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A model of the influence of ownership flexibility on small business growth, and evidence on French SMEs.

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Abstract

This paper develops a theoretical model predicting the difference in investment policy between entrepreneurs and family founders based on the firm ownership flexibility. Moreover, this paper provides evidence on the fact that small business with less flexible ownership structure does not exploit all their growth potential.

Key words: Small business, Growth, Ownership structure, Investment, Risk, Performance

JEL codes: G31, G32, L26

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1 Introduction

According to the traditional view (Berle and Means, 1932) firms start as family-controlled entrepreneurial entities, and then raise external capital to grow what results in family ownership dilution. However, a brief overview of ownership structures around the world underlines that public company with dispersed shareholders is an exception in a landscape characterized by concentrated control (La Porta *et al.,* 1999). Moreover, a large majority of small businesses will never evolve toward being a large corporation. This paper argues that traditional corporate governance models can predict the difference in investment policy between entrepreneurs and family founders if the model is considered in a dynamic framework.

This paper differentiates entrepreneurial from family small businesses according to their growth dynamism. In the literature two main factors have been advanced to distinguish entrepreneurial from small business ventures. The "Shumpeterian approach" argues that entrepreneurs are characterized by innovative behavior (Carland et al, 1984), while an extended literature focuses on differences in risk behavior to distinguish between entrepreneurial and family ventures. On the one hand, risk behavior differences can arise from specific risk attitudes. This argument was already underlined by Mill (1848), but the accuracy of the risk taking propensity hypothesis remains a widely debated question (Brockhaus, 1980). On the other hand, specific risk behavior can arise from differences in risk exposure. The corporate governance literature underlines that one of the trade off determining ownership structure is the balance between increased private benefits and increased exposure to the firm risk (Bebchuk, 1999). The idea is that the lack of investor protection raises the private benefits of control and forces owners to co-invest more into the firm (Stulz,2005). This higher co-investment led to a higher exposure of the owner portfolio to the firm idiosyncratic risk what raises his cost of capital and led to under investment (Himmelberg et al. 2002). The negative relationship between investment and co-investment is largely verified for large businesses around the world (Morck et al, 2005). However, recent developments in the individual investor literature points out that high exposure to idiosyncratic risk is a common feature for all small businesses (Moskovitz and **Vissing-Jorgensen** 2002) rather than a characteristic of small new ventures.

In this paper I argue that the corporate governance model of co-investment need to be considered in a dynamic framework in order to accurately predict the differences in growth attitude between entrepreneurial ventures and small family businesses. Indeed, traditional corporate governance models assume that the firm ownership structure and owner portfolio diversification are simultaneously determined when the firm is created. However, empirical observation of the actual diversification of small business owners indicates that both entrepreneurs and family firm founder undergo a high under diversification of their asset portfolio. The model developed departs from the hypothesis that portfolio diversification and ownership structure choices occur at different stages in the business life cycle.

Initially, agents decide to become entrepreneurs, they start a firm and later on they might decide to open the firm capital to external investors. It is beyond the scope of this paper to study the initial choice of being an entrepreneur. The risk exposure of small business owners remains a puzzle for financiers: diversified portfolio of public equity seems to offer a far more attractive risk–return tradeoff than that obtained by under diversified controlling shareholders **Moskowitz and Vissing-Jorgensen (2002) .** Moreover, it seems that the cost of under diversified portfolio is not offset by the private benefits of control Odegaard (2009). Overall, portfolio under diversification appears to be a non optimal situation in the mean-variance setting. The rationales for entering into business seems to be related to personal and behavioral issues such as risk assessment, risk preferences, time horizon, non pecuniary private benefits.

The model departs from the business being already a going concern in which the owner has committed all his wealth and retains all the shares. At the first period the owner faces a risky investment opportunity and has to decide how much cash flow to allocate to investment, the remaining funds are allocated to cash reserves. Then, at the second period he faces a fixed investment opportunity. To finance this project he uses the realized cash flow from the initial investment and completes the financing by raising external equity. However, raising new equity is costly because of institutional imperfections that affect the amount of private benefits the owner can extract.

When the owner decides to invest, in period 1, this creates an exogenous cost of raising external equity. Therefore, at this period exogenous parameters linked both the contractual environment and the firm expected performance determines the extent to which the firm ownership structure is flexible. Indeed, firms with a higher flexibility of ownership will undergo a lower cost of raising external equity to finance the new project. At the initial period, the flexibility of ownership influences the firm investment decision. Indeed, the existence of a cost of raising external funds creates a endogenous rational for internal risk management (Froot et al, 1993). Therefore, the main prediction of the model is that the flexibility of ownership structure (ie, the expected cost of raising external funds in period 1) positively influences firm investment at the initial period by reducing the owner endogenous risk aversion.

I confront the model predictions to actual data, using a large sample of 90 338 French SMEs for the 1999-2007 period.

First, I use the data on older sample firms in order to construct a score of the cost to arise external equity. Departing from the theoretical model, those costs depend on the firm performance, capital structure and contractual environment. Secondly, I apply this score function to determine the predicted cost of raising external equity (ie the ownership flexibility) of younger sample firms. Finally, I use this predicted value of the cost of raising external funds to assess the influence of ownership flexibility on new ventures growth.

Results indicate that ownership flexibility has a positive influence on small business economic growth. Nonetheless, this result could also be explained by the fact that the flexibility of ownership structure and first stage financing resources are related. Therefore, I develop an original indicator of growth capacity: the growth rate allowed by the firm internal resources given its capital structure. Results underline that firms with flexible ownership structure exploit more their growth capacity than firms with lower flexibility of ownership.

Section 2 presents the theoretical model. Section 3 presents the data and the empirical methodology. Section 4 presents the results.

2 The model

This model extends the corporate governance model of co-investment in a dynamic framework by introducing an intermediary time period between the firm setting and the firm choice of ownership structure. At the initial period the firm is an ongoing concern that produces a cash flow of an amount CF_0. At this period it is assumed that the owner of the firm has vested all his wealth into the firm and that he retains all the shares of the firm. At this initial period the owner faces a stochastic investment opportunity and must decide how much to invest. In order to finance this investment he can uses both the cash flow generated by the firm and raises debt. At the second period, the owner faces a new fixed investment opportunity. In order to finance this new investment he uses the proceeds from the first investment and completes the financing by selling firm equity to external investors. The assumption concerning the owner preferences are standard he is risk neutral and his objective is to maximize the proceeds he receives at the last period.

2.1 Structure

Period 0 : The owner faces a stochastic investment opportunity.

At this period, the owner faces an investment opportunity I_0 that offers a random payoff Z_1 at period 1. This net payoff is normal and can be written: $Z_1 - I_0 = \mu_1 + \varepsilon_1$, where μ_1 is the expected realization of the investment and ε_1 is a mean zero disturbance term. The risk (ε_1) of this investment has two component on the one hand a transferable risk (ε_1^T)that can be hedge, and on the other hand a specific risk (ε_1^N) that is not transferable to the market.

At this period the owner chooses which proportion α_0 of the investment opportunity (I_0) to undertake. In order to finance this new investment he uses the proceeds from the firm (CF_0) and can raise debt (D_0) at a cost *d*. Thus, the owner faces the following budget constraint $\alpha_0 I_0 = CF_0 + D_0 - K_0$, where K_0 is the amount of the initial cash flow the owner devoted to cash reserves in the firm.

Period 1: The fixed investment opportunity and the cost to raise external equity.

At this period the entrepreneur faces a fixed investment opportunity of amount I_1 that generates at period 2 a net payoff $F(I_1)$. This investment project has a positive net present value $F(I_1) > 0$. In order to finance this investment the owner uses the proceeds from the investment at the initial period W_1 and raises external finance of an amount X_1 to complete the financing of the project, thus the project is undertaken only if $I_1 = W_1 + X_1$.

There is a cost to raise external finance at this period, classically the owner cannot costlessly commit to the level of private benefits (b_2) extracted in the next period. Nonetheless, the extraction of private benefits is discouraged by an exogenous punishment technology (γ_1) which imposes a monetary cost for diverting resources. Several institutional factors influence the facility with which private benefits can be extracted, and the cost of diverting resources is increasing in the level of rent extraction. I adopt the functional form proposed by La Porta et al. (1999): $c(\gamma_1, b_2) = \gamma_1 b_2^2$.

The parameter γ_1 is therefore a quantitative index of « investor protection », where higher values of this parameter impose a higher difficulty to divert resources, is meant to summarize the net impact of all features of the contracting environment that influences the cost of diverting resources. An intuitive interpretation of this cost might be the probability to be brought to Courts by minority shareholders.

To the extent that the owner owns equity in the firm, he also steals from himself. Inside ownership is then a mechanism that allows the owner manager to commit to lower levels of future stealing[1]. Thus, is the owner extracts private benefits at a rate b_2 he receives a direct private benefit of $(b_2 - \gamma b_2^2)F(I_1)$, and shares with outside shareholders $(1 - b_2)F(I_1)$.

In order for external investors to accept to finance the new project equity proceeds must guarantee their alternative investment opportunity. For simplicity I assume that this rate is

[1] This statement is only accurate if there is no possibility to avoid taxes through the extraction of private benefits. Thus, i implicitly assume that the owner does not considerate tax issues in his decision to extract private benefits.

zero. Therefore, the proceeds from selling fraction $1-\beta_1$ of the firm equity is given by: $X_1 = (1-\beta_1)(1-b_2)F(I_1)$, this is the participation constraint of external investors.

2.2 Solution

***Period 2: deciding the optimal level of private benefits: the incentive compatibility constraint of the owner*.**

The owner net return at period 2 is: $N_2 = [\beta_1(1-b_2)+b_2-\gamma_1 b_2^2)]F(I_1)$. At this period, the only decision facing the owner is to maximize his net return (N_2) by choosing the optimal level of private benefits. The first order condition for maximizing the owner net return is given by $\frac{\partial N_2}{\partial b_2} = 0$. Then, at the optimum the marginal cost of stealing and the marginal reduction of the owner dividends is equated with the marginal benefits of rent extraction. Therefore, the optimal rate of private benefits extraction is given by $b_2^* = \gamma_1^{-1}(1-\beta_1)$.

Period 1: financing the fixed investment opportunity.

In order to be able to finance the fixed investment opportunity (I_1) the owner has to raise an exogenous amount $X_1 = I_1 - W_1$. Therefore, if the owner decides to invest at period 1 the shares he retains in the firm are given by:

$$\beta_1 = \frac{1}{2}(2-\gamma+\frac{\sqrt{\gamma_1}\sqrt{4W_1-4I_1+F(I_1)\gamma_1}}{\sqrt{F(I_1)}})$$

The share retained by the owner is increasing with the proceeds from the initial investment ($\frac{\partial \beta_1}{\partial W_1} > 0$). This comes from the fact that the owner is confronted with a fixed investment opportunity, thus higher proceeds from the initial investment reduce the amount of

proceeds from equity issuing needed[2]. The share retained by the owner is also increasing with γ_1, this results from the fact that when investor protection increases then the amount of private benefit extracted by the owner is lower what therefore increases the equity proceeds for the same amount of shared issued[3].

Therefore, the payoff for the owner from period 1 perspective is:,

$$N_2 = \frac{1}{4}(2W_1 - I_2(2 + \gamma_1 F(I_1) - 4I_1 + \sqrt{F(I_1)}\sqrt{\gamma_1}\sqrt{4W_1 - 4I_1 + \gamma_1 F(I_1)}$$

The owner payoff is therefore influenced by the proceeds from the initial investment, indeed the owner net return at period 2 is increasing and concave in W_1.

$$\frac{\partial N_2}{\partial W_1} = \frac{1}{2}(1 + \frac{\sqrt{F(I_1)}\sqrt{\gamma}}{2\sqrt{4W_1 - 4I_1 + \gamma_1 F(I_1)}}) > 0$$

$$\frac{\partial N_2}{\partial W_1 \partial W_1} = -\frac{\sqrt{F(I_1)}\sqrt{\gamma_1}}{[4W_1 - 4I_1 + \gamma_1 F(I_1)]^{\frac{3}{2}}} < 0$$

Period 0: the influence of ownership flexibility on investment decision

At this period, the entrepreneur's objective is to maximizes the value of time 2 net return (N_2) subject to the constraints linked to the realisation of W_1 and his initial budget constraint.

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[2] When $W_1 > I_1 = \overline{W_1}$ then the owner does not issue new equity, and if $W_1 < \underline{W}_1$, then there is no investment because the owner should issue more than 100% in order to finance the new investment.

[3] In order for the owner to be able to raise external funds at this period $\gamma_1 > \frac{F(I_1)}{F(I_1) - I_1 + W_1}$.

From the perspective of time 0, the ultimate payoff (N_2) is a random variable. It is assumed that the owner value his asset according to a one factor model, the owner only value his exposure to the market factor.

$$V_0(N_2) = E((N_2)) - \varphi Cov(N_2, M)$$

where M is the one priced factor, and φ is the equilibrium price of the risk factor[4].

In order to decide the optimal amount to invest at the initial period the owner solves the following optimization program:

$$Max V(N_2)$$
$$\alpha_O$$

$$s.l.c\, W_1 = K_0 - dD_0 + \alpha_0(\mu_1 + \varepsilon_1^N) - \varphi\alpha_0 Cov(\varepsilon_1^T, M)$$

The first order condition for the optimal level of investment at time 0 is given by

$$\frac{\partial V(N_2)}{\partial \alpha_0} = 0 \Leftrightarrow \alpha_0^* = \frac{\mu_1}{GVar[\varepsilon_1^N]}$$

where G corresponds to an endogenous coefficient of risk aversion. The optimal level of investment at the initial period then depends positively on the expected profitability of the project, and negatively of the endogenous risk aversion and riskiness of the specific risk factor.

Pining down G I observe that $\frac{\partial G}{\partial \gamma_1} < 0$ is that is firm that operates a technology where it is more difficult to extract private benefits will have a lower endogenous risk aversion and thus

[4] To maintain coherence with the participation constraint of external investors at time 1, it is assumed that the risk free of interest between two periods is equal to 0.

invest more aggressively at the initial period. That is firms with more flexible ownership structure will invest more at the initial period.

Moreover, $\frac{\partial G}{\partial K_0} < 0$ that is if the owner allocate more capital to cash reserves at the first period he will reduces his endogenous risk aversion and thus invest more aggressively, however this will be possible only to the extent that he can raises enough debt or have a really high initial cash flow.

Overall, the model predicts that firms with lower ownership flexibility will invest less than small businesses with higher ownership flexibility for a given risk, return and initial resources.

3 Empirical methodology

The model developed in this paper indicates that the flexibility of ownership structure influences small business growth attitude. Indeed, small businesses with lower expected cost of raising external finance (ie higher flexibility of ownership structure) will have a more dynamic investment behavior (ie they are entrepreneurs). In order to explore the accuracy of the model I test on actual data on French SMEs how the flexibility of ownership structure affects the growth policy of small businesses.

3.1 Data and sample selection

This study use a very large sample, where all the relevant information is available for 90 338 French SMEs over the 1999-2007 period. The data comes from the DIANE database, provided by COFACE Services, and contains two types of information. First, all balance sheets and result account information that allows computing growth rates and financial ratios. Secondly, the main advantage of the DIANE database is to furnish information about the ownership structure, in particular the type, names and shares of main shareholders.

For this study I retained firms for which all the relevant information was available at least two consecutive years during the study period. The sample is restricted to private SMEs that are private firms which annual sales are lower than 50 millions Euros a year. I also excluded from the sample firms with annual sales lower than 750 000 Euros, given that the accounting data for the smaller firms is not complete enough. Finally, firms belonging to the financial industry are excluded from the sample given that they are generally holding and thus have a specific financial and productive behavior.

3.2 Flexibility of ownership structure

The core idea of the model is that the flexibility of ownership structure influences small business growth behavior.

In the model the cost of raising external funds arise because of moral hazard issues, indeed insiders can to some extent extract a private rent at the expense of minority shareholders. In order to develop a measure of the flexibility of ownership structure I explore on a subsample containing older firms the factors determining the ownership structure. Thus, I use a subsample containing all the firm for which I have information and that are older than 20 years, where firm ***age*** is the number of years since the firm creation.

First, I distinguish between family and non family firms. The DIANE database provides the ***type of the main shareholder*** (individual, company, financial institution, state…), I use this information in order to distinguish between firms that are controlled by an individual and the one controlled by an institution. Then for firm controlled by an individual I compute a variable of ***family ownership***: the percentage of firm' shares held by shareholders having the same name are summed for each firm[5]. Then I define ***family firms***: firms controlled majoritarily by the same individual or family, and non family firms: firms either controlled by a non individual shareholder or where the individual or the family hold less than 50% of the

[5] This approach under evaluates the share of a family, as members of the family that do not have the same name (as son in law, for example) are excluded.

shares. The idea of this variable is to distinguish between firms that have been able to open their capital to external shareholders from firms where the external shareholders are still minority. Thus, this binary variable distinguishes between firms with higher potential to open their capital and firms with lower ownership flexibility.

Several variables explain the potential to open firm capital to external investors. On the one hand, the performance of the firm is an important determinant. To capture the firm performance I use the return for shareholder of the firm, thus the return on equity(***ROE)*** that is computed as the ratio of net income on equity:

$$ROE_t = 1/T \frac{NetIncome_{i,t}}{Equity_{i,t}}$$

Moreover, external investors accept to provide funds to a firm according to the expected returns, therefore their decision is somehow based on the firm growth opportunities. The problem with private firms is that the expectations of the market cannot be measured as market data lacks. Traditionally, studies on public firms use the Tobin Q to appreciate the growth opportunities of the firm. In order, to control for those opportunities I use the degree of internationalization of the firm. I therefore, built a binary variable ***Export*** that takes value one if part of firm sales occurs abroad and 0 else.

The capital structure of the firm might also influence its ownership structure. On the one hand, firms that access more easily to debt finance might find it cheaper to finance growth with debt instead of using external equity. On the other hand, it is not clear if the agency cost of debt is also exacerbating by the same moral issues than the ownership structure (Anderson, Mansi and Reeb, 2003). Thus, in order to control for this plausible interference of capital structure with the cost of raising external equity I also control for the firm ***financial leverage***: that is the ratio of the firm financial debt over its equity.

$$FinancialLeverage_t = 1/T \frac{FinancialDebt_{i,t}}{Equity_{i,t}}$$

Most importantly the cost of raising external equity is influenced by organizational issues. On the one hand, the law and finance literature underlines that institutional factors related

to the degree of investor protection influence the incentives and or possibility of extracting private benefits. The empirical literature has principally explored cross-countries differences. However, recent developments indicate that it could also be related to industries specificities (Stulz, 2005). Because I focus on French evidence I use industry dummies in order to control for the plausible specific industry localization related to the institutional environment. The firm' ***industry*** refers to the belonging of the firm to one industry in a 14 sectors classification (very close to the NACE classification).

On the other hand, property right theory argues that asset specificity plays a determinant influence on the allocation of ownership rights (Grossman and Hart, 1986). In order, to proxy for the asset specificity of sample firms I use an indicator of asset tangibility it is the ***fixed assets*** of the firm:

$FixedAssets_{i,t} = 1/T \sum_{t=1}^{T} \frac{LongTermAssets_{i,t}}{TotalAssets_{i,t}}$ that is the ratio of fix asset over total asset.

Finally, I also introduce the ***accounts receivable*** of the firm: this variables accounts for the type of clients of the firm. Indeed, I expect that firms having direct relationship with the final consumer have a higher propensity to extract private benefits.

In order to build a measure of the flexibility of ownership structure, I use the variables described above as explanatory variables in the prediction of the probability of being a family firm. Table 1a presents the estimation of the coefficients using a logit regression, where the modeled probability is the probability that the firm has a flexible ownership structure that is older firms that are not majoritarily controlled by a family.

Results underline that firms that have a higher financial leverage, financial performance, lower specific asset, and are located in business to business industries have an higher probability to be a non family firm. For the interpretation of the industry localization those coefficients can only be interpreted in an ordinal fashion based on the fact that the estimated coefficients are in comparison to the transportation industry. Nonetheless, it appears that investor protection issues seem to be more important in the construction

industry (BTP) and to a lower extent in the trade activities, firms located in this industries have a lower probability to be a non-family firm.

[Insert table 1 about here]

This first estimation allows me to build a score of ownership flexibility using the coefficients obtained in the logit regression. Then, I compute the score for subsample containing the younger firms, that is the firms that have younger than 20 years. Note that the score values are not interpretable per see but conserves the ordinal properties of the variable; that is firms with a higher ownership flexibility score have a higher a priori probability of having a flexible ownership structure. The classification performance of the model, presented in table 1b, indicate that the classification has a concordance rate of 62%. Given this average classification performance I only maintain in the young firm subsample the firms present in the first and last quartiles of the score distribution. The variable of ***inflexible ownership structure*** takes value 1 for firms that have a score lower than the quartile of the score distribution of all young subsample firms, and 0 if the firm belongs to the highest quartile.

3.3 Investment and growth of small businesses

The model indicates that ownership flexibility influences negatively small young business investment by increasing their endogenous coefficient of risk aversion. Thus, the main empirical prediction of the model is that small business that are supposed not to have external capital will invest less if they have an inflexible of ownership structure.

In order to accurately investigate the influence of ownership flexibility I need to disentangle between the mechanical, the performance and the ownership flexibility effect. The ***mechanical effect*** is related to the fact that there is variation in ownership concentration even in small young businesses. The ***performance effect*** is related to the fact that at the initial period firms are supposed to rely on internal resources to finance growth. Then it is necessary to control for firm internal financing resources.

To explore the relationship between ownership flexibility and small business growth I use economic growth and sustainable growth. Economic growth is captured using, the average firm annual growth rate of sales, and investment rate.

- ***Sales growth:*** is the average of the annual growth rates of turnover over the 1999-2007 period.

$$SalesGrowth_i = \frac{1}{T}\sum_{t=1997}^{2002} SalesGrowth_{i,t} ,$$

with, $SalesGrowth_{i,t} = \frac{Tunrover_{i,t+1}}{Turnover_{i,t}} - 1$

- ***Investment***: is the average of the annual growth rates of long-term assets and working capital over the 1999-2007 period.

$$Investment_i = \frac{1}{T}\sum_{t=1997}^{2002} Investment_{i,t}$$

with, $Investment_{i,t} = \frac{\Pr oductiveAssets_{i,t+1}}{\Pr oductiveAssets_{i,t}} - 1$

where, $\Pr odcutiveAssets_{i,t} = LongTermAssets_{i,t} + WorkingCapital_{i,t}$

$$WorkingCapital_{i,t} = Accounts\,\mathrm{Re}ceivable_{i,t} + Inventories_{i,t} - AccountsPayables_{i,t}$$

I include working capital in the investment as it participates in the production process of the firm, especially in non manufacturing industries. The investment then is the closer empirical proxy for the actual investment in the theoretical model because it excludes the cash capital (K_0) mentioned in the model.

However, the model also assumes that at the first period firms are all characterized by a completely concentrated ownership structure. Unfortunately, this theoretical assumption is not verified in the data. Small and young businesses tend to be characterized by a high ownership concentration (Brav, 2009), but there is large ownership structure variations across small business. I use ***sustainable growth***, the maximum rate at which firms can

growth without altering their financial structure, in order to isolate the effects of possible variation in the ownership structure of younger firms. Sustainable growth is the rate of economic growth that maintains the debt leverage unchanged and avoids increasing the share of outside shareholders (Higgings, 2007). The sustainable growth rate corresponds to the annual growth rate of retained earnings:

$$Sustainabl\,eGrowth_{i,t} = \mathrm{Re}\,tentionRat\,e_{i,t} \times ROE_{i,t}$$

The sustainable growth rate is influenced by the financial performance and the distribution policy of the firm. The financial performance is measured by the return on equity. But, it is not possible to compute firms' retention rate because the information on dividends distribution is not correctly filled in the database. The sustainable growth rate is computed as the average annual growth rate of internal equity.

$$SustainableGrowth_i = \frac{1}{T}\sum_{t=1997}^{2002} SustainableGrowth_{i,t}$$

$$Sustainable\,eGrowth_{i,t} = \frac{InternalEquity_{i,t+1}}{InternalEquity_{i,t}} - 1,$$

with $InternalEquity_{i,t} = TotalEquity_{i,t} - SocialCapital_{i,t}$

Finally, the ***gap*** variables allow assessing to what extent firms exploit their growth potential allowed by their internal resources and leverage. GAP variables are the difference between the sustainable growth rate and the economic growth rate of the firm:

$$GapSales_i = SustainableGrowth_i - SalesGrowth_i$$

$$GapInvestment_i = SustainableGrowth_i - Investment_i$$

The gap variables allow to control for both the mechanical and performance effect of family control on growth. One the one hand, sustainable growth is the maximum rate at which firms can finance growth without resorting to external capital financing, this controls for the mechanical effect. One the other hand, the level of sustainable growth is influenced by firm performance (ROE), thus using the gap variable also allow controlling for the performance effect.

Finally, to accurately assess the influence of ownership flexibility on firm's growth it is necessary to control for the other factors that influence firm's growth.

First, technological factors such as the importance of economies of scale in the industry, the size of the market where businesses operate influence firm's growth (Kumar, Rajan, and Zingales; 1999). In order to take into account those factors two variables control for firm's size and age. Firm ***size*** is the total asset of the firm in the last year for which accounting information was available. Total asset rather than turnover is used to proxy for firm size in order to avoid mechanical correlation with the sales growth rate.

Secondly, small business growth depends on the growth opportunities of the firm that in the model are summarized by its performance and risk. Thus, I control both for the operating profitability and risk of the firm. The ***ROA*** is computed as the ratio of the EBITDA to total assets $ROA_t = \frac{1}{T}\frac{EBITDA_{i,t}}{TotalAsset_{i,t}}$, and firm risk (***SROA***) is the standard deviation of the ROA on the period.

Finally, in the model the capacity to invest at the initial period depends on the easiness to raise debt. Indeed, in the extreme case where the firm can raise an infinite amount of debt and the cost of debt is zero then any firm will have a dynamic investment opportunity as they can reduce their endogenous risk aversion by placing an infinite amount of cash capital. Therefore, I also control for the firm ***financial leverage.***

[Insert table 2 about here]

4 Results

First, I test for the global influence of flexibility of ownership structure on firm growth: that is do firms with inflexible ownership structure invest less. However, as already mentioned this could be related to the fact that they have a lower performance reducing their financing resources thus to really isolate the flexibility of ownership effect I use the gap variable in order to observe if firms that dispose of the amount of resources (debt and initial cash flow) exploit their growth potential to the same extent.

To check at firm level the influence of expected ownership inflexibility on small business growth I estimate the following model:

$$EconomicGrowth_i = \beta_1 + \beta_2 F0_i + \sum_{n=1}^{N} \beta_n Control_{n,i} + \varepsilon_i \quad (1)$$

where, ε is the error term, ***FO*** is the dummy variable of inflexible ownership structure built upon the regression presented in section 3.2, ***economic growth*** is either the average annual sales growth or investment rate of firm i, and ***control*** are the different control variables for firm i. Specifications 1 to 4 in Table 3 present the results of ordinary least square estimation of the model parameters respectively for the average annual sales growth and investment rates.

Results in specification 1 to 4 in table 3 underline the negative influence of lack of flexibility of ownership structure on firm economic growth. On average less flexible ownership firms have a 30% lower growth rate than firms with a flexible ownership prospect. This result holds when controlling for other factors influencing firm growth but decrease the economic significance.

The signs of the estimates of the control variables are as expected and consistent across the different specifications. Firm size has a positive influence on firm economic growth. The positive influence of size on firm economic growth can be related to technological arguments and not to informational issues. Firm age has a negative impact on firm growth, what is quite intuitive. I interpret this negative sign has showing that as firm get older they are closer to their stationary size and then stabilize firm growth rate. Firm economic performance and operational risk that account to some extent for the firm growth have a positive effect on firm economic growth. Finally, the leverage ratio has a positive influence on firm growth: small businesses that are able to raise debt have more resources and thus can invest more.

However, those results could be in part driven by the fact that firms with lower prospect of opening their capital have a lower performance and thus are less able to produce cash flows.

To explore the influence of family control on firm growth attitude I estimate the following model:

$$Gap_i = \beta_1 + \beta_2 Familly_i + \sum_{n=1}^{N} \beta_n Control_{ni} + \varepsilon_i \quad (2)$$

where, ε is the error term, ***FO*** is the dummy variable of inflexible ownership structure built upon the regression presented in section 3.2, ***gap*** is the difference between average annual sustainable growth and either the average annual sales growth or investment rate of firm i, and control are the different control variables for firm i. Specification 5 to 8 in table 3 present the results of ordinary least square estimation of the model parameters respectively for the gap between sustainable growth and average annuals sales growth (GAP1) and investment rates (GAP2).

Results provide support to the fact that firms with inflexible ownership structure exploit less their growth potential. Indeed, the gap between sustainable growth and economic growth is higher for firms with higher expected cost of raising external equity.

Finally, results underline that firm size and age influences negatively firm conservative attitude toward growth, this observation indicate that the theoretical model is better adapted to small and young businesses. Moreover, leverage influences negatively the gap variable, firms with better access to credit are able to reduce their endogenous risk aversion and thus can invest more.

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APPENDIX

Following the demonstration by Froot and Stein (1998) it can be showed that

$$\frac{\partial V(N_2)}{\partial \alpha_0} == 0$$

$$\Leftrightarrow E\left(\frac{\partial N_2}{\partial W_1}\right)\left(E\left(\frac{\partial W_1}{\partial \alpha_0}\right)-\gamma\frac{\partial Cov(W_1,M)}{\partial \alpha_0}\right)+E\left(\frac{\partial N_2}{\partial W_1 \partial W_1}\right)\left[Cov\left(W_1,\frac{\partial W_1}{\partial \alpha_0}\right)-E\left(\frac{\partial W_1}{\partial \alpha_0}\right)\varphi Cov(W_1,M)\right]$$

$$-E\left(\frac{\partial N_2}{\partial W_1 \partial W_1 \partial W_1}\right)\left[\varphi Cov(W_1,M)Cov\left(W_1,\frac{\partial W_1}{\partial \alpha_0}\right)\right]$$

Given the specification of the model I obtain the following

$$\frac{\partial W_1}{\partial \alpha_0} = (\mu_1 + \varepsilon_1^N)$$

$$E\frac{\partial W_1}{\partial \alpha_0} = \mu_1 - \varphi Cov(\varepsilon_1^T, M)$$

$$E(W_1) = K_0 + \alpha\mu_1 - (1+d)D_0 \quad [6]$$

$$Cov\left(W_1, \frac{\partial W_1}{\partial \alpha_0}\right) = \alpha_0 Var[\varepsilon_1^N]$$

$$\frac{\partial Cov(W_1, M)}{\partial \alpha_0} = Cov(\varepsilon_1^N, M) = 0$$

Then I obtain:

$$\frac{\partial V(N_2)}{\partial \alpha_0} == 0$$

$$\Leftrightarrow E\left(\frac{\partial N_2}{\partial W_1}\right)(\mu_1) + E\left(\frac{\partial N_2}{\partial W_1 \partial W_1}\right)[\alpha_0 Var[\varepsilon_1] - \mu_1 \varphi Cov(W_1, M)]$$

$$- E\left(\frac{\partial N_2}{\partial W_1 \partial W_1 \partial W_1}\right)[\varphi Cov(W_1, M) \times \alpha_0 Var[\varepsilon_1]]$$

By definition the risk represented by the investment technology of the firm is specific and cannot be $G = \dfrac{-E\left(\dfrac{\partial N_2}{\partial W_1 \partial W_1}\right) + E\left(\dfrac{\partial N_2}{\partial W_1 \partial W_1 \partial W_1}\right)Cov(W_1, M)}{E\left(\dfrac{\partial N_2}{\partial W_1}\right) + E\left(\dfrac{\partial N_2}{\partial W_1 \partial W_1}\right)Cov(W_1, M)}$ but if it is assumed that the firm has hedge all the non specific risk, thus $G = \dfrac{-E\left(\dfrac{\partial N_2}{\partial W_1 \partial W_1}\right)}{E\left(\dfrac{\partial N_2}{\partial W_1}\right)}$

[6] Because the risk of the specific risk is completely independent of the market then $Cov(\varepsilon_1, M) = 0$

$$G = \frac{2\sqrt{F(I_2)\gamma}}{\sqrt{F(I_2)\gamma} \times (4((K_0 + \alpha\mu_1) - 4I_2 + \gamma F(I_2)) + (4((K_0 + \alpha\mu_1) - 4I_2 + \gamma F(I_2))^{\frac{3}{2}}}$$

$$\frac{\partial G}{\partial \gamma} < 0 = \frac{-2F(I_2)\gamma - \frac{2\sqrt{F(I_2)(4((K_0 + \alpha\mu_1) - 4I_2 + \gamma F(I_2))} \times (2I_2 + \gamma F(I_2) - 2(K_0 + \alpha\mu_1)}{\sqrt{\gamma}}}{(\sqrt{F(I_2)\gamma} \times (4((K_0 + \alpha\mu_1) - 4I_2 + \gamma F(I_2)) + (4((K_0 + \alpha\mu_1) - 4I_2 + \gamma F(I_2))^{\frac{3}{2}})^2}$$

TABLES

Table 1

TABLE 1a: Estimation of the probability of being a non family firm

The standard errors of estimates are reported in italics under the value of the estimated coefficients. *** indicates that coefficients estimates are significant at the 1% level according to the khi 2 Wald test , ** at 5%, and * at 10%.

	prob fam=0	
Leverage	0,0490	***
	0,0119	
Export	0,0175	
	0,0285	
ROE	3,7151	***
	0,2678	
Working Capital	0,0004	***
	0,0000	
Fixed Assets	0,2772	***
	0,1057	
Agricultural	0,0251	
	0,1229	
Energy	0,9900	**
	0,4823	
	-	***
Construction	0,1407	
	0,0412	
Retail trade	0,4343	***
	0,0429	
Wholesale trade	0,1692	***
	0,0418	
Real estate	1,2482	***
	0,1162	
Hotels and restaurants	1,2826	***
	0,1149	
Manufacturing of equipment goods	0,1462	***
	0,0530	
Food industry	0,3410	***
	0,0946	
Manufacturing of intermediary goods	0,3052	***
	0,0585	
Manufactuirng of consumption goods	0,2873	***
	0,0602	
Services to the firms	0,8621	***
	0,0667	
Services to individuals	1,1902	***
	0,1176	
Number of Observations	29784	

TABLE 1b: Quality of model 1

TEST		
Likelihood Ratio	7254,573	***
Score	6586,6551	***
Wald	5469,9684	***
Quality of fit		
Percent Concordant	62,1	
Percent Discordant	37,3	
Percent Tied	0,6	
Somers' D	0,248	
Gamma	0,25	
Tau-a	0,1	
c	0,624	

Table 2

Panel A: Desciptive statistics full sample (N=30277)	Mean	Standard Error	Median
Sales Growth	0,3451	0,5791	0,1626
Investment Growth	0,3022	0,5002	0,1595
GAP 1	0,1392	1,1534	0,1642
GAP 2	0,1822	1,1245	0,1621
Size (Total Assets) in K€	1594	2493	728
Age	8,5983	4,7918	8,0000
Leverage	1,3128	1,4436	0,8467
ROA	0,1795	0,1661	0,1426
SROA	0,0726	0,0783	0,0570

Panel B: Mean comparison accoding ownership unflexibility	FO=0 Mean n=15002	FO=1 Mean n=15275
Sales Growth	0,4069	0,2834 ***
Investment Growth	0,3560	0,2484 ****
GAP 1	0,1232	0,1553 ***
GAP 2	0,1741	0,1902
Size (Total Assets) in K €	2341	848 ***
Age	8,0004	9,1963 ***
Leverage	1,2174	1,4082
ROA	0,2416	0,1174 ***
SROA	0,0877	0,0578 ***

TABLE 3: Influence of the flexibility of ownership structure on firm growth

	Sales growth				Investment growth				GAP 1				GAP 2			
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
Flexibility of ownership structure	-0,1234 *0,0057*	***	-0,0488 *0,0068*	***	-0,1034 *0,0050*	***	-0,048 *0,006*	***	0,0430 *0,0122*	***	0,0449 *0,0148*	***	0,0230 *0,0120*	*	0,0441 *0,0145*	***
Size (Log total assets)			0,0461 *0,0035*	***			0,013 *0,003*	***			-0,0396 *0,0076*	***			-0,0067 *0,0074*	
Age (Log of years since creation)			-0,1802 *0,0048*	***			-0,147 *0,004*	***			-0,2065 *0,0104*	***			-0,2395 *0,0102*	***
ROA			0,0706 *0,0207*	***			0,127 *0,018*	***			-0,0498 *0,0451*				-0,1064 *0,0442*	**
Risk (STD ROA)			0,2872 *0,0376*	***			0,336 *0,033*	***			-0,3694 *0,0820*	***			-0,4184 *0,0804*	***
Leverage			0,0108 *0,0021*	***			0,008 *0,002*	***			-0,0569 *0,0046*	***			-0,0545 *0,0045*	***
Intercept	0,3519 *0,0040*	***	0,3190 *0,0274*		0,3160 *0,0036*		0,441 *0,024*		0,1561 *0,0087*	***	0,9592 *0,0597*		0,1919 *0,0085*	***	0,8368 *0,0585*	***
F	470,69	***	350,93	***	425,85	****	327,89	***	12,41	***	104,45	***	3,69	*	117,28	***
R2	0,0153		0,065		0,0139		0,061		0,0004		0,0203		0,0001		0,0227	
NB Observations	30277		30277		30277		30277		30277		30277		30277		30277	

The standard errors of estimates are reported in italics under the value of the estimated coefficients. *** indicates that coefficients estimates are significant at the 1% level according to the student test, ** at 5%, and * at 10%.

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