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## Abstract

We use a novel database of more than 685,000 European firms to show that financial flexibility attained through conservative leverage policies is more important for private, small, medium-sized and young firms and for firms in countries with lower access to credit and weaker investor protection. Further, using the recent financial crisis as a natural experiment, we show that financial flexibility status allows companies to reduce the negative impact of liquidity shocks on their investment decisions. Our findings support the hypothesis that financial flexibility relates to companies' ability to undertake future investment, despite market frictions hampering possible profitable growth opportunities.



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## 1. Introduction

Does the value of being financially flexible differ across firms and institutional settings? Is financial flexibility valuable during periods of liquidity constraints as severe as the recent financial crisis? The aim of this paper is to address these questions.

Under perfect capital markets, firms can always invest at their optimum level and costlessly adjust their financial structure to any unexpected change in liquidity and growth opportunities. However, when capital markets are imperfect and the cost of external financing increases, the idea of being financially flexible becomes relevant. It relates to the ability of companies to undertake investment in the future, when asymmetric information and contracting problems might otherwise force companies to forego profitable growth opportunities. Firms may pursue financial flexibility through alternative ways, by shaping their capital structure, cash management or payout policies and creating "an intertemporal dependence" between financial and investment decisions (Almeida et al., 2011; Denis, 2011).

This paper focuses in particular on financial flexibility attained through a conservative leverage policy. Survey evidence suggests that it is financial flexibility that primarily drives chief finance officers' leverage choices (Graham and Harvey, 2001; Bancel and Mittoo, 2004; Brounen et al., 2006). Companies may implement a conservative leverage policy to maintain "substantial reserves of untapped borrowing power" (Modigliani and Miller, 1963, p. 442), which allows them to access the capital market in the event of positive shocks to their investment opportunity set. The value of being financially flexible is thus directly related to the ability of companies to undertake new investment projects: the more the investment undertaken by financially flexible (FF) firms, the higher the value of financial flexibility for those firms. More importantly, financial flexibility should be even more valuable when *expected* asymmetric information and contracting problems are stronger, allowing firms to carry out more investment.

We use a novel database from the entire universe of Bureau van Dijk's *Amadeus* that encompasses a large sample of 685,693 European companies for the 18-year interval 1993–2010. Thanks to the reporting requirements and practices across most of European countries, this database gives us the opportunity to be the first to investigate the value of financial flexibility across a very heterogeneous sample of both publicly traded and privately held firms that vary substantially in size, age, and quality of institutional settings. This sample from eight euro area countries and the UK represents a very large fraction of the aggregate economic activity of Western Europe. For instance, at the end of 2010 the total non-government gross fixed capital formation of all countries in our sample was almost 84% of the equivalent aggregate in Western Europe. Figures for the proportion of overall GDP (83.2%) and total employment (86.2%) are similar.[1]

We first identify FF firms by focusing on low leverage (LL) firms. We estimate a leverage equation from which we calculate the predicted level of debt. Since the *demand* for financial flexibility is indirectly captured by the negative deviations from estimated target leverage, we classify a firm as FF if it shows an LL policy for a minimum number of consecutive years. We find that about 34% of the firms in our sample show a conservative leverage policy for at least three consecutive years (FF3). Second, we test whether this degree of financial flexibility has any impact on investment ability. In the presence of market frictions, firms that anticipate valuable growth options in the future may respond by pursuing an LL policy for a number of years. In this way, FF firms have enough spare borrowing power to be able to raise external funds, and to invest more in the years following the conservative financial policy. To test this hypothesis, we use a modified version of a q-model of investment augmented by an FF dummy and its interaction term with cash flow. The FF dummy is expected to have a positive and significant impact on capital expenditure. In addition, to the

[1] Own calculations from the 2010 *National Accounts* of each Western European country.

extent that FF firms can, after a period of low leverage, more easily raise external funds to finance their projects, their investment ability should be less dependent on internal funds. As a consequence, we would expect a lower sensitivity of investment to cash flow. The results over the entire sample do indeed show a large impact of the FF *status* on the firm's investment ability. Our tests reveal that an average company that maintains an LL policy for three years can increase its capital expenditure by around 22.6%. These results are robust to the method we follow to classify FF firms, to alternative definitions of leverage and growth opportunities, and to potential agency issues or credit rationing.

Once we show that the value of financial flexibility relates to the ability of firms to invest, we investigate how expected asymmetric information and contracting problems affect the value of being financially flexible. In other words, we identify those firms that benefit the most from being financially flexible. To this end, we classify different sub-samples of firms based on their expected asymmetric information and contracting problems. For each sub-sample we run the baseline model and compare the overall impact of FF status on the firm's investment. Thanks to the large heterogeneity of firms included in our database, we are able to show the following: 1) privately held companies that maintain an LL policy for at least three years, increase their capital expenditures almost four times more than publicly traded firms (22.6% versus almost 6.9%); 2) small companies are able to increase their capital expenditures by 16.1% after at least three years of LL policy, while large companies can increase their investment by 15.6%; 3) young FF companies are likely to increase their capital expenditures by 25.7%, while mature FF firms will increase them by about 9%.

We take a further step in our investigation by exploiting the heterogeneity of the quality of institutional settings in our sample. Lower legal protection increases firms' expected asymmetric information and contracting problems which, in turn, negatively affects corporate financial and investment decisions (e.g., La Porta et al., 1997; Love, 2003; Mclean et al., 2012;

Mortal and Reisel, 2013). We expect financial flexibility to be more valuable for firms in these countries. Indeed, our results show that in countries with limited credit accessibility, FF companies are able to increase their investment by almost 22.7%; while in countries with better access, FF firms increase their investment by only 7.9%. We find the same remarkable difference when we use the investor protection index.

As an alternative test we also compare the impact of the FF *status* within the euro area countries with that in the UK. Capital markets in the euro area countries are still smaller and less developed than the UK (European Central Bank, 2012). We expect FF to be more valuable where financial markets are less developed. Results are consistent with our expectations and financial flexibility is indeed more important for euro area companies than it is for the UK.

Finally, in the last part of our analysis we investigate whether FF *status* allows companies to reduce the negative impact of liquidity shocks. The recent financial crisis offers a natural experiment to exploit. We argue that spare borrowing capacity should allow FF firms to invest relatively more than others during a period of crisis. We observe that during the recent financial crisis all firms invest on average less than the preceding four years. More importantly, FF firms seem to be able to divest significantly less than others: during the financial crisis the change in their capital expenditure is about 6.8% while for the others it is about 14.4%. Further, FF companies seem also to be less exposed to market imperfections even during the severe conditions of the recent crisis.

Our study complements a growing literature on financial flexibility in a number of ways. Marchica and Mura (2010) provide evidence on how financial flexibility achieved by a leverage-conservative policy affects investment ability and long run performance of UK publicly traded companies. Denis and McKeon (2012) identify long-term investment as the primary use of large debt increases for US quoted firms; while Kahl et al. (2008) point out that commercial paper provides financial flexibility to firms with uncertain prospects and funding

needs. Other studies highlight the role of cash management in preserving firms' financial flexibility when a recession is anticipated (Ang and Smedema, 2011) or to smooth volatile R&D expenditure (Brown and Petersen, 2011). Our paper provides new evidence on how valuable financial flexibility is across firms that face different degrees of financial constraints. In addition, we show that FF *status* allows companies to invest more even in presence of an exogenous liquidity shock as severe as the most recent financial crisis.

Also, our results on privately held companies contribute to a recent strand of studies that examine the differences between public and private firms' financial and investment choices. Brav (2009) and Asker et al. (2011) report that private firms have higher leverage ratios than public firms; while Saunders and Steffen (2011) show that they face higher borrowing costs than publicly-traded ones. Further, Mortal and Reisel (2013) find that European private firms invest more than public ones; while Lyandres et al. (2013) provide evidence that shareholder's portfolio diversification has a very different impact on private and public firms' investment decisions. By analyzing the relation between financial and investment strategies, we show that privately held firms are likely to invest more after a period of conservative leverage policy.

Further, our findings relate to the literature on investor protection and investment decisions (e.g., La Porta et al., 1997; Mortal and Reisel, 2013) by showing that the quality of institutional settings matters for financially flexible firms. Firms in countries with poorer legal protections and less developed capital markets are more likely to benefit from pursuing financial flexibility through a conservative leverage strategy.

Finally, this paper has also important policy making implications. In 2008 the European Commission adopted the Small Business Act for Europe (SBA) that

[..] *reflects the Commission's political will to recognize the central role of SMEs* [small and medium-sized enterprises] *in the EU economy and for the first time puts into place a comprehensive SME policy framework for the EU and its Member States*.[..].

The European Commission report on the SMEs' impact on the EU labor market in 2010 highlights the fact that by providing 67% of the private sector jobs and contributing to more than 58% of the total value-added created by businesses in Europe, SMEs are the true back-bone of the European economy.[2] Our evidence sheds more light on (one of) the mechanisms through which SMEs tackle potential financial frictions that may otherwise hamper their development and the promotion of their growth.

The remainder of the paper is organized as follows. In Section II we describe the data and present the main hypotheses. Section III includes the empirical results and all the robustness tests performed, and in Section IV we draw our conclusions.

## 2. Data and Hypotheses

### *2.1.Data collection and sampling*

We use the entire universe of *Amadeus* for accounting data (both balance sheets and income statements). *Amadeus*, one of the products provided by Bureau van Dijk, is a comprehensive, pan-European database containing accounting information for both publicly traded and privately held companies. Bureau van Dijk collects accounting information directly from a variety of sources, such as official registers, regulatory bodies, annual reports, private correspondence, company websites and news reports, and indirectly from Bureau van Dijk associated information providers. It further harmonizes the financial accounts to allow accurate cross-country comparisons. Typically one annual release of Amadeus covers at most the preceding ten accounting years of each firm. Further, *Amadeus* removes a firm after at least five years of no reporting data. Therefore, to eliminate this potential survivorship bias, we compile our database by collecting accounting information from each annual release retrospectively so that we can have the complete history of data for all firms across the entire sample period.

[2] http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/index_en.htm

The original dataset contains end-of-year accounting information for the period 1990–2010. We drop the first two years because of poor coverage and we lose another year of observations to compute some of our variables, such as sales growth. We eliminate observations when there are inputting mistakes (e.g., negative total assets). We winsorize all variables at the top and bottom 1% of their distribution within each country. After performing our data filtering, we end up with an unbalanced panel of 685,693 firms and 5,522,225 firm year observations over the 1993–2010 period, across eight euro area countries (Belgium, Finland, France, Germany, Italy, Netherlands, Portugal, and Spain), and the UK.

Table 1 reports the coverage of our sample. One third of the total sample is made up of Spanish firms and together with French and Italian firms they represent 85% of the entire sample. One advantage of *Amadeus* is the wide incidence of privately held firms, which represent on average 99.7% of our sample.

[INSERT TABLE 1 HERE]

Firm size varies substantially across countries. The mean and median values of total assets in our sample are €14.143 million and €0.78 million respectively with the lowest mean value for Spanish firms (€5.63 million) and the highest for Dutch firms (€346.54 million). Nonetheless, the percentage of SMEs[3] is very high: over 90% in France, Italy, Spain, Finland and Portugal, around 80% in the UK and Belgium but less than 60% in Germany and less than 50% in Netherlands. This is in line with figures provided by the European Commission on SMEs' impact on the EU labor market in 2008 which shows that most European businesses are, in fact, SMEs. In general, there is also a large heterogeneity across countries in terms of age. The mean (median) age of firms in our sample are 16 (13) years respectively, with Dutch firms being on average 36 years old and Spanish firms around 13 years.

[3] *Size* is defined as the natural logarithm of total assets in real values. SMEs are those firms in the lower and middle tertile of *Size* distribution in each country each year. Large firms are those in the upper tertile.

We use this sample to estimate the predicted leverage for each firm each year. We then require firms to have at least four consecutive years of observations, so as to have enough information to build our proxies of FF status (FF dummies). (Please see section 2.2 for more details.) The final sample we use in the investment analysis counts 1,598,899 firm year observations equivalent to 289,839 unique firms.[4]

Table 2 includes descriptive statistics of all accounting variables in the investment model for the entire sample and across different sub-samples. Figures on capital expenditure and cash flow ($\frac{\Delta\ Gross\ PPE_{j,t}}{K_{i,t}}$ and $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$) for the whole sample are in line with Becker and Sivadasan (2010). Please refer to Appendix A for definitions of all variables.

[INSERT TABLE 2 HERE]

*2.2. Identification of Low Leverage and Financially Flexible Firms*

Recent survey studies of capital structure choices provide strong evidence that the single most important determinant of leverage decisions by firms is the desire to maintain financial flexibility (e.g., Graham and Harvey, 2001; Bancel and Mittoo, 2004; Brounen et al., 2006). However, since there is no well-defined measure of flexibility in the literature, this is an unobservable factor that depends largely on managers' assessment of future growth options. Consequently, this factor will end up in the residual of the model, where it will generate systematic deviations between observed and estimated leverage. The deviations from predicted target leverage are thus used to capture indirectly the effect of financial flexibility.

We estimate a dynamic partial adjustment leverage model and calculate the fitted values of leverage following Faulkender et al. (2012). We then compare the fitted values with the actual values, and we define as low leverage (LL) those firms that exhibit a negative deviation

[4] Detailed comparative descriptive statistics show that the sample we use for the investment analysis is highly comparable to the sample we use for the leverage models. There appears to be no distortion or bias introduced by the filtering necessary to obtain the final sample for the investment analysis.

between actual and predicted leverage. As discussed above, we expect the systematic component of these deviations to be due to the unobserved effect of financial flexibility in the leverage model. To ensure that we are indeed observing a policy, not just a transitory shock to the capital structure of the firm, we classify a firm as financially flexible if: 1) the deviation is larger than 5%; and 2) the firm is in a low-leverage state for a minimum number of consecutive periods. Further, we separate FF companies from those that show an actual level of leverage always below the predicted level. This is because it does not seem that these firms, unlike FF firms, are following a conservative leverage policy to boost their future investment ability.

In the baseline specification, the FF dummy takes the value of 1 when we observe at least three consecutive periods in which the firm is classified as LL (FF3). There is no theoretical rationale for choosing a specific time length. Therefore, to assess whether the results are sensitive to the choice of time horizon, we use alternative proxies, defined over a period of three to five years of leverage conservatism.

Table 3 reports some statistics on the percentage of firms that have been identified as financially flexible at least once over the entire sample period. Across the whole sample, 34% of firms (mostly privately held companies) follow a conservative leverage policy for at least three years. We then define sub-samples of firms according to size and age. Small, medium and large firms are identified on the basis of the tertile distribution of the natural logarithm of total assets in each country each year. Young (mature) firms are those in the bottom (top) tertile of the age distribution in each country each year. Age is defined as the number of years from the year of incorporation. The average age of young firms is less than five years; while the age of mature firms is about 17. Almost 18% of firms are classified as small and financially flexible, while almost 25% are young and financially flexible. Further, most FF firms are in countries with limited access to credit, poorer investor protection, and less developed financial markets.[5]

[5] The breakdown of FF firms within each country and within each different sub-sample is available upon request.

[INSERT TABLE 3 HERE]

*2.3. The Value of Financial Flexibility*

We start from the hypothesis that, in the presence of market frictions, firms that anticipate valuable growth options in the future may respond by pursuing a LL policy for a number of years. As noted in Myers (1984), reserves of borrowing power enable FF firms to raise external funds and to invest more in the years following the conservative financial policy. We use a modified q-model of investment in which capital expenditure is regressed on *Sales Growth* and *Cash Flow* at the beginning-of-year (Cleary, 1999; Alti, 2003; Brown and Petersen, 2009). We augment the model with the FF status dummy (FF), and an interaction term between this dummy and cash flow to test whether FF firms do have enhanced investment ability and a lower sensitivity of investment to cash flow. It is important to note that low-leverage states and FF status are observed *before* the investment is undertaken. This (partly) controls for a potential simultaneity between leverage and investment decisions. We estimate the following investment model over the entire sample:

$$\frac{\Delta\ Gross\ PPE_{j,t}}{K_{i,t}} = \gamma_1 \frac{\Delta\ Gross\ PPE_{j,t-1}}{K_{i,t-1}} + \gamma_2 \frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}} + \gamma_3 Sales\ Growth_{i,t} + \gamma_4 FF_{i,t} + \gamma_5 FF_{i,t} \times \frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}} + \eta_i + \eta_t + \nu_{i,t} \quad (1)$$

where $\frac{\Delta\ Gross\ PPE_{j,t}}{K_{i,t-1}}$ represents the capital expenditure of firm *i* at time *t* relative to capital stock; $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$ is the ratio of operating profits before tax, interest, and preference dividends, plus depreciation of fixed assets to capital stock at the beginning-of-year ($K_{i,t-1}$); *Sales Growth* is a proxy for growth opportunities; $\eta_i$ is the firm fixed effects; $\eta_t$ is the time-specific effect; and $v_{it}$ is the disturbance term assumed to be serially uncorrelated, with mean zero. We use the Generalized Method of Moments (GMM) technique in a dynamic framework, similar to Bond et al. (2003), to control for both endogeneity and omitted variable bias due to unobservable firms characteristics. We expect the FF dummy to have a positive and significant impact on the

capital expenditure of firms and the interaction term to be negative. In fact, given their spare debt capacity, FF companies should be able to raise external funds to finance their projects and thus be less dependent on their internal resources.

## 3. Empirical Results

### *3.1.Investment baseline results*

Table 4 shows the results of the investment model. FF dummies here are defined on the basis of LL spanning between three to five years. The relation between capital expenditure and *Sales Growth* is positive and significant, consistent with the prediction that growth opportunities play a relevant role in investment decisions. The coefficient on *Cash Flow* is always positive and significant, suggesting that the presence of capital market imperfections may result in firms relying, at least partially, on internal funds for investment.

[INSERT TABLE 4 HERE]

Most importantly, FF dummies are positive and statistically significant across all specifications, suggesting that companies after a period of conservative leverage tend to invest more. Further, we find that the investment sensitivity to cash flow is always negative and statistically significant. This result indicates that FF companies are less exposed to capital market imperfections, and their ability to invest is thus at a minimum no more jeopardized by asymmetric and agency costs problems than it is for other firms. The impact of the FF status dummy is also economically sizeable. For instance, after at least three years of conservative leverage policy (FF3), a company with average cash flow (approximately 0.595) is able to increase its average investment by about 22.6%.[6]

#### *3.1.1. Robustness tests*

Table 5 reports several robustness tests for the baseline investment model.

[6] The economic impact for column (1) in Table 4 for instance, is computed as: 0.139×1-0.072×0.595=0.096. We then compare this with the average level of capital expenditure (0.426) and obtain an economic impact of 22.6%.

*Financial flexibility status*. First, we use a more stringent criterion to define FF status. The first three columns of Table 5 report results where we require the deviation of actual leverage from the target to be larger than 10%. In this case, it is more valuable for firms to be financially flexible as the impact on investment is on average almost three additional percentage points higher than the main findings. For instance, after at least three years of conservative leverage policy (FF3-10%), a company with average cash flow (approximately 0.595) is able to increase its average investment by about 25.4%.

[INSERT TABLE 5 HERE]

*Predicted Market-to-Book Value*. In our analysis we use *Sales Growth* instead of Market-to-Book Value (*MTBV*) as a proxy for growth opportunities, as our sample mostly includes privately held companies. A well-known problem in the investment literature is related to the measurement of the firm's growth opportunities. A firm's growth opportunities should be measured by the increase in its value given an increment in the capital stock. If *Sales Growth* fails to properly measure the firm's growth opportunities, then the proxy of cash flow in our investment regressions may partly capture the growth opportunities too. Consequently, the interpretation of previous results and the impact of FF status could be biased. As a second robustness test we thus compute the *Predicted MTBV*, largely following Campello and Graham (2013) and Mortal and Reisel (2013). This measure should capture the firm's growth opportunities as explained by the firm's fundamentals that are considered more informative to explain investment decisions than market values. We use market values and accounting data from the *Worldscope* database for all public companies of the countries included in our sample. For each public company each year we build a measure of *MTBV* as the ratio of sum of total assets, market value minus common equity minus deferred taxes to total assets. Within each country we then regress *MTBV* on a number of variables considered in the literature as likely sources of information about the marginal product of capital: earnings, sales growth, net

income before extraordinary items, and capital investment. We include both contemporaneous and lagged values of all these variables with the exception of capital investment. We further complement firm-level information with variables that proxy industry conditions: contemporaneous and lagged industry sales growth and lagged industry capital investment.[7] We obtain a vector of estimated coefficients for each country in our sample. Finally, we use these coefficients to construct the *Predicted MTBV* for each firm in our sample, both public and private. We replace *Sales Growth* with the new proxy for growth opportunities in the baseline investment model (2). Results are reported in Table 5 column (4). The FF *status* has still a significant economic impact, qualitatively similar to those estimated in Table 4.

*Cash holding policy*. As a third robustness test, we control for the possibility that firms may achieve financial flexibility through their cash policy (e.g., Denis and Sibilkov, 2010). In the baseline leverage model we already include a proxy for cash holding. Nonetheless, as an alternative test we replace *Leverage* with the *Leverage net of Cash* defined as the ratio of the difference between total debt and cash to total assets, in line with Bates et al. (2009). We then estimate again both the leverage and the investment model (1). Table 5 column (5) reports the results. The FF3 dummy and the interaction term have the expected signs and are statistically significant. More importantly, we still find a significant economic impact of FF status.

*Agency costs of equity*. Fourth, we control for potential agency costs of equity. Previous studies suggest that managers may prefer sub-optimal levels of leverage, i.e. lower debt ratios, as a consequence of their lack of diversification. For instance, Lang et al. (1996) show that the relation between low leverage and high investment exists only in companies with poor growth

[7] All independent variables are standardized by the beginning-of-year total assets. Variables at industry level are computed by taking the average of the corresponding variable within each country *c*, each 1-digit NACE Rev. 1.1 industry code each year. NACE (a statistical classification of economic activities in the European Community) refers to the industrial classification as defined in Revision 1 and adopted by *Eurostat*.

opportunities where possibly free cash flow issues are stronger and managers invest when they should not. However, managers may also use high leverage instrumentally, to reduce the risk of takeover (Berger et al., 1997), or to pursue empire-building projects (Zwiebel, 1996). If this is true, then the main determinant of both conservative leverage and higher investment in our results may be managerial entrenchment, rather than financial flexibility. We believe that this potential criticism may hardly apply to our sample, as most of our companies are privately held and therefore are less likely to suffer equity-related agency costs (Ang et al., 2000). In fact, Faccio et al. (2011) report that the average ownership of the largest ultimate shareholder in a large sample of European private and public companies over the period 1999–2007 is more than 63%, where almost 30% of companies are wholly-owned. Therefore, conflicts of interest between managers and shareholders are less likely to arise among companies in our sample. Nonetheless, to rule out the possibility of an agency costs story, we proceed as follows. We compute the fitted values of debt from the leverage model (1) augmented by a measure of equity agency costs. The idea is that if equity agency costs were an omitted variable that ended in the residuals of the leverage model, then both previous estimates of deviations from target leverage and the definitions of financial flexibility would have included also a proxy of agency costs. To measure the equity agency costs we use the ratio of annual sales to total assets as in Ang et al. (2000). From the estimates of the new augmented leverage model we calculate the new FF dummies. Column (6) in Table 5 reports the estimates from the investment model (2) with the new FF3 dummy. Results mirror those in the baseline regressions and the economic impact of FF *status* has not changed substantially from that shown in Table 4 column (1).

*Capital Markets Access*. A further criticism relates to the interpretation of the conservative leverage policy. The low leverage level of FF firms could be explained by a debt supply story, rather than a demand story. In other words, those firms that we identify as financially flexible could simply be firms that are rationed by lenders in the external capital markets rather than

firms that choose a conservative leverage strategy to accumulate debt spare capacity. If the debt supply story held, then it would be hard to explain how after a certain number of years of low leverage, our FF firms seem systematically to be able to invest significantly more than others. Nonetheless, we undertake a number of steps to control for this potential issue. First, in the leverage regressions we include variables that measure the extent of rationing to which a firm is likely to be exposed when raising its leverage. Previous studies indicate bond market access as a reasonable supply side factor (Faulkender and Petersen, 2006). We therefore exploit the heterogeneity of our sample and use the firm's listing status as a proxy for being able to access the bond market. We augment the leverage model with a dummy *Public* equal to 1 if the company is publicly traded and zero otherwise. The idea is that publicly traded firms have a better access to external capital markets (bond market in particular) and, therefore, be less likely to be rationed. Once controlled for the supply side factor, estimates of deviations from target leverage should capture only a conservative leverage strategy. From the estimates of the new augmented leverage model we calculate a new FF dummy. Column (7) in Table 5 reports the estimates from the investment model (2) with the new FF3 dummy. Once again, results are in line with those in the baseline regressions. More importantly, the overall economic impact of FF *status* has not changed from that shown in Table 4 column (1). Second, we inspect the behavior of FF firms in terms of investment and financial decisions around the time *t* at which they are assigned a value of 1 after three years of conservative leverage policy. Table 6 shows that FF firms do indeed experience an important increase in their investments. In particular, it shows that between *t-1* and *t* the average investment of FF firms is well above the industry mean. Further, it shows that FF firms are not only able to invest more than their competitors, but also they are able to make (industry adjusted) abnormal investments. These are capital expenditures that are larger in value than the norm in the firm's life. We define a proxy for *Normal Investment Activity* by calculating the average value of industry-adjusted investments

($AdjI_{it}$) over five-year periods, but excluding the central year ($NIA_{it} = \frac{AdjI_{,t-2}+AdjI_{,t-1}+AdjI_{,t+1}+AdjI_{,t+2}}{4}$). Then, we identify an instance of abnormal investment if the industry-adjusted investment at time *t* is at least twice the *Normal Investment Activity* ($AdjI_{,t} > 2NIA_{it}$). Table 6 shows a significant increase in the level of investment of FF firms at time *t* when we take into account both the competitors investment and the normal pattern of investment of FF firms. Further, it reports that the proportion of FF firms that undertake abnormal investments is higher at time *t*, that is, after a certain period of conservative leverage policy. When we turn to the financing decision, we observe that FF firms finance these investments by significantly increasing their total borrowing between *t-2* and *t* above the average level of leverage of their competitors (*Adjusted Leverage*). More importantly, their (industry adjusted) leverage is at its highest level when companies are identified as financially flexible. Altogether, this evidence further supports the hypothesis that FF firms have used their preserved borrowing power through a conservative leverage policy, and sacrificed some current investment, to be able to exercise better growth options in the future.

[INSERT TABLE 6 HERE]

## 4. Investment sub-samples results

Once we have shown that the value of being financially flexible is indeed directly related to the ability of firms to invest more, we investigate whether for firms with higher *expected* asymmetric information and contracting problems the degree of financial flexibility is more valuable than for those companies that are less exposed to capital markets frictions. We employ two different set of variables to identify these firms.

### *4.1.Firms characteristics*

First, we use firm characteristics that have been often referred in the literature as proxies for informational asymmetries and contracting problems which may prevent companies from accessing external capital markets (e.g., Cleary, 2006). Thanks to the large heterogeneity

of firms included in our database, we create sub-samples based on firms' listing status (privately held vs publicly traded companies) and based on firms' size and age. Private companies (Brav, 2009), small-sized (Berger and Udell, 1998 and 2006) and young firms (e.g., Rauh, 2006; Fee et al., 2009) face different and often more severe financing problems than do public, large and more mature companies. More recently, Hadlock and Pierce (2010) focus on the importance of the combination of firm size and age as predictors of potential asymmetric and contracting problems. Therefore, we expect private, small and young firms to value the FF status more than other firms. In other words, private, small and young firms that are financially flexible should invest more than others.

Table 7 reports the results of the investment model for the sub-samples of private and public companies. We note a remarkable difference between private and public firms in terms of both sensitivity of investment to cash flow and growth opportunities. Private firms show a higher investment–cash flow sensitivity than do public firms – the estimated coefficient of *Cash Flow* is almost seven times larger – which is consistent with the hypothesis that these firms face more capital markets frictions and, consequently, their capital expenditure depends more on internal funds. Further, private firms seem more responsive to changes in growth opportunities than are public firms – the coefficient of *Sales Growth* is indeed higher. More importantly, the different impact of the FF status across the two sub-samples points further to the different financing strategies pursued by private and public firms. The value of a conservative leverage policy seems higher for private than for public firms. Indeed, for an average private firm a conservative leverage policy for at least three years implies an increase in its capital expenditure of 22.6% (column 1); while for an average public firm the increase is only 6.9% (column 2). Results are similar when we consider a more stringent criterion for the FF status for both sub-samples of firms (columns 3 and 4).

[INSERT TABLE 7 HERE]

Table 8 shows the results of the investment regressions when we split the sample according to size, age and a combination of these two firm characteristics. As expected, the investment–cash flow sensitivity decreases with size, while growth opportunities play a more important role for small-sized and young firms than they do for large firms. More importantly, financial flexibility is more valued by small and medium-sized firms as well as by young firms. The coefficient of the FF dummy decreases with size and age. Indeed, for an average small firm, being financially flexible implies an increase in capital expenditure of 16.1% (column 1); while for an average large company the increase is about 15.6% (column 3). The difference is even more striking when we look at firm age: an average young firm is able to increase its investment by about 25.7% after (at least) three years of conservative leverage policy; while the equivalent figure for a mature company is only about 9%. These findings are confirmed also for the sub-sample of small and young firms that seem able to increase their investment by about 20% if they are financially flexible (column 6); while large and mature flexible firms increase it only by 7% (column 7).

These tests also provide further insight on the impact of a conservative leverage policy within each sub-sample of firms. Overall, firms with similar size (age) that follow a conservative leverage policy are able to increase their capital expenditure more than those that do not follow such a strategy. They are also able to reduce their exposure to capital market imperfections, by reducing their dependence on internal sources of finance. This result is particularly important for small and young firms.

[INSERT TABLE 8 HERE]

*4.2. Institutional setting*

To further capture the potential asymmetric information and contracting problems firms are likely to be subject to, we look at the institutional setting of the country where companies operate. An extensive literature points out that legal protection can substantially affect the

ability of firms to raise external finance (e.g., La Porta et al., 1997). In particular, the protection provided by legal institutions is a predictor of the costs of external financing (Almeida et al., 2011). This would in turn affect corporate financial and investment decisions (Love, 2003; Mclean et al., 2012; Mortal and Reisel, 2013).

This implies that financial flexibility should be more valuable in countries where legal protection is poorer and firms' asymmetric information and contracting problems are expected to be more intense. Therefore, in these countries FF firms should be able to invest more than they do in other countries. We use two different tests to investigate this hypothesis.

First, we use two indices to proxy credit accessibility and investor protection. These indices should capture both the asymmetric information and contracting problems that firms face in a certain institutional setting when they try to access external capital markets.

The first index, *Credit Access Index*, measures the legal rights of borrowers and lenders with respect to secured transactions and the sharing of credit information as provided by *World Bank-Doing Business Project*. It sums up two indices: 1) the strength of legal rights index (which measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending). This index ranges from 0 to 10, with higher scores indicating that collateral and bankruptcy laws are better designed to expand a access to credit); and 2) the depth of credit information index (which measures rules and practices affecting the coverage, scope and accessibility of credit information available through either a public credit registry or a private credit bureau). It ranges from 0 to 6, with higher values indicating the availability of more credit information, from either a public credit registry or a private credit bureau, to facilitate lending decisions. For each country we add up the two scores to obtain a final composite index of credit accessibility. The resulting index ranges from 0 to 16, with higher values indicating higher credit access. The more the collateral and bankruptcy laws protect the rights of borrowers and lenders and the better the access to credit information,

the more the lending is promoted.

The second index (*Anti-Self-Dealing Index*) measures the strength of minority shareholder protection against directors' misuse of corporate assets. Following Djankov et al. (2008), the strength of investor protection index is the average of: 1) extent of disclosure index; 2) extent of director liability index; and 3) ease of shareholder suits index. This composite index ranges from 0 to 10, with higher values indicating more investor protection.

Both indices are available only from 2006. We use the values of the first available year (2006) for our entire sample period. It is reasonable to assume that the overall composite indices have not changed greatly over time. In fact, these indices do not vary considerably after 2006. Further, Djankov et al. (2007) find only 32 changes in their Creditor Rights variable in the period 1978–2004, across 133 countries, and of these, only one change is relevant to one of our countries: Spain improved its Creditor Rights score by one notch in 2004. This does not affect our classification though.

We divide the countries based on the median value of each composite index. The countries with above-median credit accessibility are: Finland, Germany and United Kingdom; while those with an above-median investor protection are: Belgium, Portugal and United Kingdom. Finally, we estimate again the investment model (2) on each sub-sample of countries and compare the impact of FF status on the firms' investment ability. Table 9 columns 1–4 report the results on the sub-samples based on the credit accessibility index; while columns 5–8 report those based on the investor protection index. We find that investment is more sensitive to cash flow in countries with an overall lower legal protection, in line with Mclean et al. (2012). Most importantly, the findings suggest that FF firms are able to invest more than others and this effect is substantially larger in those countries where legal protections are lower. The economic value of being financially flexible is also significant: companies that pursue a conservative leverage policy for at least three years (FF3) are able to increase their average investment by

almost 22.7% in countries with more limited credit accessibility; while in countries with better credit accessibility FF firms increase their average investment by only 7.9% (columns 1 and 2 respectively). We find a remarkable difference also when we use the investor protection index.

[INSERT TABLE 9 HERE]

As a second strategy, we separate the euro area countries from the UK, re-run the same investment model (2) as above, and compare the impact of FF status between the two sub-samples. Since the introduction of the euro in 1999, capital markets in the euro area countries have progressively developed and integrated with each other. Nonetheless, their overall size is still smaller than the UK financial sector (ECB, 2012).[8] Consistent with our expectations, financial flexibility seems more important for euro area companies than for the UK.

[INSERT TABLE 10 HERE]

**5. Liquidity shock**

Our previous results strongly suggest that spare borrowing capacity helps firms to invest relatively more than others in the presence of asymmetric information and contracting problems. This implies that FF *status* may be more valuable when an exogenous shock in the capital markets makes external financing even less accessible. The recent financial crisis offers a natural experiment to investigate whether FF companies invest more even in presence of a severe exogenous liquidity shock. If our hypothesis is correct, we expect FF firms to display a lower proportional reduction in investment and a lower investment sensitivity to cash flow than other companies during the crisis.

To test this hypothesis we exploit the last eight years of our sample from 2003 to 2010. In particular, we focus on companies in 2006, the year before the start of the financial crisis,

[8] The size of capital markets is defined as the sum of the stock market capitalization, bank credit to the private sector and debt securities issued by the private sector, divided by GDP. Over the 2005–2010 period, this ratio is equal to 270% for the euro area; while it is 411% for the UK.

and distinguish those that are financially flexible from those that are not. As in our main analysis, to classify a firm as financially flexible, we require it to have an LL policy for at least three consecutive years (FF3). As a robustness test, we also require at least five consecutive years of LL policy (FF5). The final sub-sample counts 219,953 firm year observations. We then employ two different tests.

First, we compare the average investment levels of FF and non-FF firms before and during the crisis. We then calculate the average of the investment level for firm *i* before (during) the crisis over the 2003–2006 (2007–2010) period. Finally, we compare the levels of investment of (non-) FF firms before and during the crisis, and then we compare these changes between the two sub-samples. We first note that, in line with our hypothesis, during the financial crisis all firms invested on average less than in the four preceding years. In fact, average capital expenditure decreased from 0.384 to 0.254 (Table 11 Panel A). More importantly, FF firms seem to be less affected by the crisis than do others firms. For instance, the change in average investment between the two sub-periods (2003–2006 and 2007–2010) for FF3 firms is equal to 0.068; while for the others it is about 0.144. Further, the difference between the change in investment for the FF3 firms and the change in investment for the other firms (e.g., (0.268 – 0.336) – (0.250 – 0.394) = 0.076) is significant with a p-value of <0.001.

Second, we estimate a simple q-model of investment for the years of the financial crisis (2007–2010) on data from two sub-samples: firms identified as financially flexible in 2006 versus those identified as not financially flexible in the same year. The idea is to see whether firms that have acquired the status *before* the crisis are less exposed to capital market imperfections. As reported in Table 11 Panel B, FF firms do indeed show lower investment sensitivity to cash flow than the other companies (0.305 versus 0.371 for FF3 firms).

Overall these results seem to further corroborate the hypothesis that companies with more spare debt capacity appear better equipped to deal with the shock in the supply of capital.

Our results complement US studies which show that the recent financial crisis has more severely hampered the investment of non-financial companies with high net short-term debt (Almeida et al., 2012) or low cash reserves (Duchin et al., 2010).

[INSERT TABLE 11 HERE]

## 6. Conclusions

In this paper we provide novel evidence that the value of financial flexibility is higher for private, smaller and younger firms. A private (small, young) FF firm is able to increase its average investment by about 22.6% (16.1%, 25.7%) after at least three years of conservative leverage policy. Further, firms in countries with poorer legal protections and less developed capital markets are more likely to benefit from pursuing financial flexibility through a conservative leverage strategy. For instance, FF firms in countries with poorer access to credit seem to increase their capital expenditure by on average 22.7%. Finally, we provide evidence that spare borrowing capacity helps firms to divest less than others in the event of exogenous liquidity shocks in the capital markets, such as during the very recent financial crisis. Firms classified as FF before 2007 were able to reduce their average investment by about 7.6% less than the other companies during the 2007-2010 period.

This paper has important policy making implications. SMEs are a keystone of the euro area economy, as evidenced by the fact that they represent the vast majority of firms (99.8%) and also account for a large share of employment and value added.[9] Since 2008, the European Commission adopted the Small Business Act for Europe (SBA) which puts into place a comprehensive SME policy framework for the EU and its Member States. Meanwhile access to finance has deteriorated in several European countries, as a result of higher interest rates and greater demand for collateral. This has sparked an intense debate on revamping efforts to enable SMEs greater and easier access to finance. For instance, the European Commission and

[9] http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/index_en.htm

the European Investment Bank are in an intense process to discuss several targeted policy measures aimed at increasing lending to the economy via a direct support to banks in order to stabilize bank lending to SMEs and/or via alternative sources of SME financing (EC/EIB, 2013).[10] One recurrent theme in these initiatives is the lack of reliable information about SMEs and the related difficulty for potential investors to evaluate their credit worthiness. Under this light, our analysis could provide crucial evidence on how companies pro-actively manage the sustainability of their operations. In fact, our findings on the impact of financial flexibility attained thorugh a conservative leverage policy shed more light on the mechanisms through which SMEs tackle potential financial frictions that may otherwise hamper their growth.

Further, there is evidence that the surge in leverage in Europe before the crisis sowed the seeds of the financial crisis and has had a significant effect on the nature, severity and persistence of the downturn at both macro and micro levels.[11] A recent study by the European Central Bank (ECB, 2013) shows that the average leverage of firms which initially had zero or low levels of debt in 2008 has continued to increase during the crisis; on the other hand, firms with initially high levels of leverage began a deleveraging process almost immediately and have also significantly reduced their investment during the crisis. The pattern we observe for the financially flexible firms during the crisis is consistent with and complements this evidence: those companies that have accumulated spare debt capacity through a conservative leverage policy for a number of years before the crisis are those able to raise external finance and undertake investments when a growth opportunity comes along despite a deteriorated macroeconomic outlook. Our results, therefore, add to the complexity of the assessment of the deleveraging benefits and point out that an aggregate deleveraging pattern is compatible with one of increasing leverage at a certain point in time for firms categorized as financially flexible.

[10] See EC (2013), "Green Paper on Long-term financing of the European economy", http://ec.europa.eu/internal_market/finances/financing-growth/long-term/index_en.htm and EC/EIB (2013) "Increasing lending to the economy: implementing EIB capital increase and joint Commission-EIB initiatives" and http://ec.europa.eu/europe2020/pdf/eib_en.pdf.

[11] See Reinhart and Rogoff (2009), Jorda et al. (2011), and Kremp and Sevestre (2013).

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**Table 1. Sample characteristics**

| | No. firms | No. obs | % Private | Size (€ mil) | Age |
|---|---|---|---|---|---|
| **Belgium** | 10,631 | 111,449 | 99.34% | 47.301 | 26.22 |
| **Finland** | 17,623 | 141,487 | 99.35% | 11.875 | 16.96 |
| **France** | 190,990 | 1,641,927 | 99.75% | 8.985 | 16.89 |
| **Germany** | 6,927 | 43,393 | 92.65% | 346.214 | 35.46 |
| **Italy** | 148,016 | 1,193,518 | 99.84% | 10.644 | 18.43 |
| **Netherlands** | 2,357 | 17,909 | 90.83% | 346.504 | 35.62 |
| **Portugal** | 45,114 | 222,202 | 99.64% | 7.818 | 18.18 |
| **Spain** | 244,450 | 2,048,918 | 99.91% | 5.633 | 12.83 |
| **UK** | 19,585 | 101,422 | 97.33% | 92.279 | 25.09 |
| **Total** | 685,693 | 5,522,225 | | | |
| **Sample mean** | 76,188 | 613,581 | 99.68% | 14.143 | 16.311 |
| **Sample median** | 19,585 | 141,487 | 1 | 0.782 | 13 |

This table provides some sample characteristics. The sample includes all non-financial firms (both publicly traded and privately held companies) in eight euro countries and the UK with accounting information for at least four years over the period 1993–2010.

**Table 2. Summary statistics**

| | | | $\frac{\Delta\ Gross\ PPE_{j,t}}{K_{i,t}}$ | $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$ | *Sales Growth* |
|---|---|---|---|---|---|
| **All sample** | | mean | 0.426 | 0.595 | 0.230 |
| | | median | 0.123 | 0.298 | 0.043 |
| | | sd | 1.015 | 0.853 | 1.760 |
| **Legal Status** | Private | mean | 0.426 | 0.595 | 0.230 |
| | | median | 0.122 | 0.298 | 0.043 |
| | | sd | 1.015 | 0.853 | 1.758 |
| | Public | mean | 0.392 | 0.364 | 0.247 |
| | | median | 0.171 | 0.214 | 0.059 |
| | | sd | 0.879 | 0.813 | 2.069 |
| **Size** | Small | mean | 0.376 | 0.581 | 0.118 |
| | | median | 0.101 | 0.311 | 0.027 |
| | | sd | 0.909 | 0.832 | 1.217 |
| | Medium | mean | 0.451 | 0.600 | 0.234 |
| | | median | 0.134 | 0.297 | 0.047 |
| | | sd | 1.040 | 0.838 | 1.591 |
| | Large | mean | 0.489 | 0.616 | 0.340 |
| | | median | 0.145 | 0.269 | 0.055 |
| | | sd | 1.159 | 0.914 | 2.298 |
| **Age** | Young | mean | 0.459 | 0.650 | 0.337 |
| | | median | 0.142 | 0.328 | 0.068 |
| | | sd | 1.020 | 0.895 | 2.080 |
| | Mature | mean | 0.568 | 0.478 | 0.160 |
| | | median | 0.091 | 0.226 | 0.029 |
| | | sd | 1.509 | 0.819 | 1.562 |
| **Institutional setting** | Low credit access | mean | 0.433 | 0.583 | 0.232 |
| | | median | 0.123 | 0.295 | 0.043 |
| | | sd | 1.028 | 0.839 | 1.715 |
| | High credit access | mean | 0.327 | 0.783 | 0.190 |
| | | median | 0.116 | 0.367 | 0.042 |
| | | sd | 0.773 | 1.038 | 2.424 |
| | Low anti-self-dealing | mean | 0.434 | 0.596 | 0.235 |
| | | median | 0.125 | 0.299 | 0.044 |
| | | sd | 1.028 | 0.850 | 1.758 |
| | High anti-self-dealing | mean | 0.324 | 0.580 | 0.164 |
| | | median | 0.090 | 0.283 | 0.031 |
| | | sd | 0.815 | 0.889 | 1.780 |
| **Euro area and the UK** | Euro area | mean | 0.428 | 0.588 | 0.232 |
| | | median | 0.123 | 0.296 | 0.043 |
| | | sd | 1.017 | 0.845 | 1.767 |
| | UK | mean | 0.310 | 1.041 | 0.135 |
| | | median | 0.108 | 0.518 | 0.043 |
| | | sd | 0.795 | 1.224 | 1.309 |

This table reports summary statistics of the variables included in the investment model. All variables are winsorized at the 1st and 99th percentiles of their distribution within each country. Please refer to Appendix A for definitions of all variables.

**Table 3. Financially flexible firms**

| | FF3 | FF4 | FF5 |
|---|---|---|---|
| **All sample** | 34.15% | 22.26% | 14.57% |
| **Legal Status** | | | |
| Private | 34.07% | 22.20% | 14.54% |
| Public | 0.08% | 0.06% | 0.04% |
| **Size** | | | |
| Small | 17.82% | 10.91% | 6.89% |
| Medium | 10.79% | 7.41% | 4.92% |
| Large | 5.54% | 3.93% | 2.75% |
| **Age** | | | |
| Young | 24.84% | 16.72% | 11.13% |
| Mature | 4.23% | 2.34% | 1.47% |
| **Institutional setting** | | | |
| Low credit access index | 32.47% | 21.10% | 13.80% |
| High credit access index | 1.68% | 1.16% | 0.77% |
| Low anti-self-dealing index | 32.23% | 21.08% | 13.89% |
| High anti-self-dealing index | 1.92% | 1.18% | 0.69% |
| **Euro area and UK** | | | |
| Euro area countries | 33.80% | 22.03% | 14.42% |
| UK | 0.35% | 0.23% | 0.15% |

This table reports the percentage of financially flexible (FF) firms across the entire sample, by legal status, size, age, institutional settings and geographical subdivisions. To build the FF status indicator we compare the fitted values from the leverage regressions in Table 3 with the actual values of *Leverage* for each firm each year. We define a firm as *LL* (lower-levered) if the negative deviation between actual and predicted leverage is larger than 5%. *FF3, FF4* and *FF5* are dummies that take the value of 1 when we observe at least three, four or five consecutive periods respectively in which the firm is classified as *LL*. *Small, Medium* and *Large* firms are identified using the tertile distribution of the (logarithm of) total assets in each country each year. *Young* and *Mature* firms are defined on the bottom and top tertile of age distribution. *Low (High) Credit Access Index* is an indicator equal to 1 if the country where the firm operates has a below (above)-median value of the credit access index.

**Table 4. Investment model: baseline regressions**

| | ***FF3*** | ***FF4*** | ***FF5*** |
|---|---|---|---|
| $\frac{\Delta\ Gross\ PPE_{j,t-1}}{K_{i,t-1}}$ | 0.020*** | 0.020*** | 0.020*** |
| | [0.000] | [0.000] | [0.000] |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$ | 0.470*** | 0.464*** | 0.460*** |
| | [0.000] | [0.000] | [0.000] |
| *Sales growth* | 0.226*** | 0.224*** | 0.220*** |
| | [0.000] | [0.000] | [0.000] |
| *FF dummy* | 0.139*** | 0.136*** | 0.129*** |
| | [0.000] | [0.000] | [0.000] |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$*X FF dummy* | -0.072*** | -0.068*** | -0.050*** |
| | [0.000] | [0.000] | [0.000] |
| Firm year observations | 1,598,899 | 1,598,899 | 1,598,899 |
| No. of firms | 289,839 | 289,839 | 289,839 |
| Firm fixed effects | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes |

This table presents GMM-DIFF results for the modified q-model of investment augmented by the financially flexible status dummies (*FF3, FF4* and *FF5*) and the interaction between these dummies and *Cash Flow*. Please refer to Appendix A for definitions of all variables. We use suitable lags of all independent variables as well as year dummies as instruments. All regressions include firm and year fixed effects. P-values, adjusted for heteroskedasticity, are reported in brackets below the coefficients.

**Table 5. Investment model: robustness tests**

| | ***FF3 (10%)*** | ***FF4 (10%)*** | ***FF5 (10%)*** | ***FF3 Predicted MTBV*** | ***NewFF3 Net Leverage*** | ***NewFF3 Agency Costs*** | ***NewFF3 Cap Mkt Access*** |
|---|---|---|---|---|---|---|---|
| $\frac{\Delta\ Gross\ PPE_{j,t-1}}{K_{i,t-1}}$ | 0.020*** | 0.020*** | 0.020*** | 0.031*** | 0.020*** | 0.020*** | 0.020*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$ | 0.453*** | 0.435*** | 0.452*** | 0.418*** | 0.462*** | 0.471*** | 0.470*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| *Sales growth* | 0.216*** | 0.216*** | 0.218*** | | 0.219*** | 0.227*** | 0.225*** |
| | [0.000] | [0.000] | [0.000] | | [0.000] | [0.000] | [0.000] |
| *FF dummy (10%)* | 0.165*** | 0.149*** | 0.122*** | | | | |
| | [0.000] | [0.000] | [0.000] | | | | |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$*X FF dummy(10%)* | -0.095*** | -0.077*** | -0.032*** | | | | |
| | [0.000] | [0.000] | [0.000] | | | | |
| *Predicted MTBV* | | | | 0.048** | | | |
| | | | | [0.025] | | | |
| *FF dummy* | | | | 0.129*** | | | |
| | | | | [0.000] | | | |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$*X FF dummy* | | | | -0.082*** | | | |
| | | | | [0.000] | | | |
| *newFF* | | | | | 0.073*** | 0.139*** | 0.139*** |
| | | | | | [0.000] | [0.000] | [0.000] |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$*X newFF dummy* | | | | | -0.039*** | -0.069*** | -0.072*** |
| | | | | | [0.000] | [0.000] | [0.000] |
| Observations | 1,598,899 | 1,598,899 | 1,598,899 | 1,469,014 | 1,598,899 | 1,598,899 | 1,598,899 |
| No. of firms | 289,839 | 289,839 | 289,839 | 287,023 | 289,839 | 289,839 | 289,839 |
| Firm fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

This table presents GMM-DIFF results for the modified q-model of investment augmented by alternative definitions of the financially flexible (FF) status and the interaction between these dummies and the cash-flow proxy. *FF3 (10%) (FF4,FF5)* in column 1 (2–3) is a dummy equal to 1 if a company shows a negative deviation between its target and the actual leverage larger than at least 10% for three (four, five) consecutive years, and 0 otherwise. Target leverage is calculated from the *Leverage* regressions included in Table 3. In column (4) *FF3* is a dummy equal to 1 if a company shows a negative deviation between its target and the actual leverage larger than at least 5% for three consecutive years, and 0 otherwise, as in Table 5. *Predicted MTBV* is calculated using the projection of market-to-book value of all companies publicly traded in a certain country over the entire sample period on a number of firm- and industry-level characteristics that capture the firm's growth opportunities. *NewFF3* in the *Net Leverage* (column 5) is a dummy equal to 1 if a company shows a negative deviation between its target and the actual leverage larger than at least 5% for three consecutive years, and 0 otherwise. Target leverage is calculated from *Leverage* regressions similar to those in Table 3 where *Leverage* is defined as net of cash. Similarly, *NewFF3* in *Agency Cost* (column 6) is a dummy equal to 1 if a company shows a negative deviation between its target and the actual leverage larger than at least 5% for three consecutive years, and 0 otherwise. Target leverage is calculated from the *Leverage* regressions included in Table 3 and is augmented by a proxy for equity agency costs. This proxy is defined as the ratio of annual sales over total assets in line with Ang et al. (2000). *NewFF3* in *Capital Markets Access* (column 7) is a dummy equal to 1 if a company shows a negative deviation between its target and the actual leverage larger than at least 5% for three consecutive years, and 0 otherwise. Target leverage is calculated from the *Leverage* regressions included in Table 3 and is augmented by a proxy for capital markets access, that is, a dummy *Public* equal to 1 if the company is publicly traded, and 0 otherwise. Please refer to Appendix A for definitions of all other variables. We use suitable lags of all independent variables as well as year dummies as instruments. All regressions include firm and year fixed effects. P-values, adjusted for heteroskedasticity, are reported in brackets below the coefficients.

**Table 6. Investment, Abnormal Investment, and Leverage changes**

| | t-2 | t-1 | t | t+1 | t+2 | Difference in Means t-2 vs. t (p-value) | Difference in Means t vs. t+2 (p-value) |
|---|---|---|---|---|---|---|---|
| *Adjusted Investment* | 0.023 | -0.012 | 0.154 | -0.068 | -0.065 | 0.000 | 0.000 |
| *Adjusted Abnormal Investment* | 0.015 | 0.065 | 0.130 | 0.030 | 0.017 | 0.000 | 0.000 |
| *% of FF firms showing Adjusted Abnormal Investment* | 2.25% | 6.90% | 11.07% | 4.64% | 3.24% | 0.000 | 0.000 |
| *Adjusted Leverage* | -0.086 | -0.081 | 0.076 | 0.041 | 0.031 | 0.000 | 0.000 |

This table reports the changes in investment and abnormal investment before and after the firm acquires the financial flexibility (FF) status along with the t-tests on the equality of means. The central observation *t* corresponds to the time firms are classified as FF. FF is a dummy equal to 1 if a company has a negative deviation from its target for three consecutive years, and 0 otherwise. *Adjusted Investment* is calculated as the difference between the ratio of investment to capital stock of each firm *i* each year ($\frac{\Delta \text{ Gross PPE}_{j,t-1}}{K_{i,t-1}}$) and the average investment to capital stock ratio of all firms in the same country *c*, year and 4-digit NACE Rev 1.1 industry code where the company operates. *Adjusted Abnormal Investment* is defined over a pattern of five years of industry-adjusted investment data. *Normal Investment Activity* is the average value of industry-adjusted investments ($\boldsymbol{AdjI_{it}}$) over five-year periods, but excluding the central year ($\boldsymbol{NIA_{it}} = \frac{AdjI_{,t-2}+AdjI_{,t-1}+AdjI_{,t+1}+AdjI_{,t+2}}{4}$). Then, we identify an instance of abnormal investment if the industry-adjusted investment at time *t* is at least twice the *Normal Investment Activity* ($\boldsymbol{AdjI_{,t} > 2NIA_{it}}$). *Adjusted Leverage* is calculated as the difference between the leverage ratio of each firm *i* each year and the average leverage ratio of all firms in the same country *c*, year and 4-digit NACE Rev 1.1 industry code where the company operates.

**Table 7. Investment models: Private versus Public firms**

| | ***Private*** | ***Public*** | ***Private*** | ***Public*** |
|---|---|---|---|---|
| | **FF3** | | **FF5** | |
| $\frac{\Delta\ Gross\ PPE_{j,t-1}}{K_{i,t-1}}$ | 0.020*** | 0.045*** | 0.020*** | 0.050*** |
| | [0.000] | [0.000] | [0.000] | [0.000] |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$ | 0.470*** | 0.072*** | 0.460*** | 0.099*** |
| | [0.000] | [0.000] | [0.000] | [0.000] |
| *Sales growth* | 0.222*** | 0.167*** | 0.216*** | 0.156*** |
| | [0.000] | [0.000] | [0.000] | [0.000] |
| *FF dummy* | 0.139*** | 0.037*** | 0.130*** | 0.074*** |
| | [0.000] | [0.000] | [0.000] | [0.000] |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$*X FF dummy* | -0.073*** | -0.010*** | -0.051*** | -0.062*** |
| | [0.000] | [0.000] | [0.000] | [0.000] |
| Observations | 1,595,630 | 3,901 | 1,595,630 | 3,901 |
| No. of firms | 289,504 | 565 | 289,504 | 565 |
| Firm fixed effects | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes |

This table presents GMM-DIFF results for the modified q-model of investment augmented by alternative definitions of the financially flexible (FF) status and the interaction between these dummies and the cash-flow proxy. The two sub-samples are identified on the basis of the listing status of each firm in the year when the firm is identified as *Financially Flexible*. Please refer to Appendix A for definitions of all variables. We use suitable lags of all independent variables as well as year dummies as instruments. All regressions include firm and year fixed effects. P-values, adjusted for heteroskedasticity, are reported in brackets below the coefficients.

**Table 8. Investment models: Firms Size and Age**

| | ***Small*** | ***Medium*** | ***Large*** | ***Young*** | ***Mature*** | ***Small & Young*** | ***Large & Mature*** |
|---|---|---|---|---|---|---|---|
| | **FF3** | | | **FF3** | | **FF3** | |
| $\frac{\Delta\ Gross\ PPE_{j,t-1}}{K_{i,t-1}}$ | 0.008*** | 0.019*** | 0.034*** | 0.020*** | 0.007*** | 0.006*** | 0.013*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$ | 0.463*** | 0.374*** | 0.371*** | 0.437*** | 0.408*** | 0.372*** | 0.344*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| *Sales growth* | 0.220*** | 0.075*** | 0.079*** | 0.180*** | 0.064*** | 0.347*** | 0.051*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| *FF dummy* | 0.145*** | 0.098*** | 0.090*** | 0.159*** | 0.101*** | 0.154*** | 0.101*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$*X FF dummy* | -0.129*** | -0.051*** | -0.039*** | -0.084*** | -0.105*** | -0.119*** | -0.120*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| Observations | 565,447 | 397,362 | 315,461 | 1,033,110 | 56,496 | 441,426 | 16,684 |
| No. of firms | 143,153 | 107,398 | 65,614 | 233,361 | 14,121 | 135,159 | 4,666 |
| Firm fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

This table presents GMM-DIFF results for the modified q-model of investment augmented by the financially flexible (FF) status dummy *FF3* and the interaction between this dummy and the cash-flow proxy. *Small, Medium* and *Large* firms are identified using the tertile distribution of the (logarithm of) total assets in each country each year. *Young* and *Mature* firms are identified in the bottom and top tertile of Age distribution. *Small & Young* (*Large & Mature*) firms are those in the bottom (top) tertile of both Size and Age distributions. Please refer to Appendix A for definitions of all variables. We use suitable lags of all independent variables as well as year dummies as instruments. All regressions include firm and year fixed effects. P-values, adjusted for heteroskedasticity, are reported in brackets below the coefficients.

**Table 9. Investment models: Credit Accessibility and Investor Protection**

| | ***Credit Access Index*** | | | | ***Anti-Self-Dealing Index*** | | | |
|---|---|---|---|---|---|---|---|---|
| | ***Low*** | ***High*** | ***Low*** | ***High*** | ***Low*** | ***High*** | ***Low*** | ***High*** |
| | **FF3** | | **FF5** | | **FF3** | | **FF5** | |
| $\frac{\Delta\ Gross\ PPE_{j,t-1}}{K_{i,t-1}}$ | 0.020*** | 0.040*** | 0.020*** | 0.038*** | 0.021*** | 0.028*** | 0.021*** | 0.030*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$ | 0.475*** | 0.284*** | 0.463*** | 0.282*** | 0.470*** | 0.380*** | 0.459*** | 0.389*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| *Sales growth* | 0.221*** | 0.042*** | 0.215*** | 0.039*** | 0.201*** | 0.029** | 0.196*** | 0.025** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.010] | [0.000] | [0.016] |
| *FF dummy* | 0.141*** | 0.042*** | 0.132*** | 0.052*** | 0.138*** | 0.048*** | 0.133*** | 0.037*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$ *X FF dummy* | -0.075*** | -0.014*** | -0.053*** | -0.022*** | -0.071*** | -0.013*** | -0.054*** | -0.009*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| Observations | 1,539,311 | 59,588 | 1,539,311 | 59,588 | 1,498,931 | 99,968 | 1,498,931 | 99,968 |
| No. of firms | 278,122 | 11,717 | 278,122 | 11,717 | 268,563 | 21,276 | 268,563 | 21,276 |
| Firm fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

This table presents GMM-DIFF results for the modified q-model of investment augmented by the financially flexible (FF) status dummies (*FF3* and *FF5)* and the interaction between these dummies and the cash-flow proxy. *Low (High) Credit Access Index* is an indicator equal to 1 if the country where the firm operates has a below (above)-median value of the Credit Access Index. *Low (High) Anti-Self-Dealing Index* is an indicator equal to 1 if the country where the firm operates has a below (above)-median value of the Anti-Self-Dealing Index. Please refer to Appendix A for definitions of all variables. We use suitable lags of all independent variables as well as year dummies as instruments. All regressions include firm and year fixed effects. P-values, adjusted for heteroskedasticity, are reported in brackets below the coefficients.

**Table 10. Investment models: Euro Area Countries and the UK**

| | ***Euro Area*** | ***UK*** | ***Euro Area*** | ***UK*** |
|---|---|---|---|---|
| | **FF3** | **FF3** | **FF5** | **FF5** |
| $\frac{\Delta\ Gross\ PPE_{j,t-1}}{K_{i,t-1}}$ | 0.021*** | 0.014*** | 0.020*** | 0.017*** |
| | [0.000] | [0.000] | [0.000] | [0.000] |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$ | 0.473*** | 0.276*** | 0.462*** | 0.275*** |
| | [0.000] | [0.000] | [0.000] | [0.000] |
| *Sales growth* | 0.218*** | 0.028*** | 0.213*** | 0.007 |
| | [0.000] | [0.000] | [0.000] | [0.268] |
| *FF dummy* | 0.137*** | 0.063*** | 0.129*** | 0.072*** |
| | [0.000] | [0.000] | [0.000] | [0.000] |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$*X FF dummy* | -0.071*** | -0.010*** | -0.050*** | -0.025*** |
| | [0.000] | [0.006] | [0.000] | [0.005] |
| Firm year observations | 1,580,392 | 18,507 | 1,580,392 | 18,507 |
| No. of firms | 285,518 | 4,321 | 285,518 | 4,321 |
| Firm fixed effects | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes |

This table presents GMM-DIFF results for the modified q-model of investment augmented by the financially flexible (FF) status dummies (*FF3* and *FF5)* and the interaction between these dummies and the cash-flow proxy. Sub-samples are defined on the basis of the country where the firm operates. Please refer to Appendix A for definitions of all variables. We use suitable lags of all independent variables as well as year dummies as instruments. All regressions include firm and year fixed effects. P-values, adjusted for heteroskedasticity, are reported in brackets below the coefficients.

**Table 11. Liquidity shock and financial flexibility**

*Panel A. Mean of investment levels before and during the crisis.*

| | No. of firms | Pre-crisis | During crisis | Δ Mean During-Pre | P-val of diff. During-Pre | P-val of diff. FF-NotFF |
|---|---|---|---|---|---|---|
| *All sample* | 219,953 | 0.384 | 0.254 | -0.130 | 0.000 | |
| | | | | ***FF3*** | | |
| *FF firms* | 39,226 | 0.336 | 0.268 | -0.068 | 0.000 | 0.000 |
| *Not FF firms* | 180,727 | 0.394 | 0.250 | -0.144 | 0.000 | |
| | | | | ***FF5*** | | |
| *FF firms* | 14,918 | 0.254 | 0.242 | -0.012 | 0.008 | 0.000 |
| *Not FF firms* | 205,035 | 0.393 | 0.254 | -0.139 | 0.000 | |

*Panel B. Investment regressions*

| | ***FF3*** | | ***FF5*** | |
|---|---|---|---|---|
| | **FF** | **Not FF** | **FF** | **Not FF** |
| $\frac{\Delta\ Gross\ PPE_{j,t-1}}{K_{i,t-1}}$ | 0.020** | 0.008* | 0.024* | 0.010** |
| | [0.011] | [0.096] | [0.100] | [0.016] |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$ | 0.305*** | 0.371*** | 0.177*** | 0.380*** |
| | [0.000] | [0.000] | [0.000] | [0.000] |
| *Sales growth* | 0.397*** | 0.341*** | 0.428*** | 0.347*** |
| | [0.000] | [0.000] | [0.000] | [0.000] |
| Firm year observations | 45,328 | 186,190 | 18,165 | 213,353 |
| No. of firms | 28,214 | 125,319 | 10,836 | 142,697 |
| Firm fixed effects | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes |

This table reports results on the investment levels and investment sensitivity to cash flow for a sub-sample of firms during the financial crisis. In particular, we focus on companies in 2006, the year before the burst of the financial crisis, and distinguish those that are financially flexible (FF) from those that are not. To classify a firm as financially flexible FF3 (FF5), we require it to have a low leverage (LL) policy for at least three (five) consecutive years. Panel A shows the means of the average level of capital expenditure of firm *i* relative to capital stock over the period 2003–2006 (Pre-crisis) and over the period 20072010 (During crisis) for the two groups of firms. Panel B reports the GMM-DIFF results of a simple q-model of investment estimated for the years affected by the financial crisis (2007–2010) only on the two groups of firms, FF versus Not FF. Please refer to Appendix A for definitions of all variables. We use suitable lags of all independent variables as well as year dummies as instruments. All regressions include firm and year fixed effects. P-values, adjusted for heteroskedasticity, are reported in brackets below the coefficients.

**Appendix A. Variables definitions**

| Variable | Definition |
|---|---|
| $\frac{\Delta\ Gross\ PPE_{j,t-1}}{K_{i,t-1}}$ | Ratio of capital expenditure to the beginning-of-year capital stock. Capital expenditure is computed as the annual change in (net) total fixed assets plus depreciation. |
| $K_{i,t}$ | The capital stock is constructed using the perpetual inventory method. Since the values available for the capital stock are at book value (that is, at historical prices), we multiply the value at historical prices for the first year of observation available for each firm by a factor adjusting for historical inflation to get an estimation of the initial value ($K_{i,t}$) of the capital stock at replacement value (that is, at time $t_1$ prices). The perpetual inventory formula is then used to obtain the estimated value of the stock of capital at replacement cost in the subsequent times: $K_{i,t} = (1-\delta)K_{i,t-1} + \frac{\Delta\ \text{Gross PPE}_{i,t}}{GDP\ deflator}$ , where $\delta$ is the depreciation rate of the stock of capital (based on aggregate data at country level). |
| $\frac{Cash\ Flow_{i,t-1}}{K_{i,t-1}}$ | Ratio of cash flow to the capital stock where cash flow is net income plus depreciation. |
| *Sales Growth* | Annual growth rate of sales. |
| *FF dummies*<br>*(FF3, FF4, and FF5)* | Financially flexible status dummy equal to 1 when we observe at least three (four or five) consecutive periods in which the firm is classified as *LL*, where *LL* is an indicator equal to 1 if the firm in each country each year exhibits a negative deviation between its actual and predicted leverage. We require the deviation to be larger than 5%. |
| *Private (Public)* | Dummy equal to 1 if the company is a privately held (publicly traded), zero otherwise. |
| *Size* | Natural log of total assets (in € mil), expressed in real value. |
| *Age* | Number of years since incorporation. |
| *Credit Access Index* | An index that measures the legal rights of borrowers and lenders with respect to secured transactions and the sharing /of credit information as provided by *World Bank-Doing Business Project*. It sums up two indices: 1) the strength of legal rights index; and 2) the depth of credit information index. This composite index ranges from 0 to 16, with higher values indicating higher credit access. |
| *Anti-Self-Dealing Index* | An index that measures the strength of minority shareholder protection against directors' misuse of corporate assets for personal gain. It includes three main components: 1) extent of disclosure index; 2) extent of director liability index; and 3) ease of shareholder suits index (Djankov et al.,2008). This composite index ranges from 0 to 10, with higher values indicating more investor protection. |