The unbearable lightness of balance sheets: An analysis for the eurozone corporate sector

Marco Annunziata
Loredana Federico
Davide Stroppa*

Economics FI/FX Research
UniCredit Group

*Corresponding Author: UniCredit MIB, Via Tommaso Grossi 10, 20121 Milano (Italy).
e-mail: davide.stroppa@unicreditgroup.de; tel +39 334 6615063

Executive Summary

The latest financial crisis has underscored the need to better capture the interaction between financial and economic variables in our forecasting models. This is especially important when analyzing investment dynamics, for two reasons. First, among the various components of aggregate demand, investment is especially sensitive to financing conditions. Second, as both the eurozone and the US are rather closed economies, a sustainable recovery hinges on domestic demand, with investment playing a crucial role: investment has become even more strongly correlated with world trade, and can therefore leverage the pull of the current rebound in global commerce into a self-sustaining domestic growth.

In this paper we focus on the eurozone. We carry out an in-depth analysis of financial conditions for Non-Financial Corporations (NFCs), developing and tracking measures of their reliance on external funding as well as the composition and costs of such funding. We then use a two-step Error Correction Model procedure to combine our financial variables and economic variables to predict investment. The results confirm that financial conditions will play a crucial role in driving investment demand going forward.

With eurozone NFCs still heavily dependent on bank lending, the current policy debate is focused on the fragility of the financial sector and the attendant risks of a credit crunch. Little attention however is given to the other side of the equation: our analysis shows that the financial situation of NFCs is uncomfortably precarious, as a period of substantial leveraging has been followed by a collapse in profitability and therefore in debt-servicing ability. It is notable that even the recent sharp curtailment in investment has not been sufficient for firms to increase savings and deleverage. This is particularly dangerous, as it increases the riskiness of NFCs at a time when banks need to be especially cautious. The only support has come so far from a strong decline in financing costs, reflecting both the ECB's efforts and the more recent rebound in equity markets. Looking forward, it is crucial that financing costs remain at affordable levels while prospects for demand and profitability improve. This would set the stage for a recovery in investment and in GDP growth. Once the economic recovery is more firmly established, firms, however, should probably embark on a process of deleveraging, to avoid getting to the next downturn in as vulnerable a position.

1. Introduction: towards a non-conventional view of corporate investment

One of the great casualties of the current recession has been investment spending. This is a key development for future prospects of recovery in the eurozone, as capex plays a central role in driving the economic cycle. Over the last decade, investment spending has accounted for roughly 20% of euro area GDP: more than half of this share has come from investment by Non-Financial Corporations (NFCs). However, while investment by NFCs accounts for little more than 10% of GDP, **its dynamics remains one of the main forces driving the business cycle**, being three times more volatile than household consumption.

At the current juncture, investment spending plays an even more crucial role. First, the traditional link with world trade has strengthened reflecting partly the rapidly rising importance of the main emerging markets, which generate a growing demand of investment goods. After having collapsed in the aftermath of Lehman's demise, global trade has now become one of the main engines of the recovery. In this context, **investment can play a key role, acting as a transmission belt and transforming the initial impulse from an exogenous engine of growth (i.e. global trade) into a sustained endogenous growth dynamics**. A second feature of the current cycle is the **nexus between firms and banks**: while the banking sector is committed—and prodded by both regulators and investors—to strengthening its capital ratios to healthier levels, the projected rise in non-performing loans could lower them again and trigger a new round of deleveraging through a reduction in credit. In turn, this would prevent a smooth credit flow towards households and firms. However, while the debate on the risks of a potential credit crunch has been lively over the past two years, relatively less attention is given to the other side of the equation, i.e. the financial health of corporations.

Therefore, we have adopted a fundamentals-based approach to analyze investment spending perspectives. First, **we investigate the financial position of eurozone NFCs**, focusing on how the recession is hitting corporate profitability and corporate balance sheets. We show that financial constraints stemming from lower internal cash flow and high indebtedness can be a serious drag on investment and increase firms' vulnerability. Secondly, **higher firms' vulnerability calls for a close monitoring of the cost of different means of financing** (bank debt, market debt, quoted equities). In fact, the recent decline in lending rates and market-based yields is likely to provide some relief to excessively indebted firms, reducing their debt-servicing expenses. Finally, we employed the results on financial positions and the cost of financing to **improve the understanding of investment dynamics through an econometric analysis.**

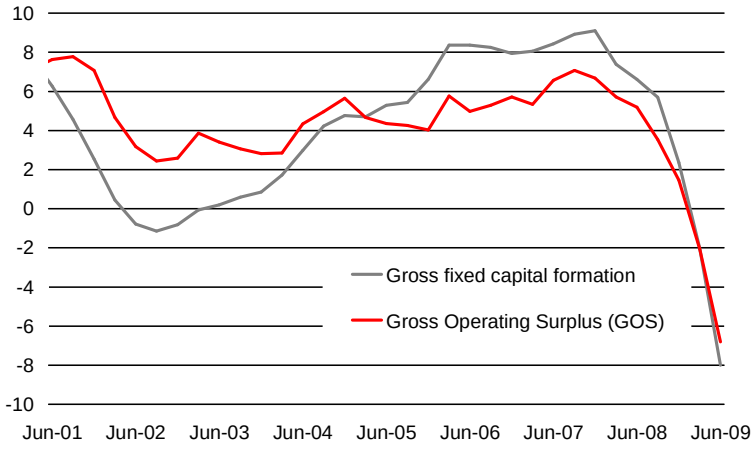
2. Profits dynamics

Using national account data released quarterly from Eurostat, we begin our analysis investigating the **dynamics of profits for NFCs.** Our reference measure of profitability is the **Gross Operating Surplus (GOS)**, derived by subtracting total compensation of employees plus taxes and subsidies on production from the Gross Value Added. In the euro area sector accounts, **the GOS can be considered as the equivalent of operating profits in companies' financial**

statements. In other words, the GOS provides a rough measure of how much profit can be derived from the so-called "operating activity", thus abstracting from the financial side (income and interest payments). As economic theory suggests[1] , profits impact on investment decisions both as a current source of internal finance, when firms are liquidity constrained, and as expected future revenues of the investment project. This is confirmed by the strong co-movement of the yearly growth rates of Gross Operating Surplus and of fixed investment[2].

The chart below shows that **profitability of NFCs has been on a steady upward trend since end-2002-beginning 2003:** yearly growth of GOS bottomed out in September 2002 at 2.7% after the dot.com bubble, and steadily accelerated afterwards, peaking at 7.1% in September 2007. After that, the recent contraction in overall economic activity led to a steep plunge in profit growth, which turned negative at -6.8% yoy in 2Q 2009, the lowest figure on record. In line with the unprecedented collapse of several indicators of activity observed at the turn of the year, **the drop in profitability is much more severe than the decline posted in the 2001-2002 downturn**, when profit growth had declined sizably but remained in positive territory.

Chart 1- Strong co-movement of profits and investment*



(*) =%yoy change of 4-quarter cumulated flow

Source: Eurostat, UniCredit Research

What matters more to our analysis, however, is the **dynamics of operating profits going forward.** The New Orders component of the Manufacturing PMI tends to lead profit growth (as confirmed by a Granger causality test), and the highest significance is obtained at four quarters. Similar results are obtained when other forward-looking measures of activity are used, i.e. the "Order book" (for the manufacturing sector) or the "Expectations of Demand" (for the service sector) in the EC survey. Thus, as cyclical indicators have troughed in 1Q 2009, **profit growth should touch bottom and start recovering in the first months of 2010.**

[1] See "Corporate Finance in the Euro Area" (2007), ECB Occasional Paper No. 63, and references therein.

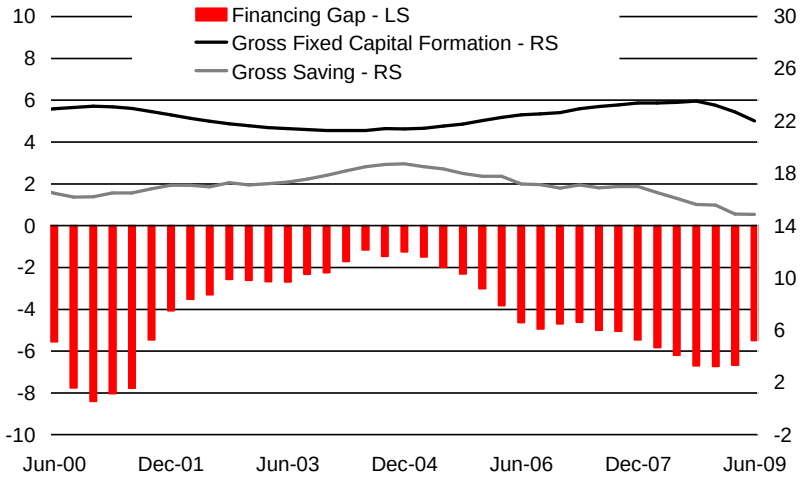
[2] In order to smooth out short-term volatility of transactions, on national account data, we resorted to cumulated 4-quarter flows and derived the yearly growth rate.

3. An analysis of financial vulnerability for eurozone firms

We turn now to assessing the financial health of NFCs. To do so, we employ the so-called **"financing gap", i.e. a measure showing to which extent NFCs can finance their investment through internally-generated funds** and how much needs to be raised externally, via debt securities, equity issues or the banking sector. We derive this measure simply as the difference between retained internally-generated funds (i.e. the GOS plus net income and interest payments, minus taxes, labeled as Gross Saving) and gross business capital spending, inclusive of inventories.

A negative financing gap tells us that **internally-generated funds are not enough to finance investment and firms need to resort to external financing.** On the other hand, a positive gap is a rather unusual situation for companies, as they are traditionally net borrowers, relying on other sectors of the economy to provide funds for their investment. As shown in chart 2, NFCs in the euro area have always showed a negative financing gap, implying a persistent need to rely on external finance to fund their investment plans. Still, we can isolate different periods: after the large rise in indebtedness between the late 1990s and 2001, in 2002-mid 2005 European NFCs carried out a period of balance sheet restructuring through a progressive reduction of debt and an increase in undistributed profits. In turn, this contributed to dampen fixed capital investment. Since late 2005, the growth rate of investment accelerated again and was underpinned by a renewed recourse to external funds. At the end of 2008-beginning of 2009, the financial deficit of NFCs kept growing, reaching 5.5% of Gross Value Added. Although this is not the highest level on record (during 2000-01, it touched 8%), it is remarkable that this stemmed from a **very pronounced slowdown in Gross Saving and despite the current sharp reduction in investment that should have contained the financial deficit.** Clearly, at the current juncture, the shrinkage of internal funds raises serious concerns about the vulnerability of NFCs going forward.

Chart 2 – The financial position of NFCs is worrying*

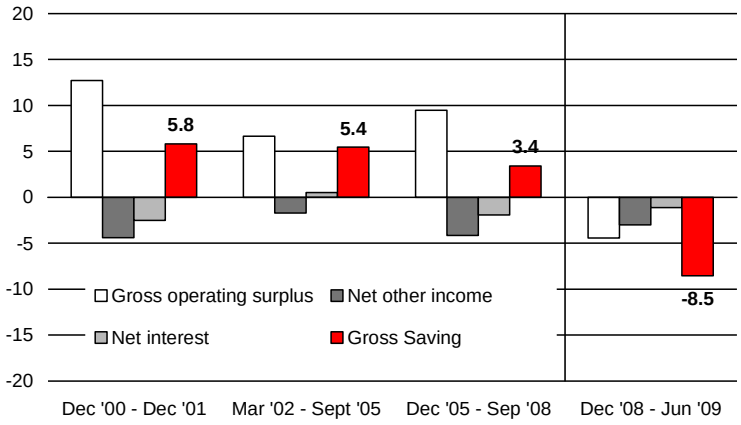


(*)= % of Gross Value Added (GVA)

Source: Eurostat, UniCredit Research

Against this background, we **analyze in depth the contribution of the components of internally-generated funds** looking at **the breakdown of annual changes in Gross Saving** among Gross Operating Surplus, net other income (including rents and dividends paid) and net interest income. The different contributions show that historically the evolution of Gross Saving has been determined mainly by developments in the GOS. In particular, during the period characterized by balance sheet restructuring and lower debt burden (1Q02-3Q05), almost all improvement in Gross Saving (6.0% yoy on average) was due to a higher GOS (which contributed by 6.7 pp). In contrast, during the last profit cycle (4Q05-3Q08), characterized by corporate re-leveraging, around half of the strong contribution by GOS (9.6 pp on average) was dampened by higher remuneration of financing, i.e. distributed income and interest paid, strongly reducing self-financing ability. This is particularly relevant to describe **the financial health of the corporate sector over the last two quarters and at present.** In fact, the yearly growth of the GOS took a hit in 4Q 2008, when it halved from the previous quarter (from 4.1% to 1.9% yoy). Afterwards, the yearly growth of Gross Operating Surplus and its contribution to Gross Saving turned negative in 4Q 08-2Q 09. Thus, **the lack of operating profits added to a still generous dividend policy and high interest payments, due to elevated indebtedness. This worsened the aggregate corporate financial position and led to a marked decrease in internally-generated funds (-8.5% yoy on average).** (See Chart 3)

Chart 3 – Interest payments drag on retained profits*



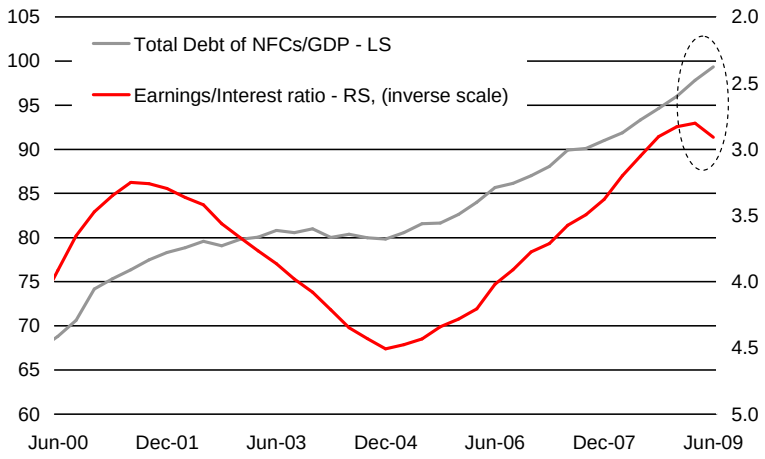
(*)=Breakdown of annual changes in Gross Saving = GOS + net other income + net interest income (% yoy change and pp contributions).

Source: Eurostat, UniCredit Research

The analysis above shows that **the excessive indebtedness of NFCs is likely to increase their vulnerability and impair their repayment capacity.** This is confirmed by the ratio of debt (loans and securities) of Non-Financial Corporations to GDP. As can be seen in chart 4 on next page, this ratio remained broadly stable in 2002-04 and has been increasing steeply since then, approaching 100% in 2Q09. While contracting economic activity surely helped the rise of the Debt-to-GDP ratio, it should be noted that debt has been growing more than GDP consistently

over the last five years. A similar picture is given by indicators of debt service capacity, such as the **ratio of earnings (before interest and taxes) to interest expenses** - a macro-level equivalent to the interest coverage - which helps us to properly measure the adequacy of cash flow, and to identify the risk that firms may be unable to meet required interest payments out of their income. **Rising interest payments to corporate earnings determined a steep decline in the interest coverage ratio since 2005, when it stood around 4.5, compared to 2.8 in 2Q09.** As we do not expect profits generated by operating activity to recover in the near term, this will keep **impacting negatively on firms' cash flow and this effect will be greater for highly leveraged firms.** This implies that corporate investment spending will remain sensitive to changes in future profits, which hinge strongly on the sustainability of the current recovery. In addition, as we will show in the next section, NFCs in the eurozone are still obtaining most of their financing in the form of loans from banks, reflecting a persistently strong degree of bank dependence. This adds further evidence that **NFCs will remain highly exposed to changes in bank lending over the next quarters.**

Chart 4 – Strong corporate re-leveraging*



(*) = Total Debt (loans and debt securities)

Source: Eurostat, UniCredit Research

4. Costs matter: a measure of Composite Financing Costs

As financial vulnerability has emerged as a key factor for NFCs developments, it is crucial to give a **precise assessment of how the cost of liabilities is biting on their balance sheets**. To do this, we developed a synthetic measure of the cost of financing for NFCs, to see how different sources of funding are evolving and affecting firms' balance sheets.

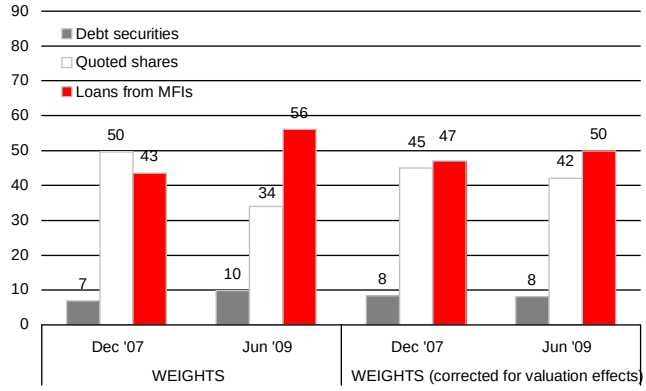
We first investigate the **composition of firms' liabilities.** According to financial accounts statistics published quarterly by the ECB, the amount of outstanding liabilities for NFCs[3] was EUR 8,479bn in June 2009.

[3] Excluding non-quoted shares and including only loans from MFIs.

The breakdown reveals that **external financing is still dominated by longer-term bank loans** (41.4%) and quoted shares (33.5%), whereas short-term bank loans amount to 15.3%. The share of market-based debt stands just below 10% and confirms the key role played by bank credit vs. market debt in the eurozone. Quite obviously, the plunge in stock markets since mid-2007 has driven down the share of quoted equities in NFCs' total liabilities from around 50% to 33.5%. However, **when we correct for the valuation effects, the share of equity has declined only slightly,** by 3%, remaining above 40%, while the share of bank lending has equivalently increased. Therefore, **despite the strong impact of the global financial crisis, the financial structure of NFCs has not changed substantially (yet)**; if anything, the predominant role of bank financing has strengthened.

Chart 5 – NFCs financial structure dominated by bank loans

(% on outstanding amount of (Debt+Quoted Shares+MFI loans), end of period)



Source: Eurostat, UniCredit Research

4.1 Corporate Debt: Bank and Market Lending

Turning to financing costs, we have first considered the cost of bank lending for NFCs and computed **two "composite" short-term and long-term MFI lending rates by weighting the single MFI lending rates by their respective outstanding amounts.** The Composite Short-Term lending rate is a weighted average between the rate on new loans with maturity up to one year and the overdraft rate[4]. The Composite Long-Term rate is a weighted average of rates on new loans between one and five years and new loans with a maturity higher than five years.

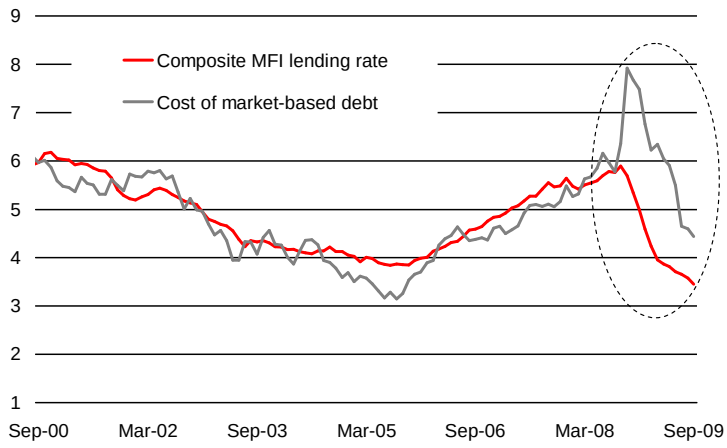
Both the Composite Short-Term and Long-Term rates reached their highest level (at 6.14% and 5.74% respectively) in September 2008, in the most dramatic days following the Lehman collapse, and have embarked on a steep downtrend since then. Finally, the Composite Short-Term rate and the Composite Long-Term rate have been weighted by the share of the respective outstanding amounts on the total bank loans. This yields an overall cost of lending, which provides us with a synthetic measure of how expensive is for a NFC to get credit from the

[4] This allows us to get a more accurate picture of the cost of short-term bank lending, given the strong role played by bank overdrafts in the most acute phase of the crisis, growing at an average 15% yoy during 2008.

banking sector. **The overall cost of lending has declined by almost 250bp since September 2008** (from 5.89% to 3.45%), which is the lowest on record. Thus, some relief has indeed come from the massive monetary policy easing by the ECB, which started to be passed on to bank lending rates at the end of 2008.

Like bank lending rates, **corporate bond yields have declined substantially** after touching their highest level in the aftermath of the Lehman collapse. We use the yield on a generic BBB-industrial bond: after having peaked at 7.92% in October 2008, it declined some 350bp during the following twelve months, reflecting both the decline in government bond yields but mainly the contraction of corporate spreads following the progressive normalization of the market. While this is not the historical low, it signals that it is easier now for a NFC to seek financing on the debt market, as confirmed by total debt securities issuance for NFCs, which has roughly tripled in the first nine months of 2009.

Chart 6 – The cost of external funding has declined steeply



Source: ECB, Bloomberg, UniCredit Research

4.2 The Cost of Equity

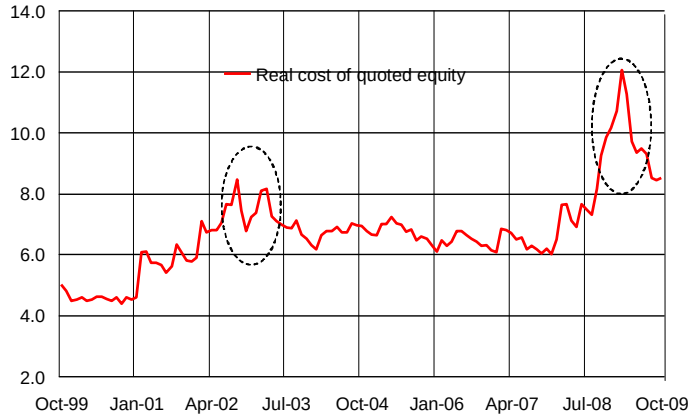
The correct estimation of the cost of equity is the most challenging area. An oversimplified measure would be the dividend yield of a generic stock index[5]: however, while this would have the advantage of being readily available, it is flawed by the use of past dividends, which tend to underestimate the "true" cost of equity. Moreover, such a model would not reflect the decision to go on the market, as it does not take into account the role of expected earnings.

[5] This is the approach chosen by the European Commission in "Measuring Euro Area Financing Conditions", EC Quarterly Report on the Euro Area, Vol.7, n°4 2008.

To fill this gap, we followed the ECB's and BoE's framework[6] and use a **(Three-Stage) Gordon's Dividend Discount model** that estimates the value of equity using the current and expected dividend growth, together with the rate at which future dividends are discounted. Thus, the discount rate, which can be derived equating the observed price of the equity index with the one obtained with the Three-Stage model, **can be considered as a proxy of the opportunity cost of holding quoted equity, i.e. a measure of a generic "cost of equity".**
In detail, in the Three-Stage model, dividend growth is projected over the next four years based on analysts' earnings forecasts (first stage); then, in a second stage, it adjusts towards the long-term growth, which is the reference for the third period, i.e. the long run. We assumed that the long-term growth rate of real corporate earnings is consistent with our expectations of potential growth in the euro area. Moreover, using the Dow Jones Euro Stoxx Index[7] , **we fed the model with yearly growth of (one-to-three years ahead) forecasts for earnings per share (EPS).** When EPS forecasts decline, this has a negative effect on equity valuation, reducing growth in the first stage of the model: in turn, the overall cost of equity increases.

In the chart below, we show the computed cost of equity in real terms, deflating the nominal rate with a weighted average of inflation expectations. We observe a **sharp surge in the real cost of equity during the course of 2008, peaking at 12% at the beginning of this year**, on the back of the abrupt stock market collapse and progressive negative earnings surprises. While it is encouraging that the recent stock market recovery and a better assessment of future earnings have favored a retracement towards the 8-9% area, **the cost of market financing via equity still remains at elevated levels in historical terms and has still some way to go when compared with market-debt and bank-debt rates.**

Chart 7 – Cost of equity off the peak, but remains high



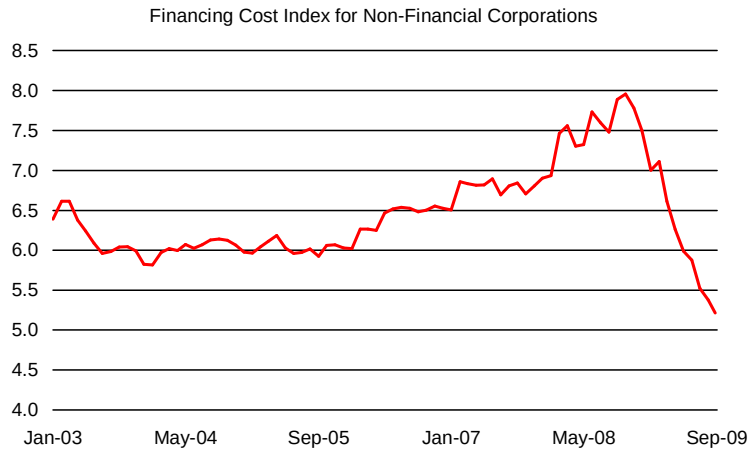
Source: FactSet, UniCredit Research

[6] See "Analysts' Earnings Forecasts and Equity Valuations" (2002), Bank of England Quarterly Bulletin (Spring), and "Extracting Information from Financial Asset Prices" (2004), ECB Monthly Bulletin (November), and references therein.
[7] Although the DJ Euro Stoxx index includes also financial stocks, the results of our analysis are not substantially affected, as the share of the non-financial sector in the index amounts to nearly 80% in September 2009.

4.3 The Financing Cost Index

Combining the various costs with the weights of the different sources of finance, we obtain the **Financing Cost Index for NFCs** (see chart 8). Unsurprisingly, the financing cost for eurozone NFCs peaked at 7.96% in October 2008, as a direct outcome of the financial crisis, intensifying strains on internal funding sources in the corporate sector. Since then, **the overall financing cost has been on a clear downward trend and stands now at 5.21%**, which is the lowest level in the last decade. In fact, bank lending rates hovering at their historical lows and the substantial decline in market-based rates are driving the improvement in NFCs financing conditions, together with the progressive recovery of the equity market providing some relief for the cost of equity. This bodes well for the economic recovery going forward, as **a lower cost of capital raises the profitability of investment of NFCs, thus increasing the incentive to invest.** This is particularly important in the current juncture, as severe capacity under-utilization and still uncertain demand perspectives limit the scope for a sustained investment recovery.

Chart 8 – The cost side is biting less than before



Source: ECB, FactSet, Bloomberg, UniCredit Research

5. Putting all together: a fundamental-based model for investment in the euro area

Finally, we need now to assess whether the financial factors defined above can help us in **estimating an investment function where capital expenditure depends both on economic activity and on firms' financial health.** Clearly, while the relationship between investment and economic activity is the starting point when setting up a standard investment model, we want to stress the role of firms' vulnerability.

Our approach follows the Engle and Granger (1987) two-step Error Correction Model procedure. The first step is the **estimation of a long-run equation** that links the level of investment to both demand variables (GDP and Profits) and to factors representing the financial side, i.e. our

composite measure of Financing Costs (in real terms) and the Financing Gap. In this approach, the desired level of capital stock is a function of the level of output and of the relative factor prices, together with firms' financial health, so that firms choose the investment level that allows the capital stock to converge to its desired level.

Dealing with estimation at a quarterly frequency, we needed to use the longest available set of data, so we relied on the dataset provided by the well-known Euro Area Wide Model (AWM)[8]. As our sample runs from 1Q 1982 to 2Q 2009 but our measure of Financing Costs is available only since 1999, we proxied financing costs from 1982 to 1999 through a weighted average of long term markets and banking rates, to keep consistency with the approach described above. All variables (except for the Financing Costs Index, which is expressed in percentage, and the Financing Gap, which is constructed as difference between Gross Operating Surplus and Investment) are expressed in logarithmic terms.

The results of the long-run equation can be seen in the table below and be summarized as follows:

- **Gross Domestic Product (in levels)**, which defines short-run changes to aggregate demand to be satisfied by production through investment, **is statistically significant and positive**;
- **Corporate profits are statistically relevant in determining investment.** In fact, they can be seen as proxy for future profit growth and positively affect corporate cash flow;
- **Financing Costs** are negative and statistically significant, confirming the importance of the price factors in the investment process;
- **The Financing Gap enters the equation with the expected negative sign** (and it is highly significant). As the financing gap indicates the extent to which firms require external funds to finance investment, a high ratio is expected to exert a dampening effect on investment.

Table 1- Long Run Equation Estimation

	Coefficient	*T-Stat*
C	-1.52	-8.59
GDP	0.97	33.18
Profits	0.27	11.72
Financing Costs	-0.26	-3.63
Financing Gap	-0.35	37.89
R-Squared	0.99	

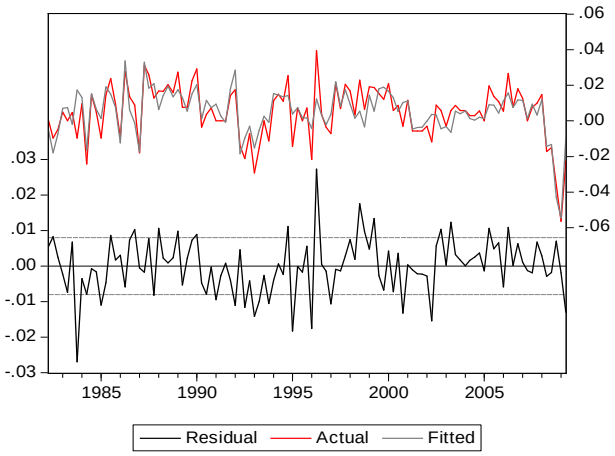
The second step is given by the **short-run equation, in which we estimate investment growth on GDP growth and on an Error Correction term** given by the lagged residual of the long run equation between investment, overall economic activity and financial factors. The Augmented Dickey-Fueller test shows that the residuals of the long-run equation are stationary so that they can be safely employed in the short-run estimation.

[8] See Fagan G., Henry, J. and Mestre, R. (2001) "An area-wide model for the euro area", ECB Working paper n°42. Data can be downloaded from the website www.eabcn.org.

The equation yields rather satisfying results:

- An elevated fit between the model and actual data (see chart below), as confirmed by the high R-Squared (0.72). The correct specification of the model and absence of multicollinearity is confirmed by the DW-Test (2.05)
- The coefficient of the error correction term is negative (-0.304) and very significant: with an error correction of around 30% per quarter, this would imply that the deviation of investment dynamics from the long run equilibrium is roughly one year.

Chart 9 – A good performance for the short-run model



The econometric analysis showed above clearly confirms our previous findings that **financial factors are a key variable in determining investment decisions in the corporate sector.**

6. Conclusions

Our analysis has demonstrated that, in order to have a sustainable investment recovery, the euro area must fulfill three conditions: an endogenous revival of demand (to this extent, the rebound in global trade can help by acting as a trigger), a more careful management of firms' balance sheets position, aimed at reducing liabilities and the interest-related burden, and finally a decisive support from the cost side, through affordable financing costs.

In fact, while a genuine recovery of demand is a necessary precondition for a genuine revival in investment spending, the need to reduce the debt burden cannot be ignored, something that might dampen investment spending in the short run. However, some relief might come from lower financing costs: the recent substantial decline of NFCs Financing Costs is an important step in the right direction to provide some relief in the still uncertain current juncture. While lower financing costs undoubtedly reflect the adequacy of the policy response, and compensate (at least partially) for still weak demand, we warn that we are not out of the woods yet. In this context, it is of utmost importance that the financing costs remain low; in fact, should the aggregate cost of financing pick up too soon, this could severely hamper the dawn of a sustainable economic recovery.