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Valentina Peruzzi

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Center for Relationship Banking and Economics
Department of Economic and Political Sciences
and of Modern Languages
LUMSA University
Via Pompeo Magno, 22, 00192 Rome – Italy
<https://sites.google.com/site/cerbelumsa/home>

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Valentina Peruzzi

Department of Economic and Social Sciences

Università Politecnica delle Marche

P.le Martelli 8, 60121 Ancona, Italy

and

Mo.Fi.R.

E-mail: v.peruzzi@univpm.it

Abstract

The aim of this paper is to investigate whether family control, family management and family ownership concentration affect the investment-cash flow sensitivity of small- and medium-sized enterprises. By analysing a sample of Italian SMEs for the period 2004-2013, I find that family-owned businesses are significantly associated with higher investment-cash flow dependence. This relation, however, is found to be driven by two distinct factors: (i) the presence of a highly concentrated family ownership (ownership concentration channel) and (ii) the active involvement of the family in the business (family management channel).

Keywords: family firms, investment-cash flow sensitivity, financing constraints, family CEO, ownership concentration.

JEL codes: G31, G32.

1 Introduction

In perfect capital markets, firms' investment decisions are independent from their financial structure, companies can always substitute external financing for internal funds, and capital rationing does not exist (Modigliani and Miller, 1958). However, since capital markets are not perfect and an easier access to external finance for those companies with good investment opportunities may impact positively on economic development and growth, several empirical and theoretical studies have analysed the determinants of firms' investment decisions and, most notably, the factors affecting the sensitivity of investment spending to internal funds availability.

Among the other variables, a large part of the current literature has focused the attention on the role played by companies' ownership and governance structure in mitigating or exacerbating the investment-cash flow dependence, with a particular focus on family-owned firms (Hoshi *et al.*, 1991; Oliner and Rudebusch, 1992; Schaller, 1993; Hadlock, 1998; Schiantarelli and Sembenelli, 2000; Goergen and Renneboog, 2001; Pawlina and Renneboog, 2005). Nevertheless, the provided evidence is still mixed. Andres (2011) and Pindado *et al.* (2011) indicate that large publicly traded family firms are not more susceptible to external financing constraints with respect to their non-family counterparts, as their investment outlays are consistently less dependent to internal capital. Conversely, Hung and Kuo (2011) find that family control increases the investment-cash flow sensitivity of listed corporations, due to asymmetric information problems.

Although the existence of financing constraints is a greater concern for small and medium-sized enterprises than for large listed corporations, the current evidence entirely refers to publicly traded companies. In order to fill this gap and provide additional evidence about the impact of family ownership on the investment-cash flow

sensitivity and the existence of financing constraints, in this study I investigate whether family firms differ from their non-family counterparts in terms of investment-cash flow dependence by analysing a sample of Italian SMEs. As different ownership and governance structures are shown to significantly affect the sensitivity of investment spending to internal funds availability, I also examine whether family management and highly concentrated family ownership influence the investment-cash flow dependence of family businesses.

Italy represents an ideal context for investigating the investment-cash flow sensitivity of small family-owned companies. The Italian sector features a strong presence of medium-sized and small businesses, often with pronounced ownership concentration (Bianco, 2003; Minetti *et al.*, 2015). These features expose firms to conflicts of interest between main owners and smaller shareholders, which could be detrimental for long-term investment policies.

To perform the empirical analysis, I draw information from two main sources: (i) the 10th wave of the Survey on Italian Manufacturing Firms, carried out by UniCredit (and previously by MedioCredito Centrale-Capitalia) in 2007; (ii) the BvD-AIDA database. From the Survey on Italian Manufacturing Firms, I gather information about firms' ownership and management structure; from BvD-AIDA, I recover balance-sheet data for all the companies under analysis for the period 2004-2013. As concerns the econometric approach, I use as a basic investment regression model the one adopted by Fazzari *et al.* (1988). Unlike their specification, I include a broader set of firm specific controls accounting for companies' financial conditions and ownership structure characteristics. In order to eliminate unobservable heterogeneity and to account for endogeneity problems, I use panel data methodology and the generalized method of moments (GMM) and propensity score matching (PSM) estimation techniques.

By way of preview, estimation results indicate that family ownership positively affects the existence of financing constraints, as family businesses are systematically associated with increasing investment-cash flow dependence. This result, however, is found to be driven by two distinct factors: the presence of a highly concentrated family ownership (*ownership concentration channel*) and (ii) the active involvement of the family in the business (*family management channel*). While family companies run by professional managers and family firms with low ownership concentration have statistically non-significant investment-cash flow sensitivities, highly concentrated and family-run companies are likely to face financing constraints. Additional tests on the interaction effects of these channels provide three further results: first, high levels of family ownership concentration adversely affect the investment-cash flow sensitivity of family firms independently of the management structure; second, family companies run by family CEOs are less likely to face financing constraints when ownership is not concentrated; third, when both the ownership concentration and family management channels are in action, the potential for wealth expropriation is the greatest and the investment-cash flow dependence is the highest.

In providing this evidence, my research contributes to the finance and family business literature in several ways. First, unlike previous studies, I analyse whether family ownership influences the dependence of investment spending to internal funds availability in the context of small unlisted firms. In this way, I complement the recent evidence provided by Becchetti *et al.* (2010), D'Espallier and Guariglia (2015) and La Rocca *et al.* (2015). Second, to the best of my knowledge, this is the first study investigating the combined effect of ownership concentration and family management on the investment-cash flow sensitivity of family-owned companies (Hoshi *et al.*, 1991; Hadlock, 1998; Goergen and Renneboog, 2001; Pawlina and Renneboog, 2005).

Finally, as the dependence of investment spending to internal funds availability is a major proxy for the existence of financing constraints, I contribute to the literature on family firms' access to finance (Bopaiah, 1998; Andres, 2011; Hung and Kuo, 2011; Pindado *et al.*, 2011; D'Aurizio *et al.*, 2015; Stacchini and Degasperri, 2015).

The remainder of the paper is organized as follows. Section 2 reviews the literature on investment-cash flow sensitivity and presents the testable hypotheses. Section 3 describes the dataset and estimation method employed to test the theoretical hypotheses. Section 4 discusses the empirical results and Section 5 provides some concluding remarks.

2 Background Literature and Hypotheses Development

Since the seminal work of Fazzari *et al.* (1988), which have documented the existence of a positive investment-cash flow dependence for those companies suffering from more intense financing constraints, several empirical and theoretical studies have gradually associated the analysis of the investment-cash flow sensitivity to different corporate governance perspectives.

Due to the prevalent diffusion of family owned businesses in most of the productive systems, the empirical literature has recently focused on the analysis of family firms' investment policies, and most precisely, on their investment-cash flow sensitivities. Despite the extensive research, however, the provided evidence remains still controversial. Andres (2011) and Pindado *et al.* (2011) indicate that European publicly traded family firms are not more likely to suffer from financing constraints with respect to their non-family counterparts, as their investment behaviour is substantially less dependent to internal funds availability. The long-term presence of the family in the company, their higher risk aversion, and their reputation and survival concerns are found to increase investment efficiency and earnings quality, and to reduce the agency

conflicts in the shareholders-bondholders relationships thus alleviating financial constraints (James, 1999; Morgado and Pindado, 2033; Wang, 2006). However, by examining Austrian and Taiwanese listed corporations, Gugler (2003) and Hung and Kuo (2011) find opposite results: due to wealth expropriation phenomena, family ownership has an adverse effect on firms' investment-cash flow sensitivities.

Contradictory evidence has been also provided by the finance and banking literature. Bopaiah (1998) by analysing the availability and cost of credit for a large sample of US enterprises finds that family businesses are significantly associated with an increasing credit availability when compared to non-family owned firms. Similarly, D'Aurizio *et al.*, (2015) document that after the Lehman Brother collapse bank lending to family companies contracted significantly less than the amount of credit granted to non-family businesses. Stacchini and Degasperri (2015) confirm the beneficial role of family ownership during the crisis period: during the 2007-2009 downturn, family firms have been associated with a significant interest discount in those regions where social capital and trustiness are particularly low. Opposite findings have been provided by several other studies. As the unchallenged discretion of family owners may lead to self-control problems such as risk shifting behaviour, special dividend payouts, excessive compensation, nepotism and managerial entrenchment, these empirical works find that financial institutions are more cautious and vigilant when dealing with family firms by requiring higher collateral guarantees (Voordeckers and Steijvers, 2006; Steijvers *et al.* 2010; Cucculelli and Peruzzi, 2016; Pan and Tian, 2016).

Considering these arguments, I expect that family firms face larger financial constraints, thus showing higher investment-cash flow dependence. Hence, I test the following hypothesis:

H1: *Family ownership positively affects the existence of financing constraints,*

proxied by the investment-cash flow sensitivity.

The empirical literature has widely shown that the relation between ownership and investment-cash flow sensitivity strictly depends on the level of ownership concentration, as a result of the associated monitoring and expropriation phenomena (Wei and Zhang, 2008; Pindado and de la Torre, 2009). Schiantarelli and Sembenelli (2000), Goergen and Renneboog (2001) and Pawlina and Renneboog (2005) have been among the first to investigate the effect of highly concentrated ownership on the dependence of investment spending to internal funds availability. By examining firms' investment behaviour in different European countries, they find that when large shareholders have the ability to expropriate minority investors' wealth, over- and underinvestment problems are more likely. Conversely, these problems are less likely to occur when large shareholders are properly monitored or institutional blockholders invest in the company.

Focusing on family ownership, I expect that the larger financing constraints faced by family firms are partially due to the presence of high ownership concentration. Although family ownership usually solves the classic owner-manager agency problem, it may create conflicts in the controlling-minority shareholder relationship, especially when ownership is highly concentrated. In this case, by owning larger shares of cash flow rights, family owners may have the incentive and the power to divert resources out of the company at the detriment of both other investors and firm's profitability (Bertrand and Schoar, 2006). As a consequence, family businesses' ability to attract external financing reduces and the investment-cash flow dependence increases.

Accordingly, I formulate hypothesis 2 as follows:

H2 (*Ownership concentration channel hypothesis*): *The higher investment-cash*

flow sensitivity of family businesses is due to high family ownership concentration.

Another relevant type of control structure frequently used by family-owned companies is the active involvement of family members in management positions. The current literature has widely shown how active and passive family control influences corporate performance differently. Perez-Gonzalez (2006), Villalonga and Amit (2006), Bennedsen *et al.* (2007), Cucculelli and Micucci (2008), and Eklund (2013) highlight that family CEOs, in comparison to professional managers, adversely affect family companies' profitability, especially in the more competitive and innovative sectors. Consequently, family involvement in managerial activities is likely to affect also the firm's investment and financing policies. More specifically, I expect that family run businesses are more likely to face financing constraints, thus showing a higher investment-cash flow dependence. Hence, I formulate the following hypothesis:

H3 (*Family management channel hypothesis*): *The higher investment-cash flow sensitivity of family businesses is due to the presence of family CEOs.*

3 Data and Estimation Method

3.1 Data sources and sample

To perform the empirical analysis, I draw information from two main sources: (i) the 10th wave of the Survey on Italian Manufacturing Firms (SIMF); (ii) the BvD-AIDA database. The Survey on Italian Manufacturing Firms, conducted every three years by UniCredit (and previously by MedioCredito Centrale - Capitalia), collects detailed information about firm's ownership and governance structure, workforce characteristics, attitude to invest and innovate, extent of internationalization and export activities, financial conditions and lending relationships for a representative sample (at the industry and geographic level) of Italian manufacturing companies. The 10th wave

of the survey was run in early 2007 and it provides cross-sectional information for the period 2004-2006 for a sample of 5137 manufacturing firms. All the companies with more than 500 employees are included in the sample, while those having a number of workers in the range 11-500 are surveyed according to a stratified selection procedure based on their size, sector, and geographical localization¹. Since this study focuses on small- and medium-sized enterprises, following the European Commission definition of SMEs, I exclude from the whole sample those companies with more than 250 employees and 43 million euro of total assets. Then, for the remaining companies, I recover balance-sheet data for the period 2004-2013 from the BvD-AIDA database, the most comprehensive source of financial information for Italian corporations. Accounting for missing data, I finally end up with a balanced panel comprised of 926 SMEs (9260 observations).

The distribution of the final sample by industry sector, ownership type and geographical location is reported in Table 1.

3.2 Family firms classification

Despite the widespread literature on family businesses, there is not a clear consensus on how family firms should be defined. Theoretical and empirical studies ground on definitions based on ownership shares, family involvement in the business, and some combinations of the two criteria (La Porta *et al.*, 1999; Faccio and Lang, 2002; Anderson and Reeb, 2003; Barontini and Caprio, 2006; Villalonga and Amit, 2006). In this study, in order to avoid getting distorted results due to the adoption of a subjective

¹ Overall, the surveyed firms cover almost 9 percent of the reference universe in terms of employees and about 10 percent in terms of value added. Thus, the sample is highly representative of the economic structure of the Italian manufacturing sector.

definition of family firms, I employ firm self-reported information to distinguish between family and non-family owned companies. In particular, by relying on question A7.1. of the Survey on Italian Manufacturing Firms², I classify as family owned firms those companies directly or indirectly controlled by an individual or a family-owned entity (FAMILY_FIRM=1).

In order to account for the potential heterogeneity of investment policies within the subsample of family owned businesses, I exploit the detailed information provided by the Survey on Italian Manufacturing Firms to further distinguish family firms with high (low) ownership concentration and family businesses run by family (external) CEOs. Specifically, by considering the survey questions A7.1 and A7.5³, I classify (i) as highly concentrated family firms those family businesses with a main shareholder holding more than 50 percent of equity (HIGH_OWNERSHIP), and as family managed firms those companies run by the individual who owns the firm or a member of the controlling family (FAMILY_CEO).

In line with the overall distribution of family businesses in Italy, Panel B of Table 1 indicates that about 60 percent of the companies included in the sample (590/926) are family owned. Among them, 87 percent of firms result to be run by family CEOs, while 13 percent of businesses decided to hire professional managers

² Question A7 reads as follows: A7 Is your firm directly or indirectly controlled by an individual or a family owned entity? (i) yes; (ii) no.

³ The corresponding questions are:

A7.1. *What is the capital share of the main shareholder of your firm?*

A7.5. *If your firm is family controlled, who is the CEO? (i) the individual who owns the firm or a member of the controlling family; (ii) a manager recruited from outside the firm; (iii) a manager appointed within the firm.*

external to the controlling families. In terms of family ownership concentration, instead, the surveyed firms are homogeneously distributed: 50.5 percent have highly concentrated family ownership, while 49.5 percent present low ownership concentration.

3.3 Descriptive analysis

In order to investigate the differences that exist between family and non-family owned firms, I carry out several difference of means tests for the main variables included in the multivariate analysis. The related results are reported in Table 2. While Panel A of Table 2 reports summary statistics for the full sample of companies, Panels B, C and D present the results of the univariate tests. In Panel B, I simply differentiate between family and non-family owned firms; in Panels C and D I go a step further by dividing the family firm sample in different subgroups depending on the CEO type (Panel B) and the level of ownership concentration (Panel C).

As indicated by the t -statistics reported in column (5) of Panel B, family businesses significantly differ from their non-family counterparts. First, family firms have lower level of cash flow, but at the same time, face higher investment opportunities, as proxied by the growth rate of sales. This results suggests that family owned businesses are more likely to be financially constrained with respect to non-family owned companies. Moreover, because of their larger risk aversion, family firms are slightly less indebted and retain more cash and marketable securities, when compared to their non-family counterparts. Finally, they show a higher investment ratio, but the difference with respect to the non-family firms subsample is not statistically significant.

The univariate tests presented in Panels C and D of Table 2 show that family companies are not so heterogeneous in their investment policies as they partially differ from each other in terms of investment-cash flow sensitivities. As highlighted in Panel C, family businesses run by family CEOs own less internal capital but have higher investment opportunities (see t -statistics in column 5). Consistently with the *Management Channel Hypothesis*, these findings point out potential problems of financing constraints in family companies appointing family members as CEOs. On the contrary, as Panel D of Table 2 reports, family businesses are more similar when they are distinguished on the basis of their ownership concentration. Contrary to the *Ownership Channel Hypothesis*, highly concentrated family firms do not significantly differ in terms of investment-cash flow sensitivity with respect to family businesses with low ownership concentration, despite their lower investment and debt ratios.

3.4 Econometric specification

To estimate the investment-cash flow sensitivity, I use as a basic investment regression model the one adopted by Fazzari *et al.* (1988):

$$(INV/K)_{it} = \alpha_0 + \beta_1(CF/K)_{it} + \beta_2IO_{it} + \varepsilon_{it} \quad (1)$$

where the dependent variable $(INV/K)_{it}$ is the ratio of corporate investments to the beginning of the year value of net fixed assets; $(CF/K)_{it}$ is the cash flow measure and it is defined as net income plus depreciation allowances (normalized by the level of net fixed assets at the beginning of the year); IO_{it} are firms' investment opportunities; ε_{it} is the error term.

Most of the investment-cash flow sensitivity studies employ Tobin's marginal Q (usually proxied by the firm's market-to-book value) as a control for company's growth

potential (Fazzari *et al.*, 1988; Kaplan and Zingales, 1997; Andres, 2011; Pindado *et al.*, 2011). However, since market values are usually not available for small unlisted firms, in this study, following D'Espallier and Guariglia (2015) and La Rocca *et al.* (2015), I include as investment opportunities proxy the growth rate of sales ($\Delta SALES_{it}$). As shown by these empirical works and predicted by the sales accelerator theory of investment (Abel and Blanchard, 1986), the demand for capital goods is directly and positively affected by the level of firm's output; therefore, I expect a positive and statistically significant coefficient.

The main objective of this research is to investigate whether family ownership mitigate or exacerbate the dependence of investment to cash flow. For this reason, I extend Fazzari *et al.*'s (1988) investment model by incorporating among the explanatory variables a dummy variable accounting for the family ownership of the company (FAM_FIRM_i) and its interaction with the cash flow control ($(CF/K)_{it} * FAM_FIRM_i$). The stand-alone family dummy allows to account for the direct effect of family ownership on investment spending (Anderson and Reeb, 2003; Anderson *et al.*, 2012), while the interaction term disentangles the moderating effect of family control on the investment-cash flow sensitivity.

Despite the inclusion of the family firm dummy, the empirical analysis may lead to biased coefficients if other relevant firm characteristics are omitted. First, there is strong evidence that stock measures of firms' internal liquidity have an effect on investment spending, especially for those companies facing higher cost of external funds due to information problems in capital markets (Fazzari *et al.*, 1988; Almeida *et al.*, 2004; Andres, 2011). Second, the level of debt is shown to be an important determinant in the empirical investment literature (Goergen and Renneboog, 2001; Hung and Kuo, 2011). Hence, I include in the right-hand side of the econometric specification both firms' cash

holdings and debt ratios (X_{it-1}).

Finally, in order to account for the dynamics of the investment policy and to capture the accelerator effect of this corporate decision, I further modify Equation 1 by including the lag of the dependent variable ($(INV/K)_{it-1}$).

Hence, the baseline model used to test the basic proposition that family ownership increases the sensitivity of investment to cash flow (H1), results to be as follows:

$$(INV/K)_{it} = \alpha_0 + \beta_0(INV/K)_{it-1} + \beta_1(CF/K)_{it} + \beta_2\Delta SALES_{it} + \beta_3FAM_FIRM_i + \gamma((CF/K)_{it} * FAM_FIRM_i) + \varphi X_{it-1} + \varepsilon_{it} \quad (2)$$

where the dependent variable $(INV/K)_{it}$ is the ratio of corporate investments to the beginning of the year value of net fixed assets; $(CF/K)_{it}$ is net income plus depreciation allowances (normalized by the level of net fixed assets at the beginning of the year); $\Delta SALES_{it}$ is the growth rate of sales; FAM_FIRM_i is a dummy variable equal to one if company i is family owned, and zero otherwise; X_{it-1} is a set of firm-specific controls; ε_{it} is the error term.

In this model, the effect of cash flow on investment is captured by β_1 for non-family firms (given $FAM_FIRM_i = 0$) and by $(\beta_1 + \gamma)$ for family businesses. Therefore, in line with *Hypothesis 1*, I expect $(\hat{\beta}_1 + \hat{\gamma}) > \hat{\beta}_1$.

To test whether the impact of family ownership on the existence of financing constraints is driven by ownership concentration (*Ownership Channel Hypothesis*) or family appointed CEOs (*Management Channel Hypothesis*), I modify the model in Equation 2. Specifically, I replace the family firm dummy with two new binary variables accounting, respectively, for the presence of highly concentrated ownerships and family managers ($HIGH_OWNERSHIP_i$ and $FAMILY_CEO_i$). Equations 3 and 4

result to be as follows:

$$(INV/K)_{it} = \alpha_0 + \beta_0(INV/K)_{it-1} + \beta_1(CF/K)_{it} + \beta_2\Delta SALES_{it} + \beta_3HIGH_OWNERSHIP_i + \gamma((CF/K)_{it} * HIGH_OWNERSHIP_i) + \varphi X_{it-1} + \varepsilon_{it} \quad (3)$$

$$(INV/K)_{it} = \alpha_0 + \beta_0(INV/K)_{it-1} + \beta_1(CF/K)_{it} + \beta_2\Delta SALES_{it} + \beta_3FAMILY_CEO_i + \gamma((CF/K)_{it} * FAMILY_CEO_i) + \varphi X_{it-1} + \varepsilon_{it} \quad (4)$$

where the dependent variable $(INV/K)_{it}$ is the ratio of corporate investments to the beginning of the year value of net fixed assets; $(CF/K)_{it}$ is net income plus depreciation allowances (normalized by the level of net fixed assets at the beginning of the year); $\Delta SALES_{it}$ is the growth rate of sales; $HIGH_OWNERSHIP_i$ is a dummy variable equal to one if company i has a highly concentrated ownership, and zero otherwise; $FAMILY_CEO_i$ is a dummy variable equal to one if company i is family run, and zero otherwise; X_{it-1} is a set of firm-specific controls; ε_{it} is the error term⁴.

In this model, the effect of cash flow on investment is captured by β_1 for family firms with low concentrated ownership or professional managers (given $HIGH_OWNERSHIP_i = 0$ or $FAMILY_CEO_i = 0$) and by $(\beta_1 + \gamma)$ for family businesses with highly concentrated ownership or family CEOs. Therefore, coherently with hypotheses 2 and 3 (H2 and H3), I expect $(\hat{\beta}_1 + \hat{\gamma}) > \hat{\beta}_1$.

In order to avoid getting biased estimates due to the unobservable heterogeneity problem and to account for the potential endogeneity of the explanatory variables, I use panel data methodology in the estimation of the model. Specifically, after estimating all

⁴ Equations 3 and 4 are estimated on the subsample of family owned companies.

the models through OLS and within-groups estimators, I perform both first difference and system GMM estimations. Given the dynamic nature of investment policies and the endogeneity characterizing firms' financial indicators, the GMM is particularly suitable for the study of the investment-cash flow sensitivity (Pindado and de la Torre, 2006; Pindado *et al.*, 2011). Following previous empirical works (Andres, 2011; Pindado *et al.*, 2011), I use the lagged values of the explanatory variables as instruments in the GMM estimation, and I perform both the Arellano-Bond autocorrelation tests and the Hansen *J* statistic of overidentifying restrictions to test for the absence of correlation between the instruments and the error term.

4 Results

4.1 Baseline results

The results obtained from the estimation of Equation 2, using the different estimators discussed in the previous section, are reported in Table 4. Consistently with the current literature on investment-cash flow dependence, ols, within-groups, first difference GMM and system GMM estimations indicate a positive and statistically significant sensitivity of investment spending to internally generated funds for all the SMEs included in the sample. As their investment policies strictly depend on the available amount of internal capital, these companies are found to face greater financing constraints.

The positive effect of internal funds on investment spending, however, is larger for family firms ($\hat{\beta}_1 + \hat{\gamma} = 0.063 + 0.203 = 0.266$, statistically significant) than for non-family owned businesses ($\hat{\beta}_1 = 0.063$). Although cash flows positively and significantly affect investment policies in non-family owned firms, the effect is substantially lower in comparison to their family counterparts. In line with the theoretical predictions

discussed in Section 2, this finding strongly supports hypothesis 1 (H1). The longer investment horizon and the reputation concerns of owner families are completely offset by the larger agency conflicts and asymmetric information problems associated with this particular ownership structure. As a consequence, family ownership in SMEs is positively associated with the existence of financing constraints and increasing investment-cash flow dependence.

Positive and statistically significant estimates of $\hat{\beta}_2$ indicate that, consistently with the current literature on investment-cash flow sensitivity (Fazzari *et al.* 1988; Kaplan and Zingales, 1997), corporate investment is considerably dependent from companies' investment opportunities, as proxied by the growth rate of sales ($\Delta SALES_{it}$). The significance of this result also validates the use of sales growth as investment opportunity proxy in the analysis of small unlisted firms' investment policies, as already confirmed by D'Espallier and Guariglia (2015) and La Rocca *et al.* (2015).

With regard to the other explanatory variables included in the econometric specification, estimation results highlight a positive and significant relation between investment spending and both cash holdings ($CASH_{it-1}$) and firm debt ($DEBT_{it-1}$). Cash and marketable securities may provide a low-cost source of investment financing or, alternatively, the necessary collateral to obtain new debt. Therefore, companies with sizeable liquid cushions are more likely to invest. The positive and statistically significant coefficients of $DEBT_{it-1}$, instead, support the monitoring function of debt proposed by Hanazaky and Liu (2007) and Hung and Kuo (2011).

4.2 Disentangling the ownership and management channels

As previously discussed, the adverse impact of family ownership on the existence of

financing constraints may be driven by the agency conflicts associated with two distinct phenomena: (i) the presence of a highly concentrated family ownership (*ownership concentration channel*), and (ii) the active involvement of the family in the business (*family management channel*). More specifically, as stated by hypotheses 2 and 3, I expect that the higher investment-cash flow sensitivity of family businesses is due to the presence of high family ownership concentration (H2) and family CEOs (H3).

In order to test these two hypotheses, I estimate Equations 3 and 4 on the subsample of family owned firms. The related estimation results are presented in Tables 5 and 6.

Starting from the impact of family ownership concentration on the existence of financing constraints, as highlighted in columns (1)-(4) of Table 5, the investment-cash flow sensitivity increases in the case of high family ownership concentration. When family owners hold more than 50 percent of equity ($HIGH_OWNERSHIP_i = 1$), the dependence of investment to internal funds availability is positive and statistically significant ($\hat{\beta}_1 + \hat{\gamma} = 0.440 + 0.121 = 0.561$). Conversely, when family-owned firms are characterized by a lower level of ownership concentration ($HIGH_OWNERSHIP_i = 0$), the investment-cash flow sensitivity becomes statistically non-significant ($\hat{\beta}_1 = 0.440$). These findings strongly support hypothesis 2 and allow to conclude that, while highly concentrated family businesses are likely to face financing constraints, family firms with widespread ownership result to have a better access to external funds.

For the purpose of accounting for nonlinearities in the relation between ownership concentration and investment-cash flow sensitivity (Schiantarelli and Sembenelli, 2000; Goergen and Renneboog, 2001; Wei and Zhang, 2008), in columns (5)-(8) of Table 5, I replace the $HIGH_OWNERSHIP_i$ dummy with four categorical variables representing different levels of ownership concentration (OWN_SHARE).

Estimation results indicate that for low concentrated family firms ($OWN_SHARE_{I\,Quart} = 1$), the sensitivity of investment to cash flow is again not significantly different from zero ($\hat{\gamma}_1 = 0.541$, statistically non-significant). However, as family ownership increases, the sensitivity first rises sharply and then decreases. More precisely, when the ownership share of the controlling family is between 30 and 70 percent ($OWN_SHARE_{II\,Quart} = 1$ and $OWN_SHARE_{III\,Quart} = 1$), the investment-cash flow dependence is positive and statistically significant for all the estimated models ($\hat{\gamma}_2 = 0.320$, statistically significant at the 90 percent level; $\hat{\gamma}_3 = 0.108$, statistically significant at the 90 percent level). Conversely, when ownership concentration becomes higher than 70 percent ($OWN_SHARE_{IV\,Quart} = 1$), the sensitivity of investment spending to internal funds availability turns out to be statistically non-significant.

As family owners often actively participate in the management of the company in order to assure their control over the firm (La Porta *et al.*, 1999; Anderson *et al.*, 2009; Claessens *et al.*, 2010; Pindado *et al.*, 2011), Table 6 presents the estimation results for the impact of family management on the investment-cash flow sensitivity of family-owned businesses. As reported in columns (1)-(4), the dependence of investment spending to internal funds availability is positive and statistically significant in family firms actively managed by family members ($FAMILY_CEO_i = 1$, $\hat{\beta}_1 + \hat{\gamma} = 0.047 + 0.223 = 0.270$). On the contrary, when family-owned companies are run by professional CEOs external to the controlling family ($FAMILY_CEO_i = 0$), the investment-cash flow sensitivity is not statistically different from zero ($\hat{\beta}_1 = 0.047$). These results, supporting Hypothesis 3, indicate that family CEOs, despite reducing the agency conflicts in the owner-manager relationship, increase minority shareholders' concern for wealth expropriation phenomena (Bertrand and Schoar, 2006). By owning a larger share of

cash flow rights, family managers may have the incentives and the power to take actions that benefit themselves instead of the company, with adverse consequences on both firm profitability and external investors' interests. The greater financing constraints faced by family run businesses may also be explained by the literature on family CEOs' talent (Perez-Gonzalez, 2006; Bennedsen et al., 2007; Cucculelli and Micucci, 2008; Eklund, 2013; Chang and Shim, 2014): as professional managers are found to systematically outperform non-founder family executives, lenders may be less willing to finance investment projects promoted by supposedly low talented family CEOs.

To check the robustness of these findings, in columns (5)-(8) of Table 6, I employ a different proxy for the family involvement in the business. More specifically, I include the variable $FAMILY_MANAG_i$ computed as the share of family executives in the board of directors of the company. As indicated by the estimated coefficients, also in this case the presence of family managers increases the dependence of investment spending to internal funds availability. As the number of family members actively involved in the company's management raises, the investment-cash flow sensitivity raises as well ($\hat{\beta}_1 + \hat{\gamma} = -0.119 + 0.162 = 0.043$, statistically significant). Conversely, when the board of directors of the family-owned firm is composed by external executives, the investment-cash flow dependence is statistically non-significant ($\hat{\beta}_1 = -0.119$).

In order to get additional insights about the impact of family management and ownership concentration on the investment-cash flow dependence of family-owned businesses, I also analyse their combined effects. As reported in Table 7, estimated coefficients indicate that, whereas low concentrated family businesses run by professional CEOs are significantly associated with decreasing investment-cash flow dependence ($\hat{\beta}_1 = -0.067$, statistically significant at the 95 percent level), family firms

characterized by both the presence of family CEOs ($FAMILY_CEO_i = 1$) and higher levels of ownership concentration ($HIGH_OWNERSHIP_i = 1$) are more likely to face financing constraints. The estimated interaction coefficients are positive and statistically significant for all the estimated models ($\hat{\gamma} = 0.120$).

Estimation coefficients also confirm the positive and significant impact of high ownership concentration on the investment-cash flow dependence of family companies. Independently of the presence of family managers, high levels of family ownership concentration are associated with increasing financing constraints. Conversely, the effect of family CEOs on the investment-cash flow sensitivity of family-owned businesses strictly depends on the ownership share of the controlling family. Family businesses run by family managers are less likely to face financing constraints (i.e. have lower investment-cash flow dependence) when the ownership is not concentrated in the hands of the controlling owner.

Overall, these findings indicate that when both the *ownership concentration* and *family management channels* are in action, the potential for wealth expropriation phenomena from majority shareholders to minority owners and external investors is the highest. Therefore, financing constraints increase.

4.3 Robustness check: Propensity score matching

The endogeneity of family ownership is the biggest empirical concern in most of the ownership studies. In the previous section, I tried to tackle this issue through the adoption of the GMM estimation technique. Here, to better address the non-random nature of family ownership and further check previous results, I employ a propensity score matching approach. Through this method, I estimate the investment-cash flow sensitivity of a sample of matched firms, i.e. family and non-family businesses sharing

similar characteristics, thus reducing the endogeneity problem⁵. Estimation results are shown in Table 8.

As reported in columns (1)-(4), family businesses are always associated with larger financing constraints. The sensitivity of investment spending to internal funds availability is positive and statistically significant for all the estimated models ($\hat{\beta}_1 + \hat{\gamma} = 0.054 + 0.380 = 0.434$). On the contrary, the investment-cash flow dependence of non-family owned firms is not statistically different from zero ($\hat{\beta}_1 = 0.054$). As family management distribution may be non-random as well, in columns (5)-(8) of Table 8 I estimate the investment-cash flow sensitivity on a sample of matched family run businesses and professionally managed family firms. Despite the large reduction in the number of observations, previous results are again broadly confirmed: family companies run by family CEOs have higher investment-cash flow dependence ($\hat{\beta}_1 + \hat{\gamma} = 0.037 + 0.085 = 0.122$, statistically significant) than family businesses run by professional managers ($\hat{\beta}_1 = 0.037$, statistically non-significant).

5 Conclusions

In this study I have analysed the role of family ownership in exacerbating or mitigating the investment-cash flow dependence of small- and medium-sized enterprises. As different ownership and governance structures are shown to significantly affect the sensitivity of investment spending to internal funds availability, I have also examined

⁵ Matched firms were selected in two alternative ways (with similar estimation outcomes): (i) without replacement using all matching firms within the predefined propensity score distance (caliper) $\delta=0.0001$; and (ii) using the control firm with the closest propensity score (nearest neighbor), without resampling or distance restrictions. Table 8 reports the estimation results obtained following the first approach.

whether family management and highly concentrated family ownership influence the investment-cash flow dependence of family businesses. Coherently with the current literature on family firms and investment policies, I have developed the following hypotheses: (H1) Family ownership positively affects the existence of financing constraints, proxied by the investment-cash flow sensitivity; (H2) The higher investment-cash flow sensitivity of family businesses is due to high family ownership concentration; (H3) The higher investment-cash flow sensitivity of family businesses is due to the presence of family CEOs.

To test these hypotheses, I have estimated the investment-cash flow sensitivity of a sample of 926 Italian SMEs for the period 2004-2013. Information about family ownership and management have been drawn from the 10th wave of the Survey on Italian Manufacturing Firms, whereas balance sheet data have been recovered from the BvD-AIDA database. Through the GMM and propensity score matching estimation methods I have broadly confirmed my theoretical predictions.

More specifically, estimation results have indicated that family ownership positively affects the existence of financing constraints, as family businesses are systematically associated with increasing investment-cash flow dependence. This result, however, is found to be driven by two distinct factors: the presence of a highly concentrated family ownership (*ownership concentration channel*) and (ii) the active involvement of the family in the business (*family management channel*). While family companies run by professional managers and family firms with low ownership concentration have statistically non-significant investment-cash flow sensitivities, highly concentrated and family-run companies are likely to face financing constraints. Additional tests on the interaction effects of these channels have provided three further results: first, high levels of family ownership concentration adversely affect the

investment-cash flow sensitivity of family firms independently of the management structure; second, family companies run by family CEOs are less likely to face financing constraints when ownership is not concentrated; third, when both the ownership concentration and family management channels are in action, the potential for wealth expropriation is the greatest and the investment-cash flow dependence is the highest.

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Tables

Table 1. Distribution of the full sample by industry sector, ownership type and geographical location.

Panel A: Distribution of the full sample by industry sector				
ATECO code	Industry description	Firms		% Family firms
		Number	%	
14	Textile mill products	1	0.11	100.00
15	Leather and leather products	88	9.51	61.36
17	Paper and allied products	74	8.00	66.22
18	Printing and publishing	26	2.81	76.92
19	Petroleum and coal products	30	3.24	76.67
20	Chemicals and allied products	21	2.27	66.67
21	Pharmaceutical products	28	3.03	75.00
22	Rubber and misc. plastic products	23	2.49	52.17
23	Stone, clay, and glass products	5	0.54	60.00
24	Primary metal industries	46	4.97	67.39
25	Fabricated metal products	56	6.05	66.07
26	Computer, electronic and optic products	61	6.59	65.57
27	Electronic and other electric equipment	63	6.81	66.67
28	Industrial machinery and equipment	111	12.00	64.86
29	Transportation equipment	149	16.11	58.39
31	Furniture and _xture	29	3.14	51.72
32	Miscellaneous manufacturing industries	12	1.30	41.67
33	Medical products	23	2.49	47.83
34	Vehicles	15	1.62	46.67
35	Electricity, gas and air conditioning supply	7	0.76	57.14
36	Water supply and transportation	57	6.16	71.93

Panel B: Distribution of the full sample by type of ownership			
Owner type	Firms		% Family firms
	Number	%	
Family	5900	63.71	
(with family CEO)	(5150)	(87.29)	
(with external CEO)	(660)	(11.19)	
(missing data)	(90)	(1.52)	
Non-Family	3360	36.29	

Panel C: Distribution of the full sample by geographical area						
Geographical area	All firms		Non-family firms		Family firms	
	Number	%	Number	%	Number	%
North west	3830	41.36	1280	38.10	2550	43.22
North east	2870	30.99	1190	35.42	1680	28.48
Center	1640	17.71	550	16.37	1090	18.47
South	920	9.94	340	10.12	580	9.83

Table 2. Descriptive statistics and univariate tests.

Panel A: Full sample						
Variable	Mean	Median	Standard deviation	Observations		
INV/K		0.131	-0.009	1.113	8512	
CF/K		0.305	0.165	0.781	8512	
ΔSALES		0.025	0.017	0.214	8511	
DEBT		0.577	0.594	0.197	9258	
CASH		0.065	0.024	0.094	8511	

Panel B: Family and non-family firms							
Variable	Non-family firms		Family firms		<i>t</i> -statistic		
	Mean	Obs.	Mean	Obs.			
INV/K	0.110	3023	0.145	5309	0.034		
CF/K	0.333	3023	0.289	5309	-0.045**		
ΔSALES	0.022	3023	0.030	5308	0.008*		
DEBT	0.581	3359	0.574	5899	-0.007*		
CASH	0.057	3359	0.070	5899	0.012***		

Panel C: Family firms with family and non-family CEOs							
Variable	Non-family CEOs		Family CEOs		<i>t</i> -statistic		
	Mean	Obs.	Mean	Obs.			
INV/K	0.171	594	0.141	4634	-0.030*		
CF/K	0.334	594	0.286	4634	-0.047		
ΔSALES	0.022	594	0.030	4633	0.008		
DEBT	0.566	660	0.574	5149	0.008		
CASH	0.064	660	0.070	5149	0.006*		

Panel D: Family firms with high and low family ownership concentration							
Variable	Low ownership		High ownership		<i>t</i> -statistic		
	Mean	Obs.	Mean	Obs.			
INV/K	0.169	2187	0.129	2681	-0.040*		
CF/K	0.280	2187	0.310	2681	0.030		
ΔSALES	0.023	2187	0.021	2680	-0.002		
DEBT	0.581	2430	0.568	2979	-0.013**		
CASH	0.073	2430	0.069	2979	-0.004		

Notes: All of the variables are defined in the Appendix. Three, two and one star (*) mean, respectively, 99, 95 and 90 percent level of significance. Extreme values are recoded at the 1st and 99th percentiles because of outliers.

Table 3. Correlation matrix.

	INV/K	CF/K	DEBT	CASH	Δ SALES
INV/K	1.000				
CF/K	0.150	1.000			
DEBT	-0.011	-0.126	1.000		
CASH	0.001	0.263	-0.348	1.000	
Δ SALES	0.025	0.141	0.099	0.013	1.000

Notes: All of the variables are defined in the Appendix.

Table 4. Family ownership and investment-cash flow sensitivity.

INV/K	OLS estimator (1)	Within-group estimator (2)	First difference GMM estimator (3)	System GMM estimator (4)
INV/K	-0.012 [0.008]	-0.114*** [0.006]	-0.049*** [0.006]	-0.006 [0.006]
CF/K (a)	0.071** [0.031]	0.131** [0.052]	0.057 [0.060]	0.063* [0.032]
CF/K x FAMILY_FIRM (b)	0.276 [0.186]	0.356** [0.179]	0.323** [0.162]	0.203* [0.119]
ΔSALES	0.112** [0.045]	0.096** [0.046]	0.186** [0.078]	0.100** [0.048]
DEBT	0.002*** [0.000]	0.004** [0.002]	-0.005 [0.008]	0.003** [0.001]
CASH	0.595*** [0.225]	1.148*** [0.296]	0.846 [0.702]	0.648** [0.281]
FAMILY_FIRM	-0.009 [0.033]			0.103 [0.201]
Observations	7398	7406	6480	7398
H ₀ : (a)+(b)=0	3.40	6.59	4.14	4.87
AR(1)			-1.43	-1.43
AR(2)			-0.99	0.02
Hansen test			256.14	305.30

Notes: The table reports estimation results from Equation 2. All of the variables are defined in the Appendix. All regressions include industry, region and time dummies, not reported for reasons of space. In both GMM estimations, all of the control variables are treated as endogenous. Three, two and one star (*) mean, respectively, 99, 95 and 90 percent level of significance. Robust standard errors are in brackets. AR(1) and AR(2) are the Arellano-Bond autocorrelation tests of first and second order. Hansen test is the over-identifying restrictions test.

Table 5. Family ownership concentration and investment-cash flow sensitivity.

INV/K	OLS estimator (1)	Within-group estimator (2)	First difference GMM estimator (3)	System GMM estimator (4)	OLS estimator (5)	Within-group estimator (6)	First difference GMM estimator (7)	System GMM estimator (8)
INV/K	-0.018 [0.011]	-0.112*** [0.012]	-0.074*** [0.014]	-0.017* [0.009]	-0.018 [0.011]	-0.113*** [0.015]	-0.090*** [0.021]	-0.024** [0.010]
CF/K (a)	0.541 [0.494]	0.522 [0.394]	0.552 [0.438]	0.440 [0.374]				
CF/K x HIGH_OWNERSHIP (b)	0.116** [0.058]	0.218*** [0.070]	0.164** [0.082]	0.121* [0.062]				
CF/K x OWN_SHARE _{I Quart}					0.644 [0.726]	0.486 [0.555]	0.702 [0.762]	0.541 [0.546]
CF/K x OWN_SHARE _{II Quart}					0.325 [0.279]	0.601*** [0.232]	0.769*** [0.189]	0.320* [0.178]
CF/K x OWN_SHARE _{III Quart}					0.115* [0.065]	0.225*** [0.077]	0.263** [0.112]	0.108* [0.071]
CF/K x OWN_SHARE _{IV Quart}					0.100 [0.120]	0.194 [0.166]	0.206 [0.173]	0.109 [0.150]
ΔSALES	0.040 [0.067]	0.094* [0.056]	0.335* [0.180]	0.068 [0.065]	0.047 [0.066]	0.095* [0.056]	0.284** [0.121]	0.079 [0.067]
DEBT	0.002** [0.001]	0.004 [0.003]	-0.027 [0.026]	0.004 [0.003]	0.002** [0.001]	0.004 [0.003]	-0.017 [0.016]	0.003 [0.002]
CASH	0.637** [0.299]	1.206*** [0.459]	1.765 [1.153]	0.806* [0.465]	0.745* [0.420]	1.196*** [0.432]	0.974 [1.025]	1.528** [0.637]
HIGH_OWNERSHIP	0.059 [0.098]			-0.413* [0.232]				
OWN_SHARE _{II Quart}					-0.049 [0.125]			-0.833** [0.347]
OWN_SHARE _{III Quart}					0.010 [0.118]			-0.709** [0.313]
OWN_SHARE _{IV Quart}					0.017 [0.107]			-0.674** [0.327]
Observations	4319	4327	3786	4319	4319	4327	3786	4319
H ₀ : (a)+(b)=0	1.73	3.29	2.57	2.08				
AR(1)			-1.32	-1.34			-1.30	-1.36
AR(2)			-1.07	-0.17			-1.23	-0.25
Hansen test			234.68	314.61			349.28	424.72

Notes: The table reports estimation results from Equation 3. All of the variables are defined in the Appendix. All regressions include industry, region and time dummies, not reported for reasons of space. In both GMM estimations, all of the control variables are treated as endogenous. Three, two and one star (*) mean, respectively, 99, 95 and 90 percent level of significance. Robust standard errors are in brackets. AR(1) and AR(2) are the Arellano-Bond autocorrelation tests of first and second order. Hansen test is the over-identifying restrictions test.

Table 6. Family management and investment-cash flow sensitivity.

INV/K	OLS estimator (1)	Within-group estimator (2)	First difference GMM estimator (3)	System GMM estimator (4)	OLS estimator (5)	Within-group estimator (6)	First difference GMM estimator (7)	System GMM estimator (8)
INV/K	-0.023 [0.016]	-0.116*** [0.007]	-0.061*** [0.007]	-0.016 [0.015]	-0.004 [0.018]	-0.058** [0.025]	-0.042** [0.021]	0.001 [0.014]
CF/K (a)	-0.021 [0.055]	0.070 [0.071]	0.060 [0.100]	0.047 [0.063]	-0.099 [0.124]	-0.061 [0.099]	-0.128*** [0.045]	-0.119 [0.079]
CF/K x FAMILY_CEO (b)	0.297 [0.200]	0.390* [0.202]	0.362** [0.180]	0.223* [0.133]				
CF/K x FAMILY_MANAG (b)					0.148 [0.148]	0.181 [0.130]	0.243*** [0.063]	0.162* [0.104]
ΔSALES	0.075 [0.050]	0.104* [0.057]	0.222** [0.097]	0.085 [0.056]	0.185*** [0.072]	0.140** [0.069]	0.180 [0.112]	0.153** [0.073]
DEBT	0.001** [0.001]	0.004 [0.003]	-0.011 [0.011]	0.004* [0.002]	0.001 [0.001]	0.006** [0.002]	-0.000 [0.011]	0.002 [0.002]
CASH	0.693** [0.288]	1.328*** [0.447]	1.321 [0.923]	0.884* [0.483]	0.437** [0.211]	1.310*** [0.404]	1.987** [0.910]	0.723** [0.296]
FAMILY_CEO	-0.104* [0.057]			0.199 [0.146]				
FAMILY_MANAG					0.010 [0.073]			0.035 [0.190]
Observations	4639	4647	4066	4639	1472	1472	1288	1472
H ₀ : (a)+(b)=0	2.43	4.53	3.91	3.28	0.88	3.15	7.15	2.98
AR(1)			-1.31	-1.35			-2.92	-2.76
AR(2)			-1.02	-0.21			-0.39	-0.06
Hansen test			277.70	359.57			169.21	154.39

Notes: The table reports estimation results from Equation 4. All of the variables are defined in the Appendix. All regressions include industry, region and time dummies, not reported for reasons of space. In both GMM estimations, all of the control variables are treated as endogenous. Three, two and one star (*) mean, respectively, 99, 95 and 90 percent level of significance. Robust standard errors are in brackets. AR(1) and AR(2) are the Arellano-Bond autocorrelation tests of first and second order. Hansen test is the over-identifying restrictions test.

Table 7. Family ownership and investment-cash flow sensitivity.

INV/K	OLS estimator (1)	Within-group estimator (2)	First difference GMM estimator (3)	System GMM estimator (4)
INV/K	-0.019 [0.013]	-0.108*** [0.015]	-0.080*** [0.015]	-0.016 [0.012]
CF/K	-0.026 [0.035]	-0.018 [0.024]	-0.092** [0.042]	-0.067** [0.029]
CF/K x FAMILY_CEO	0.670 [0.594]	0.635 [0.468]	0.573 [0.435]	0.569 [0.461]
CF/K x HIGH_OWNERSHIP	0.060 [0.145]	0.271** [0.126]	0.269** [0.121]	0.228* [0.116]
CF/K x FAMILY_CEO x HIGH_OWNERSHIP	0.124** [0.061]	0.217*** [0.075]	0.174* [0.092]	0.120* [0.066]
ΔSALES	0.002** [0.001]	0.004 [0.003]	-0.024 [0.021]	0.003 [0.002]
DEBT	0.559** [0.248]	1.129** [0.489]	1.361 [1.047]	0.707 [0.472]
CASH	0.042 [0.064]	0.091 [0.057]	0.293** [0.139]	0.070 [0.064]
FAMILY_CEO	-0.102 [0.072]			0.095 [0.109]
HIGH_OWNERSHIP	0.067 [0.109]			-0.318* [0.191]
Observations	4263	4263	3737	4263
AR(1)			-1.30	-1.36
AR(2)			-1.09	0.02
Hansen test			357.56	417.95

Notes: The table reports estimation results. All of the variables are defined in the Appendix. All regressions include industry, region and time dummies, not reported for reasons of space. In both GMM estimations, all of the control variables are treated as endogenous. Three, two and one star (*) mean, respectively, 99, 95 and 90 percent level of significance. Robust standard errors are in brackets. AR(1) and AR(2) are the Arellano-Bond autocorrelation tests of first and second order. Hansen test is the over-identifying restrictions test.

Table 8. Robustness checks: Propensity score matching.

INV/K	OLS estimator (1)	Within-group estimator (2)	First difference GMM estimator (3)	System GMM estimator (4)	OLS estimator (5)	Within-group estimator (6)	First difference GMM estimator (7)	System GMM estimator (8)
INV/K	-0.008 [0.009]	-0.113*** [0.006]	-0.068*** [0.010]	-0.007 [0.006]	-0.011 [0.019]	-0.048 [0.031]	-0.071** [0.031]	-0.005 [0.013]
CF/K (a)	0.059* [0.032]	0.132** [0.052]	0.076 [0.070]	0.054 [0.035]	0.090 [0.083]	0.149* [0.087]	0.044 [0.085]	0.037 [0.064]
CF/K* FAMILY_FIRM (b)	0.360* [0.237]	0.414* [0.249]	0.466 [0.312]	0.380* [0.229]				
CF/K* FAMILY_CEO (b)					0.110* [0.068]	0.322* [0.182]	0.136*** [0.052]	0.085*** [0.023]
ΔSALES	0.133** [0.055]	0.114** [0.055]	0.202** [0.086]	0.131** [0.061]	-0.130 [0.111]	-0.146 [0.141]	-0.032 [0.082]	-0.036 [0.091]
DEBT	0.002*** [0.001]	0.005*** [0.002]	-0.010 [0.011]	0.007* [0.003]	0.001 [0.002]	-0.006 [0.013]	-0.010 [0.020]	-0.001 [0.005]
CASH	1.275** [0.546]	1.432*** [0.288]	0.957 [1.689]	0.739* [0.383]	0.420 [0.397]	1.040 [0.759]	0.346 [0.619]	0.070 [0.565]
FAMILY_FIRM	-0.025 [0.048]			-0.406 [0.434]				
FAMILY_CEO					-0.035 [0.049]			-0.091 [0.096]
Observations	5379	5379	4699	5379	900	900	791	900
H ₀ : (a)+(b)=0	3.22	4.47	2.50	3.78	3.34	5.42	3.22	3.28
AR(1)			-1.28	-1.25			-2.59	-2.86
AR(2)			-0.87	0.24			-0.37	0.02
Hansen test			275.37	300.33			206.83	252.50

Notes: The table reports estimation results from Equations 2 and 4 on a sample of matched firms. All of the variables are defined in the Appendix. All regressions include industry, region and time dummies, not reported for reasons of space. In both GMM estimations, all of the control variables are treated as endogenous. Three, two and one star (*) mean, respectively, 99, 95 and 90 percent level of significance. Robust standard errors are in brackets. AR(1) and AR(2) are the Arellano-Bond autocorrelation tests of first and second order. Hansen test is the over-identifying restrictions test.

Appendix

Variable	Definition
INV/K	is the ratio between investment spending (INV, computed as the variation in net fixed assets between time t and time t-1) and net fixed assets (K, computed at the end of the period). source: BvD-AIDA.
CF/K	is the ratio between cash flow (CF, computed as net income plus depreciation allowances) and net fixed assets (K). source: BvD-AIDA.
ΔSALES	is the variation in firm's sales between time t and time t-1. source: BvD-AIDA.
CASH	is cash holdings (cash and marketable securities) scaled by total assets. source: BvD-AIDA.
DEBT	is the debt ratio, computed as total debt over total assets. source: BvD-AIDA.
FAMILY_FIRM	is a dummy variable equal to one if the firm is controlled by an individual or a family owned entity, and zero otherwise. <i>'Is your firm directly or indirectly controlled by an individual or a family-owned entity? (i) yes; (ii) no.'</i> source: Survey on Italian Manufacturing Firms.
HIGH_OWNERSHIP	is a dummy variable equal to one if the first shareholder holds more than 50 percent of equity, and zero otherwise. source: Survey on Italian Manufacturing Firms.
OWN_SHARE _{I Quart}	is a dummy variable equal to one if the ownership share of the controlling family belongs to the first quartile of the distribution, and zero otherwise. source: Survey on Italian Manufacturing Firms.
OWN_SHARE _{II Quart}	is a dummy variable equal to one if the ownership share of the controlling family belongs to the second quartile of the distribution, and zero otherwise. source: Survey on Italian Manufacturing Firms.
OWN_SHARE _{III Quart}	is a dummy variable equal to one if the ownership share of the controlling family belongs to the third quartile of the distribution, and zero otherwise. source: Survey on Italian Manufacturing Firms.
OWN_SHARE _{IV Quart}	is a dummy variable equal to one if the ownership share of the controlling family belongs to the fourth quartile of the distribution, and zero otherwise. source: Survey on Italian Manufacturing Firms.
FAMILY_CEO	is a dummy variable equal to one if the firm is run by its owner or by a family member, and zero otherwise. <i>'If your firm is family controlled, who is the CEO? (i) the individual who owns the firm or a member of the controlling family; (ii) a manager recruited from outside the firm; (iii) a manager appointed within the firm.'</i> source: Survey on Italian Manufacturing Firms.
FAMILY_MANAG	is the ratio between the number of family managers and the total number of executives in the company. source: Survey on Italian Manufacturing Firms.