Family Ownership, Financing Constraints and

Investment Decisions[*]

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ABSTRACT

This paper provides an empirical answer to the question of how the unique incentives of founding families influence investment decisions. Contrary to theoretical considerations, the results indicate that family firms are not more susceptible to external financing constraints. When compared to companies of similar size and dividend payout ratio, the investment outlays of family firms are consistently less sensitive to internal cash flows. Family businesses are more responsive to their investment opportunities and seem to invest irrespective of cash flow availability. These findings suggest that founding family ownership is associated with lower agency costs and can help to diminish information asymmetries with external suppliers of finance.

I. Introduction

The incentives associated with founding family ownership and control give reason to assume that family firms are subject to financing constraints. Founding families usually have invested most of their private wealth in the firm and rely on their primary asset as a source of income. Especially if funds for private consumption cannot be extracted through an executive position in the firm, families will be dependent on steady dividend payments and withdraw funds that might otherwise be used for corporate investment projects. In a world of perfect capital markets this would not impose a restriction since companies could always substitute external funds for internal capital. However, imperfections like information asymmetries, agency problems and transaction costs drive a wedge between the cost of internal and external financing.

Prior academic research also indicates that the level of information asymmetries is generally larger for small and young companies (Petersen and Rajan 1992), both typical characteristics of family businesses. In addition, families will be reluctant to raise new equity since an increase in share capital will dilute their equity stake and gradually undermine their controlling position. According to Shleifer and Vishny (1986), large and undiversified investors will pursue risk reduction strategies, one of which is the use of less debt in the firm's capital structure. In sum, these arguments suggest that family firms are more susceptible to financing restrictions as all sources of external finance imply possible drawbacks for the main shareholder. These constraints could lead to inefficient investment decisions that are primarily based on the availability of internal cash flows.

In contrast to these theoretical considerations, several empirical studies have recently shown that founding family ownership is associated with superior firm performance, both in

terms of accounting and market performance measures.[1] These findings obviously stand in contrast to liquidity constraints and inefficient investment behavior. As a result, the impact of family ownership on investment decisions is ultimately an empirical question.

In this study, I examine the issue using a panel dataset of 264 German listed companies from 1997 through 2004. Univariate results show higher investment ratios and financially more stable firm characteristics for family firms when compared to companies of similar size or dividend payout ratio. The analysis of investment-cash flow sensitivities further indicates that investment in family firms is less sensitive to the availability of cash flows and more responsive to investment opportunities in all sample subgroups. These findings provide evidence for more efficient investment decisions and fewer agency conflicts and information asymmetries in family firms. As a result, the advantages of family ownership in aligning the incentives between management and shareholders as well as between different groups of shareholders (see e.g. Anderson and Reeb 2003 or Andres 2006) seem to outweigh the possible disadvantages in terms of access to external capital.

This is the first empirical study to specifically analyze the impact of founding family ownership on investment behavior. Even though the performance studies mentioned above have shown that family firms account for about one third of all exchange-listed companies (and most likely for an even higher percentage of private firms), there is hardly any evidence on the effects that founding family ownership has on firm characteristics other than performance. This study aims to alleviate this gap.

In addition, the paper contributes to the existing literature on investment-cash flow sensitivities by analyzing the largest number of market-listed German companies to date, covering more than 95% of the market capitalization of non-financial firms in 1997.[2] By estimating the standard reduced-form Q-model, investment is found to be highly cash-flow

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[1] See Anderson and Reeb (2003), Villalonga and Amit (2006) for the US, Barontini and Caprio (2006) for cross-European evidence and Andres (2006) for Germany.
[2] Computation based on data in the DAI Factbook (Deutsches Aktieninstitut 2006).

sensitive with higher sensitivities for supposedly unconstrained firms. Moreover, concentrated ownership has a negative, but non-monotonic influence on investment-cash flow sensitivities, suggesting lower agency conflicts and/or information asymmetries in the presence of large shareholders.

The remainder of this paper is organized as follows. The next section contains a short outline of related literature and the Q-theory of investment. Section III provides information on the construction of the dataset, variable definitions and descriptive statistics. Section IV focuses on different measures of financial constraints commonly applied in the investment-cash flow literature. Section V deals with the regression analysis of investment cash-flow sensitivities and section VI concludes the paper.

II. Related Literature

In a world of perfect capital markets, a firm's investment decision is independent from its financing policies (Modigliani and Miller 1958). However, it is a generally accepted view that markets are incomplete and imperfect and that firms have limited access to external funds. These market inefficiencies include asymmetric information (Greenwald et al. 1984, Myers and Majluf 1984), agency costs (Bernanke and Gertler 1989, Gertler 1992) and transaction costs. As a result, equity and debt financing are no longer perfect substitutes and corporate investment will be influenced by the availability of internal funds.

Various empirical studies examine the relationship between firm investment and internal cash flows and provide evidence of the pecking order theory postulated by Myers (1984). In these analyses, the sensitivity of a firm's investment spending to internal cash flows is estimated in a regression model that controls for the availability of investment opportunities. Since these opportunities are based on expectations that are not observable, Tobin's q is used as a proxy. All in all, this means that if cash flows and Tobin's q are

included in a regression model with firm investment as dependent variable, only Tobin's q should be significant in a perfect world. A significant cash flow coefficient can be interpreted as a sign of external financing constraints.

In their seminal work, Fazzari, Hubbard and Petersen (1998, FHP hereinafter) find that the investment outlays of firms that are more financially constrained (based on a predisposed classification) are more sensitive to internal cash flows than those of less constrained firms. They group firms based on their earnings retention practices, arguing that firms that retain most of their income face higher levels of financing restrictions. A number of subsequent studies apply different segmentation criteria (e.g. size, age) and provide strong support for these conjectures (Aggarwal and Zong 2006, Bond and Meghir 1994, Gilchrist and Himmelberg 1995, Lamont 1997). Their results seem to confirm theoretical considerations that suggest that small firms are more dependent upon internal capital and more susceptible to financing restrictions since potential lenders and suppliers of equity have little information on these firms.[3] In addition, transaction costs are usually not linear in the amount of capital raised, which implies an advantage in accessing external sources for larger companies.

Until recently the finding that companies that face greater levels of financial constraints show a higher sensitivity of investment to the availability of internal funds was pretty much a generally accepted assertion. Starting with Kaplan and Zingales (1997) other studies show the exact opposite and find that the investment of financially *un*constrained firms is more sensitive to the availability of internal cash flows. Cleary (1999, 2006) and Kadapakkam et al. (1998) confirm these results. Booth and Cleary (2006) present a possible explanation and argue that financially constrained firms build financial slack based on their knowledge of restricted access to external capital. Audretsch and Elston (2002) find mixed evidence for Germany, with the highest sensitivities among medium-sized companies.

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[3] In a market with asymmetric information, the probability for a company to be subject to credit rationing decreases with firm size (Stiglitz and Weiss 1981).

Despite of conflicting evidence on the relationship between financial constraint groups and investment-cash flow sensitivities, empirical studies generally confirm the existence of a positive sensitivity of investment outlays to internal fund availability. If such a pattern is observed for a group of large companies (which are more likely to be followed by market participants), explanations such as information asymmetries and arguments based on transaction costs are less persuasive. In this situation, the observed sensitivity is more likely the result of agency conflicts between managers and shareholders. In particular managers in large and widely-held corporations have the discretionary power and the incentive to spend free cash flows as this increases their personal utility (Jensen 1986).

Several studies have recently linked the analysis of investment-cash flow sensitivities to aspects of corporate governance. For a sample of UK firms, Pawlina and Renneboog (2005) confirm that investment is strongly sensitive to cash flows and find evidence for agency conflicts of free cash flow as the main source. Haid and Weigand (2001) focus on R&D intensive German corporations. Their results document different levels of liquidity constraints for owner-controlled and manager-controlled firms. Gugler (2003) presents evidence for Austria and confirms the influence of controlling shareholders on firm investment policy. Similar studies are Gugler and Yurtoglu (2003), Kathuria and Mueller (1995) for the US and Goergen and Renneboog (2001) for the UK.

This study is in the same spirit, but focuses on founding families as a specific type of controlling shareholder.

III. Data

A. Sample Selection and Data Sources

The dataset used for the empirical analysis is based on all companies listed on the 'official market' (*Amtlicher Handel*) trading segment of the Frankfurt Stock Exchange at the

end of 1998. Of all these firms, insurance companies, banks and other financial firms were excluded as their accounting data and corporate investment differ substantially from those of manufacturing and commercial firms. Furthermore, four companies were dropped because they were already insolvent at the beginning of the sample period and liquidated only shortly afterwards. For eleven firms, investment data was only available for one accounting year (or less). Since the within-estimator employed in the analysis requires longitudinal variation in the data, these firms had to be excluded, too. For the remaining 264 companies I collected data from 1997 till 2004, resulting in an unbalanced panel of 1,732 complete firm-year observations.

Governance structures (ownership stakes, board representation) as well as investment and other accounting data was obtained from Hoppenstedt yearbooks. Names of the members of the executive boards (*Vorstand*) and supervisory boards (*Aufsichtsrat*) were gathered for every other year (board members' tenure can be up to five years, depending on the company's articles of incorporation), shareholdings on a yearly basis.

B. Family Firms and Ownership Classification

The empirical literature provides no clear-cut definition of criteria or measures to identify family firms. Most studies require a minimum equity stake of the founding family and/or their board representation. In this study, a firm is categorized as a family business if a) the founder and/or family members hold more than 25% of the voting shares, or b) the founding family is represented on either the executive or the supervisory board if they own less than 25%[4] of the voting rights.

For some firms, this procedure is straightforward, especially in cases where the founder is still active. However, in particular for families with a long presence in the firm, last

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[4] Until very recently, only holdings of more than 5% had to be registered with the German Financial Supervisory Authority (BaFin). Shareholdings of less than 5% - however reported in Hoppenstedt – were excluded for reasons of data consistency. Thus, a family (or any other shareholder) has to hold at least 5% of the shares in order to be recorded in the sample.

names change due to marriages as the family expands. In these cases, the affiliation of distant relatives or in-laws serving as board members was confirmed by manually examining company publications (e.g. annual statements, ad hoc announcements, anniversary publications) and other publicly available sources (newspapers…). In order to investigate the influence of the so-called 'founder effect' observed in various performance studies of family firms (e.g. Anderson and Reeb 2003 for the US, Andres 2006 for Germany), the family dummy variable was broken down into three sub-categories: a family firm is 'founder-controlled' if the founder still acts as the company's CEO, 'descendant-controlled' if the founder is no longer active in the executive board or has passed away and one of his/her descendants is in the position of CEO. And last, a firm is 'professionally managed' if it is categorized as a family firm, but has hired a professional management team and the family is thus no longer present in the executive board.

The ownership structures of non-family firms were also classified according to the identity of the largest blockholder. In line with the family firm definition above, the largest shareholder has to hold at least 25% of the voting shares to be categorized as a blockholder. Even though this threshold might seem high at first sight, it is reasonable given the German legal and institutional framework. According to the German Stock Corporation Act (AktG), a stake of 25% provides a blocking minority and allows the blockholder to prevent far reaching decisions of the general shareholders' meeting, like issues of new shares. In addition, this ownership stake should be high enough to ensure both, strong incentives to monitor the management team and the power to do so.

Furthermore, the German institutional framework is characterized by very high levels of ownership concentration. Franks and Mayer (2001) observe that '85% of the largest quoted companies have a single shareholder owning more than 25% of the voting shares' (based on 171 companies in 1990). This percentage is strikingly consistent with the ownership pattern

observed in this study, with 84.5% of the firms featuring a shareholder with a stake of more than 25%.

The different blockholder types assigned to companies with one or more shareholders exceeding the 25%-threshold are as follows: families (as defined above), financials (banks, insurances), government (all public authorities), strategic investors (other manufacturing or commercial companies) and others (management teams, foundations and individuals who have invested parts of their private means).[5] Accordingly, all other companies (i.e. companies without blockholder) are classified as 'widely-held'. The classification into these five blockholder-subgroups should be sufficiently accurate to capture the different interests. Among these investors, the group of financial investors supposedly has the biggest influence on efficient investment behavior. On the one hand, they potentially facilitate the company's access to external capital (lower information asymmetries); on the other hand, they should use their controlling position to ensure only positive NPV projects are carried out.

C. Descriptive Statistics and Variable Definitions

All accounting variables are denominated in thousands of Euros. Data for 1997 and 1998 is converted from Deutschmarks (DM) into Euros based on the official conversion rate determined in December 1998.

The market value of a firms' equity at time t is calculated by multiplying the end of the year closing price with the number of shares outstanding. However, many German corporations have issued multiple share classes, usually ordinary and preferred shares. In cases where only one of these share classes is listed on the stock exchange, the price of the listed shares is adopted for the unlisted class. Market-to-book value, which is used as a proxy for Tobin's q, is computed as market value of equity + (total assets – book value of equity) divided by total assets.

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[5] If there is more than one blockholder present in a firm, the block is assigned to the blockholder with the largest share.

The cash flows for each company are calculated as net income plus depreciation and changes in long-term provisions. These are defined as the sum of pension provisions and other provisions (excluding tax provisions). In order to be able to meet their future financial obligations, firms that offer company-based pension schemes have to build up pension provisions. Since companies frequently have wide discretionary powers over the investment of these provisions[6] they should be considered a form of cash flow. The inclusion of pension provisions is also in line with Audretsch and Elston (2002). Although this definition should be more accurate, I also used a more conservative cash flow definition based on the sum of net income and depreciation as a robustness check.

The evolution of firm investment levels over the sample period (adjusted for inflation) is presented in Table 1. Both mean and median investments mirror the general economic development in Germany, showing a strong increase over the period from 1997 till 2001. In 2002 and 2003, investment levels decrease and finally pick up again in 2004.

[Insert Table 1 about here]

Table 2 contains descriptive statistics of the data, subdivided into family and non-family firms. Means are first calculated per company (over time) and then averaged across all sample firms.[7] The final column presents t-statistics testing for differences in means between family and non-family firms.

[Insert Table 2 about here]

Family firms are significantly younger than non-family firms. Although young companies are usually more susceptible to credit rationing as potential lenders have little information about their investment opportunities and the capabilities of the management team (Petersen and Rajan 1992), the comparatively young age of family businesses cannot be

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[6] See Edwards and Fischer (1994, ch. 3) for a more extensive discussion.

[7] If a company changes its status from family to non-family firm two means are computed and then assigned proportionately (years as family firm in proportion to years in sample) to the relevant group. The overall pattern of these figures does not change if mean values are obtained by weighting the data by years (meaning that the data in the latest years of the sample period get assigned an equal weight even though the number of firms decreased).

interpreted as a sign of financing constraints. With an average age of 80.6 years they seem to be mature companies that have established a sufficiently long track record.

However, family firms are also significantly smaller, both in terms of total assets and sales. In empirical studies, firm size is commonly used as an indicator for financial constraints since small companies are less likely to be covered by analysts and the financial press. The lack of information should hamper small firms' chances to raise capital, in particular with respect to new equity offerings. This view is confirmed by FHP (1988), who find smaller companies to be more dependent upon bank loans. Consequently, this combination should lead to higher levels of leverage among family firms and stands in contrasts to theoretical considerations by Shleifer and Vishny (1986). They observe that risk aversion can be one of the most important costs that large and undiversified shareholders can impose on the firm. One possibility of risk avoidance could be the use of less debt, as this form of capital bears a higher probability of default. Nevertheless, family firms in my sample exhibit a significantly higher percentage of debt in their capital structures (42.9% compared to 40.4% for non-family firms). An explanation for this finding could be the families' willingness to maintain control. The incentive to fund profitable investment projects with debt will probably be higher for these firms as an increase in share capital would dilute the family's equity stake. Regarding the debt maturity structure, no differences between the two subgroups can be observed (FHP 1988 find higher levels of short-term debt for small companies).

Overall, the results of the univariate analysis could be interpreted as a sign of liquidity constraints among family firms. They are on average smaller – suggesting information asymmetries – and more heavily leveraged, which will make it more difficult to take up loans. Family firms also seem to pay out a higher percentage of cash flows to their shareholders (the difference in payout ratios is not statistically significant, though). In addition, the observation of significantly higher values of Tobin's q indicates that they are in a position where the need

for additional funds for investment projects is particularly high. Therefore, different measures of financial constraints are investigated more closely in the following.

IV. Measures of Financial Constraints

In the past 20 years, numerous studies have investigated the relationship between financial constraints and corporate investment behavior (FHP 1988, Gilchrist and Himmerberg 1995, Kaplan and Zingales 1997, Kadapakkam et al. 1998, Cleary 1999, to name just a few). The procedure generally applied in these empirical investigations has been to identify variables that serve as proxies for the (unobservable) level of internal and external financing constraints and then use these variables in order to differentiate between financially constrained and unconstrained firms.

In this study, firms are classified into groups based on firm size and dividend payout ratios. The use of size as a criterion of financial constraints is based on the notion that smaller firms will face higher informational asymmetries (for reasons already mentioned above). This approach is used, among others, by Kadapakkam et al. (1998), Cleary (2006) and Audretsch and Elston (2002). Companies are segmented into two groups each year, based on their total assets.[8] Accordingly, large firms are those with total assets above the sample median in each year, whereas small firms have total assets below the median.

The second criterion is similar to the original approach by FHP (1988) and classifies firms according to their dividend payout ratios. Following their rationale, firms facing a large "wedge" between the cost of internal and external finance will decide to retain most of their income to avoid the use of more expensive external sources of capital. The calculation used to obtain a payout rate in most studies is to divide dividends by EBIT (e.g. Cleary 2006).

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[8] Other studies (e.g. Kadapakkam et al. 1998) use several size measures and compare the results obtained with these criteria to each other. Following Kadapakkam et al. (1998) I also used sales as an alternative measure. These regressions are not reported as they did not materially change the results.

However, the German tax system used to treat distributed and retained earnings differently in the early years of the sample period. Until 2000, the tax rate on retained earnings was higher than the tax on dividends by 10%. This essentially means that corporate tax liabilities were sensitive to the decision to pay dividends. If a company made a loss and did not pay any dividends to its shareholders, the tax liability was 0. If - however - the same company decided to pay dividends despite of the loss, this incurred a tax liability. In addition, shareholders who received a (net) dividend also received a tax credit (equivalent to the tax paid on their gross dividend by the company) which was then applied to their personal income tax computation. From 2001 onwards, dividends and retained earnings are no longer taxed differently in Germany.

In order to adjust for the disturbing influence of tax regulations, dividends are related to zero dividend distribution profits. These are defined as follows:

$$\frac{D\left(1-t_r\right)}{\left(1-t_d\right)} + R \,, \tag{1}$$

where t_d stands for the tax rate on dividends, t_r for the tax rate on retained earnings, $D(1-t_r)$ are net dividends (i.e. dividends net of tax), $D/(1-t_d)$ are gross dividends (including the tax credit for periods before 2001) and R are retained earnings. This means that all profits are standardized to a hypothetical case in which all companies retain their profits. In line with the cash flow definition used for the investment-cash flow analysis, depreciation and changes in long-term provisions (pension provisions and other provisions) are added to expression (1).

Since dividends paid on preferred shares are usually different from dividends on ordinary shares, a weighted average is calculated:

$$\frac{D_O * NOS_O + D_P * NOS_P}{NOS_O + NOS_P} \,, \tag{2}$$

where D_O and D_P are dividends per share on ordinary and preferred shares and NOS_O and NOS_P the number of ordinary and preferred shares, respectively.

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[Insert Table 3 about here]

Descriptive statistics of the subgroups based on firm size and dividend payout ratios as segmentation criteria are shown in Table 3. Both, the investment and cash flow ratios are obtained by scaling the relevant variable by the beginning of period level of net fixed assets. T-values reported in the table denote statistical significance for differences in means between family and non-family businesses. Firms seem to be classified reasonably well according to their financial status. Based on traditional financial ratios, large firms seem to be in a solid financial condition, whereas small firms show signs of financial constraints. The variables investment and cash flow ratio as well as return on equity and (surprisingly) sales growth are on average significantly larger (at least at the .05-level) for large companies compared to their smaller counterparts. Leverage is also slightly higher for smaller firms, although not significantly. Concerning the distinction between family and non-family firms within these two subgroups, almost all differences of financial ratios are statistically significant in the "large" group. Among small companies, family businesses are only distinguishable from non-family firms in terms of market-to-book ratios and investment ratio.

With regard to the segmentation by dividend payout ratios, high payout firms (presumably not financially constrained) also seem to be in a more stable financial condition than low payout firms (presumably constrained). They are on average more profitable (ROE significant at the .01-level), show higher cash flow ratios (.05-level) and use significantly less debt (significant at the .01-level). The comparison between family and non-family firms shows that family firms seem to be in a healthier financial condition in the high payout group. In the low payout group they exhibit significantly higher investment ratios and higher values of Tobin's q.

In conclusion, the two selection criteria seem to detect the susceptibility to financial constraints quite well. In line with theoretical arguments, small firms as well as companies that retain a higher percentage of their earnings show signs of financing constraints. Within

these subgroups, family firms consistently show higher investment ratios and significantly higher values of Tobin's q. They are also different from non-family firms with respect to return on equity (significantly higher in two subgroups), cash flow ratio and leverage (both significantly higher in two subgroups). Contrary to the assumption based on the univariate analysis, these financial ratios reveal that family firms are not more susceptible to financial constrains when compared to non-family firms in the same subgroup. In fact, these figures could even be interpreted as signs of a lower level of financial constraints among family firms.

This section confirms that larger firms as well as firms that pay out a higher proportion of their cash flows seem to be financially unconstrained. In theory, this should lead to a low sensitivity of investment spending to the availability of internal cash flows. The following section aims to analyze this relationship by estimating investment-cash flow sensitivities in a panel regression framework. Further, the effect of family ownership (and large blockholders in general) on a firm's investment policy will be investigated.

V. Regression Analysis

The estimation of investment-cash flow sensitivities is based on the following basic regression model used by Kaplan and Zigales (1997) and Cleary (1999, 2006) among others:[9]

$$\left(\frac{I}{K}\right)_{it} = \beta_{CF}\left(\frac{CF}{K}\right)_{it} + \beta_{MB}\left(\frac{M}{B}\right)_{i,t-1} + u_{it}, \tag{3}$$

where I/K is the ratio of corporate investments to the beginning of the year book value for net property, plant and equipment. CF represents cash flow and is defined as net income plus depreciation and change in long-term provisions (pension provisions and other provisions, excluding tax provisions). The cash flow variable is also normalized by the level of net fixed

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[9] Using this well-established methodology yields the advantage of a direct comparability between the coefficients in this paper and those obtained in closely related studies.

assets at the beginning of the year. *M/B* represents the firm's market-to-book value and is computed as the ratio of market value of equity + (total assets – book value of equity) to total assets at the end of the previous year. As commonly applied in investment-cash flow analysis I control for firm-specific effects by using the within-estimator approach.[10] All regressions also include year dummies in order to control for possible year effects.

Until recently, a high sensitivity of investments to a firm's current cash flow was interpreted as a sign of financing constraints (e.g. FHP 1988). Kaplan and Zingales (1997) as well as other empirical examinations question this relationship and find higher investment-cash flow sensitivities for firms that are unconstrained based on the selection criteria discussed above. Even though this still remains an unresolved question, high investment-cash flow sensitivities are a broadly accepted sign of inefficient investment behavior.

A. Regression Results and Discussion

Table 4 contains the regression results for the whole sample and the four financial constraints groups. The estimates show that firm investment is sensitive to cash flow in all groups, a positive and significant coefficient for *M/B* can only be observed in the high dividend payout group. Contrary to the assumption of higher sensitivities for financially constrained companies, the cash flow coefficients are significantly higher for large firms and firms with a higher dividend payout rate.[11] This is consistent with evidence by Kaplan and Zingales (1997) and also with results on German subsamples in Kapadakkam et al. (1998) and Cleary (2006). Therefore, investment-cash flow sensitivities do not seem to provide useful measures of financing constraints. This means that when interpreting a positive relationship

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[10] Unlike most investment-cash flow – estimations, Pawlina and Renneboog (2005) use the (supposedly more efficient) random-effects estimator. In my sample, the Hausman test rejects the null hypothesis of zero correlation between the vector of explanatory variables and the error term. Therefore, the consistent fixed-effects estimator is used in all regressions.

[11] Following the methodology by Booth and Cleary (2006), t-statistics are based on cross-dummy variable coefficients. These are constructed by multiplying M/B and CF/K by the upper subgroup dummy variable. See Booth and Cleary (2006, p.13) for a more detailed description.

between firm investment and the availability of cash flows several possible explanations have to be considered.

In addition to financing constraints that are the result of a poor financial status or asymmetric information between the firm and the capital market in the sense of Myers and Majluf (1984), the observation of high investment-cash flow sensitivities can also be attributed to agency costs. In particular in those firms that are classified as being financially unconstrained, high cash flow ratios and a stable financial condition might increase the susceptibility to the free cash flow problem (Jensen 1986). In this case, high investment-cash flow sensitivities are more likely the result of agency costs between management and shareholders. Managers who are not monitored closely enough might take the opportunity of high cash flows in order to increase their personal utility (e.g. through empire building) instead of paying these funds out to shareholders. In this sense, investment-cash flow sensitivities are also influenced by the degree of agency conflicts.

[Insert Table 4 about here]

In order to gain insight into the role of families as dominant shareholders and their influence on investment decisions, the regression model is estimated separately for family and non-family firms. In addition to the arguments raised above, families might have a strong incentive to influence investments by pursuing projects that are unrelated to the firm's core business. A diversification strategy of the family's portfolio is more likely to be followed within the company as the availability of private funds for sufficient external diversification is usually limited. By using readily available funds in the form of cash flows, the family will not have to face the scrutiny of external suppliers of capital. Such behavior would lead to comparatively high investment-cash flow sensitivities. On the other hand, the higher profitability of family businesses (Anderson and Reeb 2003, Andres 2006, Villalonga and Amit 2006) presents a strong case against this consideration and should be an indicator of more efficient investment decisions.

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Table 5 aims to provide an empirical answer to this question. The results indicate that the sensitivity of firm investment to cash flows is significantly lower for family firms compared to non-family firms. This holds true for the whole sample as well as for all subgroups. In the full sample regression, the cash flow coefficient of non-family firms is about eight times (!) as large as that of family firms. In contrast to high levels of investment-cash flow sensitivity among non-family firms, the cash flow coefficient is not statistically different from zero for small and low-payout family businesses and only slightly larger than zero for the whole sample of family firms.

[Insert Table 5 about here]

Positive and significant coefficients of *M/B* in the family-subsample show that corporate investment is sensitive to investment opportunities for these firms. This sensitivity is also significantly higher for family businesses compared to non-family firms in three out of the four financial constraint groups. In non-family firms, a significant relationship between investment spending and investment opportunities, as proxied by market-to-book value cannot be observed. In sum, the combined findings of low investment-cash flow sensitivities and positive sensitivities of investment to *M/B* suggest that investment in family firms is more focused on value creation. Companies with founding family ownership are obviously more responsive to their investment opportunities and invest irrespective of the availability of internal cash flows.

As pointed out above, various empirical studies on family ownership have documented the occurrence of the so-called 'founder effect'. This basically means that the performance of family firms is particularly strong (both, in terms of accounting performance and market performance) as long as the founder is still active as CEO. The regression results in Table 6 shed light on the question if founder-led family firms also show different patterns in terms of investment behavior. The estimates of model 1 indicate that the investment-cash flow

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sensitivity among family firms is significantly lower and almost equal to zero when the founder is still active. This finding can also be interpreted as a sign of lower agency problems in founder-led firms. Regressions including similar interaction terms for descendant-CEOs and professional CEOs in family firms (not reported) do not show significant coefficients.

[Insert Table 6 about here]

Although the typical owner-manager conflict does not apply to family firms in most cases (since family members are often part of the executive board), another type of agency conflict in the form of minority shareholder expropriation might be present. Entrenched family members could use their position in the firm and spend free cash flows on projects that maximise their personal utility, leading to high investment-cash flow sensitivities. In line with arguments on insider share ownership (Morck et al. 1988, McConell and Servaes 1990) the degree to which the families' interests are aligned with those of minority shareholders could be non-monotonic. The regression results of model 2 shall examine this argument. The coefficients of the interaction terms provide support for these theoretical considerations and indicate a non-monotonic relationship between investment-cash flow sensitivity and family ownership. However, the quadratic term is only weakly statistically significant.

In the case of family firms, lower investment-cash flow sensitivities are most likely the result of a strong incentive alignment between the founding family and minority shareholders. In other companies the alignment of interests between a management team and outside shareholders should be increased through monitoring. However, companies with atomistic shareholder structures are likely to face the free-rider problem (Holmstrom 1982, Shleifer and Vishny 1986) which gives managers the discretionary powers to spend free cash flows (Jensen 1986). In contrast, large blockholders have both the power and the incentive to decrease agency costs and increase firm value. In addition, the presence of large shareholders can diminish information asymmetries and thus facilitate external financing. In particular the blockholding of a financial institution should help to reduce the asymmetries between the firm

and the institution. Regression model 1 in Table 7 includes interaction terms for all blockholder types (defined as shareholdings above 25% of the voting share capital) mentioned above.

[Insert Table 7 about here]

The results show that all types of blockholdings are negatively related to investment-cash flow sensitivities, but only partly significantly. Only coefficients on founding-family and strategic blockholdings are statistically significant (at the 0.01-level). Again, the negative coefficient on strategic blockholders should be interpreted with caution as it can be attributed to both, mitigation of agency problems due to the high monitoring incentives and reduced financial constraints. Large strategic investors (defined as other – usually larger – industrial firms) usually face lower information asymmetries themselves, enjoy lower costs of external financing and can pass funds on to their subsidiaries or affiliated companies. This argument is in line with evidence by Hoshi et al. (2001) who find lower investment-cash flow sensitivities for firms that are part of a business group (*keiretsu*).

The second regression model in Table 7 examines possible non-linearities between share ownership of the largest shareholder and investment-cash flow sensitivity for the full sample. As expected, the coefficient of the linear ownership variable is negative and statistically significant, providing evidence for reduced free cash flow problems and/or financing constraints as the ownership of the main shareholder increases. On the contrary, the squared term is significantly positive and confirms a non-monotonic relationship.[12] The minimum of this function is reached at an ownership level of about 55%.

In sum, the results of the regression analysis provide strong evidence that larger firms and firms with a higher dividend payout rate are more investment-cash flow sensitive. A closer analysis of the various size and payout subgroups shows that family businesses exhibit significantly lower investment-cash flow sensitivities and are more responsive to investment

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[12] This pattern is even more pronounced for the sub-sample of non-family firms (results not reported).

opportunities than non-family firms. Furthermore, concentrated ownership structures are negatively related to investment-cash flow sensitivities, most likely the result of lower agency costs.

VI. Conclusion

This paper examined the investment behavior of family firms as compared to non-family firms and the related question if family businesses face financing constraints. The characteristics of family holdings suggest that investment decisions in family firms are potentially influenced by the incentives associated with this ownership structure. The highly concentrated family holdings and their long-term presence in the firm imply that these investors are tempted to rely on internal sources of finance when funds for profitable investment projects are needed: External debt financing might be considered too risky due to the increased default probability and new share offerings might be avoided since an increase in share capital will gradually reduce family control. Additional costs could be imposed on minority shareholders by families who use their position in the firm in order to maximise private benefits and waste free cash flows. In contrast, various empirical studies recently investigated the performance effects of founding family ownership and consistently documented that these firms perform better or at least as well as firms with other ownership structures. Obviously, these findings stand in contrast to inefficient investment behavior and financial constraints.

In this study, I address these questions using a sample of 264 German non-financial firms for the period from 1997 until 2004. Results for the whole sample and several subgroups confirm previous evidence and find investment to be highly cash flow sensitive. Contrary to the supposition that family firms are more susceptible to financing restrictions, my findings indicate that they are financially more stable when compared to non-family firms

that are similar in terms of size and dividend payout ratio. Family firms are, however, more heavily leveraged which is probably a reaction to the reluctance to issue equity.

The analysis of investment-cash flow sensitivities shows that investment decisions of family firms are less sensitive to the availability of internal cash flows and more responsive to investment opportunities. This effect is found to be strongest as long as the founder is active in the firm.

Furthermore, the evidence suggests that ownership concentration is related to investment-cash flow sensitivities in a non-monotonic pattern. The relationship between ownership stake of the largest shareholder and investment-cash flow sensitivity is first negative, but gets weaker with higher ownership stakes. This is partly similar to evidence on insider ownership (Pawlina and Renneboog 2005) but extends the pattern to outside ownership.

In conclusion, these findings confirm the assertion of lower agency conflicts in family firms. Lower investment-cash flow sensitivities and more stable financial ratios for family businesses in subgroups that are commonly assumed to be financially constrained could also be interpreted as signs of lower information asymmetries. The long-term commitment and presence of family members could help to overcome these asymmetries through reputation building between the family and external suppliers of capital.

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Table 1
Investment Levels over Time

Descriptive statistics for firm investment levels [in thousands of Euros] over time. The sample comprises 264 companies for the period from 1997-2004. Investment data are adjusted for inflation based on inflation data published by the Federal Statistical Office Germany.

Year	1997	1998	1999	2000	2001	2002	2003	2004	All Years
n	245	254	243	240	217	187	181	165	1,732
Mean	233,046	366,554	486,566	583,575	681,238	636,892	498,234	524,649	501,344
Median	28,013	29,161	33,162	29,749	43,067	32,829	28,038	31,694	31,964
Std. Dev.	866,581	1,621,227	2,516,057	3,059,918	3,378,187	2,668,079	2,176,764	2,264,444	2,318,907

Table 2
Summary Statistics for Family and Non-Family Firms

Descriptive data for family and non-family firms. Mean values are first calculated per company and then averaged across all sample firms. Family firms are defined as those where members of the founding-family hold at least 25% of the voting rights or (if less) a family member serves as either executive or supervisory board member. Investment and cash flow ratio are defined as tangible investments and cash flow divided by net fixed assets by the beginning of the fiscal year. Leverage is defined as total debt divided by total assets. The dividend payout ratio is calculated as dividend per share divided by cash flow per share. All accounting figures are expressed in thousands of Euros. Asterisks denote statistical significance at the 0.01(***) and 0.05(**)-level.

Panel A: Company Size Measures and Age

	All Firms	Family Firms	Non-Family Firms	t-statistic
Number of firms	264	101	163	
Age [years]	87.57	80.58	90.86	4.10***
Total assets	4,647,342	2,675,560	6,468,556	4.24***
Sales	4,138,890	3,208,837	5,223,877	3.04***
Employees	17,636	17,589	19,951	0.88
Market Value	2,452,144	2,252,598	2,893,581	1.58

Panel B: Company Investment, Cash flow and Capital Structure

	All Firms	Family Firms	Non-Family Firms	t-statistic
Investment	445,666	262,470	629,757	3.40***
Investment ratio	0.255	0.314	0.229	-6.95***
Cash flow ratio	0.351	0.391	0.325	-1.07
Leverage	0.414	0.429	0.404	2.11**
Long-term debt/Total debt	0.724	0.721	0.726	0.15
Tobin's q	1.588	2.122	1.245	-2.72***
Dividend payout ratio	0.174	0.179	0.171	-0.42

Table 3
Summary Statistics for Financial Constraint Groups

Financial ratios for family and non-family firms. Mean values are first calculated per company and then averaged across all sample firms. Family firms are defined as those where members of the founding-family hold at least 25% of the voting rights or (if less) a family member serves as either executive or supervisory board member. Large firms are those with total assets above the sample median in each year (small firms below the median). Segmentation by dividend payout ratio is implemented accordingly. Investment and cash flow ratio are defined as tangible investments and cash flow divided by net fixed assets by the beginning of the fiscal year. Leverage is total debt/total assets. Return on equity is defined as EBITDA divided by total equity. T-statistics test for differences in means between family and non-family firms. Asterisks denote statistical significance at the 0.01(***), 0.05(**) and 0.01(*)-level.

Panel A: Financial constraint groups by firm size

	Investment ratio	Cash-flow ratio	Tobin's q	Return on equity	Leverage	Sales growth
Total Sample	0.255	0.351	1.588	0.1489	0.414	0.070
Large	*0.267*	*0.399*	*1.215*	*0.161*	*0.414*	*0.089*
Family	0.343	0.484	1.562	0.180	0.434	0.101
Non-Family	0.230	0.346	1.007	0.150	0.403	0.082
t-statistic	6.26***	2.39**	8.61***	2.96***	2.68***	0.49
Small	*0.256*	*0.303*	*1.960*	*0.137*	*0.426*	*0.050*
Family	0.297	0.306	2.629	0.137	0.426	0.035
Non-Family	0.226	0.302	1.501	0.139	0.426	0.059
t-statistic	3.73***	0.03	1.76*	-0.05	-0.01	-0.70

Panel B: Financial constraint groups by dividend payout ratio

	Investment ratio	Cash-flow ratio	Tobin's q	Return on equity	Leverage	Sales growth
High	*0.278*	*0.431*	*1.361*	*0.165*	*0.376*	*0.082*
Family	0.325	0.505	1.641	0.180	0.388	0.065
Non-Family	0.244	0.378	1.169	0.156	0.366	0.093
t-statistic	4.55***	2.89***	6.60***	3.75***	1.74*	-0.73
Low	*0.253*	*0.282*	*1.805*	*0.129*	*0.478*	*0.064*
Family	0.298	0.270	2.624	0.124	0.483	0.070
Non-Family	0.224	0.290	1.276	0.132	0.475	0.059
t-statistic	4.09***	-0.17	1.99**	-0.09	0.58	0.30

Table 4
Investment Regressions for Financial Constraint Groups

This table contains results of fixed-effects regressions of investment/net fixed assets on cash flow/net fixed assets and market-to-book value for a sample of 265 German firms for the period from 1997 till 2004. Firms are classified by total assets (large vs. small) and dividend payout ratio (high vs. low). T-values for the individual regressions are in parentheses. T-statistics for the differences in subgroups (Cross-dummy t) are based on cross-dummy variable coefficients. These are constructed by multiplying M/B and CF/K by the upper subgroup dummy variable (see Booth and Cleary 2006). All regressions include dummy variables for each year of the sample period. Asterisks denote statistical significance at the 0.01-level.

Group	CF/K	M/B	R^2	n
All firms	0.047 (5.64)***	0.000 (0.03)	0.079	1460
Large	0.130 (6.17)***	-0.023 (-1.41)	0.186	738
Small	0.034 (2.91)***	-0.000 (-0.22)	0.052	722
Cross-dummy t	3.76***	-0.85		
High payout	0.224 (5.90)***	0.089 (5.60)***	0.198	704
Low payout	0.038 (3.81)***	-0.000 (-0.38)	0.074	704
Cross-dummy t	3.84***	3.75***		

Table 5
Investment Regressions for Family and Non-Family Firms

This table contains results of fixed-effects regressions of investment/net fixed assets on cash flow/net fixed assets and market-to-book value for a sample of 265 German firms for the period from 1997 till 2004. Firms are classified by total assets (large vs. small) and dividend payout ratio (high vs. low). A firm is defined as a family firm if members of the founding-family hold at least 25% of the voting rights or (if less) a family member serves as either executive or supervisory board member. T-values for the individual regression are in parentheses. T-statistics for the differences in subgroups (Cross-dummy t) are based on cross-dummy variable coefficients. These are constructed by multiplying M/B and CF/K by the upper subgroup dummy variable (see Booth and Cleary 2006). All regressions include dummy variables for each year of the sample period. Asterisks denote statistical significance at the 0.01(***), 0.05(**) and 0.10(*)-level.

Group	CF/K	M/B	R2	n
All firms				
Family firms	0.019 (1.93)*	0.042 (2.73)***	0.092	578
Non-family firms	0.153 (8.90)***	-0.051 (-1.62)	0.124	878
Cross-dummy t	-6.4***	2.65***		
Large				
Family firms	0.083 (5.74)***	0.038 (1.13)	0.220	281
Non-family firms	0.311 (4.84)***	-0.013(-0.53)	0.175	457
Cross-dummy t	-4.76***	-1.72*		
Small				
Family firms	-0.001 (-0.13)	0.119 (5.56)***	0.165	300
Non-family firms	0.230 (6.06)***	-0.074 (-1.45)	0.141	422
Cross-dummy t	-6.23***	4.94***		
High payout				
Family firms	0.185 (5.32)***	0.109 (8.78)***	0.390	292
Non-family firms	0.333 (4.61)***	-0.136 (-2.39)***	0.105	412
Cross-dummy t	-2.14**	4.55***		
Low payout				
Family firms	0.015 (1.29)	-0.033 (-1.15)	0.055	287
Non-family firms	0.150 (7.18)***	-0.013 (-0.28)	0.189	417
Cross-dummy t	-5.49***	-1.61		

Table 6
Investment Regressions and Family-Firm Characteristics
This table contains results of fixed-effects regressions of investment/net fixed assets on cash flow/net fixed assets and market-to-book value for a sample of 102 German family firms for the period from 1997 till 2004 A firm is defined as a family firm if members of the founding-family hold at least 25% of the voting rights or (if less) a family member serves as either executive or supervisory board member. The variable CF/K*founder is defined as CF/K multiplied with a dummy variable that is 1 if the founder is still active as CEO. Both regressions include dummy variables for each year of the sample period. Asterisks denote statistical significance at the 0.01(***), 0.05(**) and 0.10(*)-level.

	Model 1		Model 2	
CF/K	0.318	6.26***	0.284	2.59***
M/B	0.049	3.29***	0.047	3.00***
CF/K*founder	-0.308	-5.99***		
CF/K*fam_ownership			-0.951	-2.19**
CF/K*fam_ownership^2			0.717	1.65*
R^2	0.204		0.106	
n	578		578	

Table 7
Investment Regressions and Ownership Types
This table contains results of fixed-effects regressions of investment/net fixed assets on cash flow/net fixed assets, market-to-book value and different ownership characteristics for a sample of 264 German firms for the period from 1997 till 2004 Family is a dummy variable that equals one if members of the founding-family hold at least 25% of the voting rights or (if less) a family member serves as either executive or supervisory board member. The different blockholder variables are dummies that equal one if the respective shareholder type holds voting rights of 25% or more. Both regressions include dummy variables for each year of the sample period. Asterisks denote statistical significance at the 0.01(***), 0.05(**) and 0.10(*)-level.

	Model 1		Model 2	
CF/K	0.202	8.41***	0.115	3.24***
M/B	0.000	0.19	0.000	0.21
CF/K*ownership			-0.300	-2.27**
CF/K*ownership2			0.272	2.44**
CF/K*family	-0.182	-7.09***		
CF/K*financial	-0.138	-0.97		
CF/K*government	-0.139	-0.91		
CF/K*strategic	-0.097	-3.06***		
CF/K*other	-0.121	-0.90		
R^2	0.096		0.091	
n	1460		1460	