into a macro-economic model. Secondly, external finance appears to come mostly in the form of loans, especially MLT ones. Share issues are the second source of external finance, although smaller than loans, while bond issues appear negligible over the period covered. Thirdly, when data for listed companies are analysed, one finds the smallest companies display the fastest growth and the highest savings gap. At the other extreme, the largest companies rely almost entirely on internal finance. This latest finding is at odd with a commonly held view that small companies are credit constrained and need to rely on internal finance. Further research should try to reconcile such a view with the facts, with a special focus on cross-country differences.

**References**


Bevan Andrew and Francesco Garzarelli, 1999, Corporate Bond Spreads and the Business Cycle: Introducing GSSPREAD, Goldman Sachs paper

Bond, Stephen et al., 1997, Financial Factors and Investment in Belgium, France, Germany and the UK: a Comparison Using Company Panel Data, Working Paper 5900, National Bureau of Economic Research

Catinat M., R. Cawley, F. Ilzkovitz, A. Italianer, M. Mors, 1987, The Determinants of Investment, European Economy 31 (March), 5-60

Ekstein Otto and Allen Sinai, 1986, The mechanisms of the Business Cycle in the Postwar Era, in Gordon, Robert J., The American Business Cycle, Chicago: The University of Chicago Press.

European system of integrated economic accounts ESA. Second Edition. November 1978

Eurostat, European system of Accounts: ESA 1995

European Commission, 2001, The Determinants of Investment: An Overview for the EU and the US, Technical Note from the Commission services.

Fazzari, Steven M. R. Glenn Hubbard and Bruce C. Petersen, 1998, Financing Constraints and Corporate Investment, Brookings Papers on Economic Activity, 141-195

Feldstein Martin and Charles Horioka, 1980, Domestic Savings and International Capital Flows, Economic Journal 90 (June), 314-329

Gertler, Mark and Simon Gilchrist, 1991, Monetary Policy, Business Cycles and Behavior of Small Manufacturing Firms, Quarterly Journal of Economics, 109 (May), 309-340

Gilchrist, Simon and Charles P. Himmelberg, 1995, Evidence on the Role of Cash Flow for Investment, Journal of Monetary Economics, 36, 541-572

Kaplan Steven N. and Luigi Zingales, 2000, Investment-Cash Flow Sensitivities Are Not Valid Measures of Financing Constraints, Quarterly Journal of Economics, May

Sauvé Annie and Manfred Scheuer (eds.), 1999, Corporate finance in Germany and France, Joint Research Project of the Deutsche Bundesbank and the Banque de France.

Stöss Elmar, 1996, Enterprises' Financing Structure and their Response to Monetary Policy Stimuli. An analysis based on the Deutsche Bundesbank's Corporate Balance Sheet Statistics, Deutsche Bundesbank Discussion Paper 9/96

Zarnowitz ,Victor, 1999, Theory and History Behind Business Cycles: Are the 1990s the Onset of a Golden Age?, Journal of Economic Perspectives 13 (2 Spring), 69–90