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Financing constraints and growth of private family firms: Evidence from different legal origins

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ABSTRACT

We investigate whether family control informs the extent to which business growth depends on internal finance. Our results are based on a sample of private firms from two regions in which family ownership prevails: Western Europe and East Asia. The countries covered nonetheless differ from each other in their legal origin. We find that the growth of private family firms is less reliant on internal finance. The beneficial effect of family control is especially pronounced in countries where external lenders are more protected. Family control and a protective institutional environment therefore complement each other to facilitate business growth.

1. Introduction

The business community is clearly one of the main drivers of economic growth and employment, and especially so private (i.e., unlisted) firms. Compared to listed firms (Carpenter and Petersen, 2002), unlisted firms' growth potential depends more on the availability of internal funding (Mulier et al., 2016). Asymmetric information, agency problems, and underdeveloped financial institutions prompt their overreliance on internally generated cash flows for funding value-creating projects (Chay et al., 2015).

In this context, we contend that the scarcity of internal funds is likely to impose more severe constraints on private firms with specific ownership structures. Specifically, we demonstrate that family ownership reduces the extent to which private firms' growth depends on internal finance by alleviating information asymmetries, strengthening the links with external stakeholders, and using family reputation as a safeguard against the expropriation of creditors' wealth. In addition, we study how far a stronger regulatory framework reduces family firms' dependence on internal resources for funding their growth. In particular, we analyze whether the effect of family control on growth patterns varies across common and civil law countries.

We use a large sample of private firms from Western Europe and East Asia. Focusing on these two regions is particularly appropriate because they are characterized by the prevalence of family firms (Claessens et al., 2000; Faccio and Lang, 2002), yet they are also heterogeneous in terms of legal systems. Our growth models are based on the empirical specification of Carpenter and Petersen (2002), and we use the system generalized method of moments (GMM) in the estimation process.

This study makes three main contributions to the literature. First, it advances the state-of-the-art on corporate ownership by investigating the effect of family control on business growth among unlisted firms. Although financing constraints may well be a more

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serious concern for this type of firm, prior research mostly addresses listed corporations (e.g., Machokoto et al., in press). Studies that analyze the reliance of unlisted companies' growth (or investments) on their own internally generated cash flows are scarce (e.g., Guariglia et al., 2011; Mulier et al., 2016; Peruzzi, 2017). Moreover, to the best of our knowledge, no previous research explores the role of family control in the relation between business growth and internal finance in an international context, even though family firms account for the bulk of the corporate sector worldwide. We fill this gap in the literature and highlight that family control helps to allay concerns over potential conflicts of interest between the controlling owner and external lenders, hence reducing family firms' dependence on internal funds for their growth. Our empirical evidence is especially meaningful, providing a possible explanation for the variation in growth rates across countries.

Second, we further investigate whether the beneficial role of family control in mitigating financing constraints is contingent on the quality of the institutional context, which is a topic that has received scarce attention in previous studies. Our joint analysis of firm- and country-level dimensions (i.e., family control and legal context) enables us to integrate the literature on business growth and family firms with institution-based explanations. A comprehensive dataset is therefore used that covers private companies in Western Europe and East Asia, which are characterized by a long tradition of family businesses, while simultaneously comprising countries with different levels of protection for lenders (creditors and investors). Our empirical setting provides a holistic view of the relative dependence that family firm growth has on internal funds.

Third, as an ancillary contribution, our research strategy builds on prior studies from a methodological perspective by extending the model of Carpenter and Petersen (2002), accounting for the dynamics of business growth. In this context, compiling panel data significantly helps to alleviate the risk of biased conclusions. In addition, an instrumental variable estimator (GMM) is used to address endogeneity concerns by exploiting a set of internal instruments contained within the panel itself (Wintoki et al., 2012).

2. Hypotheses

2.1. Private family firm growth patterns

Market imperfections mean that the scarcity of internally generated funds is one of the main constraints to potential business growth (Carpenter and Petersen, 2002; Mulier et al., 2016) —especially for unlisted firms (Chay et al., 2015)—, and some scholars contend that these constraints are likely to vary across ownership structures (e.g., Guariglia et al., 2011). However, there has been little research on the growth patterns of private family-owned businesses, which are the most prevalent type of control worldwide (La Porta et al., 1999), and particularly so in Western Europe (Faccio and Lang, 2002) and East Asia (Claessens et al., 2000).

This study argues that family firms rely less on internal funding than their non-family counterparts to grow for several reasons. First, tight family control strengthens the links between family owners and external stakeholders (Martínez and Requejo, 2017). Indeed, family firms can alleviate information asymmetries and avoid resorting to financial markets by fostering close relationships between the owner family and external lenders (Angori et al., in press).

Second, in contrast to non-family firms, family owners might access non-traditional sources of external finance, using intangible assets such as family reputation as collateral and as a safeguard against the expropriation of lenders' wealth (Díaz-Díaz et al., 2016). D'Aurizio et al. (2015) report the major role that soft information plays in facilitating family firms' access to external financing, finding that the downturn in lending during the 2007-2009 financial crisis was less pronounced in family firms.

Third, family firms are less severely affected by agency conflicts between owners and managers due to their concentrated ownership structures (Anderson et al., 2003; Pindado and Requejo, 2015; Stacchini and Degasperi, 2015). Although this type of control may lead to conflicts of interest between controlling owners and minority investors (Villalonga and Amit, 2006; Pindado et al., 2014), the owner family in private companies may forge closer ties with other investors, as the remaining shares are frequently less dispersed. In fact, an ownership structure involving multiple large shareholders helps to resolve governance issues in private firms (Nagar et al., 2011). Consistent with these arguments, we formulate our first hypothesis:

Hypothesis 1 (H1). The dependence of private firms' growth on internal finance is lower in family firms.

2.2. The institutional environment and private family firm growth patterns

The institutional setting may also determine the type of funding firms use and, in turn, their growth (Long, 2019). Prior studies contend that business growth should be facilitated in regions with more developed financial systems and certain banking structures due to firms' easier access to external funds (e.g., Beck et al., 2005; Hasan et al., 2017). In particular, asymmetric information and agency problems severely affect access to external financing (Giannetti, 2003), especially among private companies (Brav, 2009).

In this context, it is not clear a priori whether a country's legal origin shapes the effect of family control on business growth. Although family control can be an alternative solution in environments with weak investor protection (Burkart et al., 2003), a family's expropriating incentives emerge, and family owners will probably behave more opportunistically in such scenario (El Ghoul et al., 2016; Faccio et al., 2001; Peng and Jiang, 2010). Moreover, owner families in regions with greater protection for creditors and minority investors (e.g., common law countries) are likely to feel the need to protect those stakeholders' interests and prioritize economic considerations (Requejo et al., 2018). By contrast, in regions with a less protective regulatory environment (e.g., civil law countries), controlling families may prioritize the interests of other stakeholders (Liang and Renneboog, 2017).

Chen et al. (2014) report that the negative effect of regulatory obstacles on entrepreneurial growth is more pronounced in family than in non-family firms. This finding supports the view that family ownership is not a substitute for weak macro-governance

Table 1
Summary statistics and descriptive analyses.

Panel A: Summary statistics					
Variable	Mean	Standard deviation	Minimum	Median	Maximum
Firm growth	0.121	0.291	-0.989	0.085	2.304
Cash flow	0.092	0.094	-0.993	0.075	0.996
Growth opportunities	0.118	0.362	-1.000	0.082	9.845
Leverage	0.625	0.216	0.000	0.659	1.000
Size	9.948	1.245	3.726	9.822	14.317
Age	3.026	0.703	0.000	2.996	6.917

Panel B: Correlation matrix							
Variable		(1)	(2)	(3)	(4)	(5)	(6)
Firm growth	(1)	1.000					
Cash flow	(2)	0.084	1.000				
Growth opportunities	(3)	0.475	0.112	1.000			
Leverage	(4)	0.116	-0.246	0.083	1.000		
Size	(5)	-0.025	-0.078	-0.052	-0.107	1.000	
Age	(6)	-0.145	-0.042	-0.143	-0.144	0.244	1.000

Panel C: Family firms vs. non-family firms				
Variable	All	Family firms	Non-family firms	Difference
	(1)	(2)	(3)	(2)-(3)
Firm growth	0.121	0.126	0.119	0.007***
Cash flow	0.092	0.086	0.094	-0.008***
Growth opportunities	0.118	0.120	0.118	0.002
Leverage	0.625	0.657	0.615	0.042***
Size	9.948	9.828	9.986	-0.160***
Age	3.026	2.976	3.043	-0.067***

This table provides the means, standard deviations, minimums, medians, and maximums of the variables used, as well as the correlations between them; it also shows the mean difference tests in their financial characteristics between family and non-family firms. The full sample comprises 39,857 firms (249,273 firm-year observations) for which financial data are available for at least six consecutive years between 2004 and 2011 in the Orbis database. Twelve countries are considered in Western Europe (Austria, Belgium, Finland, France, Germany, Italy, the Netherlands, Norway, Portugal, Sweden, Switzerland, and the United Kingdom), and four in East Asia (Malaysia, Republic of Korea, Singapore, and Thailand). The variables are defined in the appendix. Firms are classified as family controlled if the ultimate owner at the 50% control threshold is an individual or family. The *** indicates significance at the 1% level.

institutions, and that a favorable regulatory environment and family ownership need to complement each other. The fact that family business groups are largely created for reasons of financing (Masulis et al., 2011) also explains a stronger association between internal funding and family business growth in regions with weaker regulatory protection. More effective and protective institutions should therefore be especially beneficial for private family firms by improving their access to external financing. Consequently, we expect the following:

Hypothesis 2 (H2). Private family firms' growth is less sensitive to internal finance especially in countries with more efficient and protective legal institutions.

3. Research design

3.1. Data sources and sample

The main source of information used to test our hypotheses is the Orbis database provided by Bureau van Dijk (BvD), and our sample includes only privately owned (i.e., unlisted) companies. A firm is considered to be family owned if "one or more named individuals or families" is (are) the ultimate owner(s) at a 50% control threshold. This cut-off point is in line with previous studies on private firms (e.g., Bacci et al., 2018).[1] Family firms account for around a quarter of the sample (24.49%). Financial companies and public institutions are excluded. The study's time period covers eight years, from 2004 until 2011. Our final sample consists of 39,857 firms (249,273 firm-year observations) from 16 different countries: 12 in Western Europe (Austria, Belgium, Finland, France, Germany, Italy, the Netherlands, Norway, Portugal, Sweden, Switzerland, and the United Kingdom) and four in East Asia (Malaysia, Republic of Korea, Singapore, and Thailand). We follow La Porta et al. (1998) to determine whether countries have a common or civil law origin.

[1] Our regression results remain qualitatively unchanged when using a less restrictive 25% control threshold to classify a firm as family controlled. The findings using this alternative family business definition are available from the authors upon request.

Table 2
Effect of internal finance on business growth: Family vs. non-family firms.

Dep. var.: Firm growth$_{it}$	All	Family firms	Non-family firms	Non-family firms with concentrated ownership
	(1)	(2)	(3)	(4)
β_1 Firm growth$_{i,t-1}$	-0.046	-0.041	-0.017	-0.153*
	(0.046)	(0.056)	(0.053)	(0.088)
β_2 Cash flow$_{it}$	1.004***	0.877	1.277***	0.947***
	(0.243)	(0.860)	(0.277)	(0.337)
β_3 Growth opp$_{it}$	0.497***	0.587***	0.549***	0.649***
	(0.062)	(0.112)	(0.059)	(0.099)
β_4 Leverage$_{it}$	0.345***	0.906**	0.340***	0.276**
	(0.091)	(0.409)	(0.093)	(0.127)
β_5 Size$_{it}$	-0.074***	0.040	-0.052***	-0.055**
	(0.019)	(0.061)	(0.019)	(0.024)
β_6 GDP per capita$_{it}$	0.018	-0.148***	-0.080***	-0.127
	(0.046)	(0.047)	(0.015)	(0.096)
β_7 Credit to GDP$_{it}$	0.119	0.003	-0.017	-0.277**
	(0.117)	(0.053)	(0.088)	(0.122)
β_0 Constant	-0.273	0.507	1.116**	2.913**
	(0.825)	(0.407)	(0.497)	(1.401)
Time dummies	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
z	54.15 (5)	112.95 (5)	60.75 (5)	27.63 (5)
m_2	0.75	0.238	1.63	-0.45
Hansen	5.71 (10)	7.85 (10)	11.00 (13)	17.19 (12)
Firms	39,857	9,762	30,095	16,113
Observations	249,273	60,640	188,633	101,683

This table presents the GMM regression results from the empirical model (2). The full sample comprises 39,857 firms (249,273 firm-year observations). The rest of the information needed to read this table is as follows: (i) heteroskedasticity consistent asymptotic standard error is in parentheses; (ii) ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively; (iii) z is a Wald test of the joint significance of the reported coefficients, asymptotically distributed as χ^2 under the null hypothesis of no relationship, degrees of freedom in parentheses; (iv) m_2 is a second-order serial correlation test using residuals in first differences, asymptotically distributed as N(0,1) under the null hypothesis of no serial correlation; (v) Hansen is a test of the over-identifying restrictions, asymptotically distributed as χ^2 under the null hypothesis of no correlation between the instruments and the error term, degrees of freedom in parentheses.

3.2. Estimation method

Panel data methodology is used in the regression analyses to resolve any issues of unobserved heterogeneity and endogeneity. First, the panel data method selected allows controlling for any time-constant characteristics, such as a firm's management style and the use of personal wealth as collateral for accessing external financing (in family firms), which could affect firm growth. Second, although an increase in internal cash flow should facilitate business growth, causality could run in both directions. Moreover, other right-hand side variables in the model may be affected by endogeneity. We address such concerns by using an instrumental variable estimator, namely, the system GMM. Following Ferrando and Mulier (2013), among others, we choose the lag structure that best fits the Hansen and m_2 tests. This is the most adequate approach to ensure that the instruments selected are valid. In particular, we use lags from t–6 backwards as instruments for the right-hand side variables in the equations in differences, and only one instrument in the equations in levels.

4. Results

4.1. Descriptive analysis

Table 1 provides the variables' main summary statistics (Panel A) and the correlations between them (Panel B). The appendix presents the variables' definitions. The mean difference tests reported in Panel C reveal higher growth among private family firms, even though they have lower cash flow levels than in non-family firms. The cohort's average size (in total assets) is 52.42 million US$, with a significant difference between family (40.60 million US$) and non-family firms (56.23 million US$).

4.2. Baseline specification and regression results

The business growth model used to test our hypotheses is based on the specification formulated by Carpenter and Petersen (2002):

$$Growth_{it} = \alpha_0 + \alpha_1 Cash\ flow_{it} + \alpha_2 \text{Tobin's } q_{it} + \varepsilon_{it} \quad (1)$$

The original specification proposed by Carpenter and Petersen has been further developed by including the lagged value of the dependent variable (Guariglia et al., 2011) to capture the dynamic nature of business growth. Given that we cannot compute Tobin's q

Table 3
Effect of internal finance on business growth: Family control and legal origin.

Dep. var.: Firm growth$_{it}$	Common law countries	Civil law countries	Family firms & common law countries	Non-family firms & common law countries	Family firms & civil law countries	Non-family firms & civil law countries
	(1)	(2)	(3)	(4)	(5)	(6)
β_1 Firm growth$_{i,t-1}$	0.034	-0.072*	-0.245*	0.119	-0.108*	-0.046
	(0.105)	(0.043)	(0.140)	(0.117)	(0.062)	(0.050)
β_2 Cash flow$_{it}$	0.583*	0.770***	-0.149	0.656**	1.794**	1.407***
	(0.303)	(0.291)	(0.755)	(0.324)	(0.775)	(0.362)
β_3 Growth opp$_{it}$	0.566***	0.583***	0.736***	0.305**	0.352***	0.577***
	(0.117)	(0.047)	(0.124)	(0.147)	(0.103)	(0.064)
β_4 Leverage$_{it}$	0.267*	0.301***	0.155	0.387**	0.772**	0.440***
	(0.145)	(0.102)	(0.248)	(0.185)	(0.369)	(0.114)
β_5 Size$_{it}$	-0.032	-0.047**	-0.000	-0.029	0.105	-0.058**
	(0.027)	(0.022)	(0.031)	(0.031)	(0.069)	(0.024)
β_6 GDP per capita$_{it}$	0.041**	0.035	-3.451	0.042**	-0.040	-0.135***
	(0.018)	(0.039)	(2.494)	(0.017)	(0.092)	(0.024)
β_7 Credit to GDP$_{it}$	-0.158**	0.328***	4.439	-0.255***	0.381*	-0.020
	(0.077)	(0.117)	(3.300)	(0.086)	(0.218)	(0.019)
β_0 Constant	0.469	-1.573*	14.717	0.818**	-2.820*	1.685***
	(0.313)	(0.842)	(10.343)	(0.325)	(1.654)	(0.352)
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes
z	50.49 (5)	5.45 (5)	7.05 (5)	8.69 (5)	50.33 (5)	15.16 (5)
m_2	0.863	1.069	-0.141	0.500	-1.156	1.421
Hansen	17.78 (13)	15.89 (13)	10.04 (13)	9.47 (11)	8.16 (8)	15.19 (13)
Firms	7,723	32,134	2,151	5,572	7,611	24,523
Observations	48,857	200,416	13,774	35,083	46,866	153,550

This table presents the GMM regression results from the empirical model (2). The full sample comprises 39,857 firms (249,273 firm-year observations). For the rest of the information needed to read this table, see Table 2.

for unlisted firms, this variable is replaced by the increase in revenues to control for growth opportunities. The models also include other explanatory variables, such as leverage and size (at firm level), and GDP per capita and credit to GDP (at country level), in addition to time dummies to account for the economic cycle's impact (d_t), and country dummies to control for any other country-specific effects (c_i). Finally, the error term (ε_{it}) includes the unobserved heterogeneity (η_i) and the random disturbance (v_{it}). The empirical growth model is therefore as follows:

$$\begin{aligned} Growth_{it} \;=\; & \beta_0 + \beta_1 Growth_{i,t-1} + \beta_2 Cash\ flow_{it} + \beta_3 Growth\ opportunities_{it} + \beta_4 Leverage_{it} + \beta_5 Size_{it} \\ & + \beta_6 GDP\ per\ capita_{it} + \beta_7 Credit\ to\ GDP_{it} + \omega d_t + \delta c_i + \eta_i + v_{it} \end{aligned} \tag{2}$$

As expected, column 1 in Table 2 shows that cash flow has a positive and statistically significant effect on firm growth. We therefore confirm that growth in privately owned companies in Western Europe and East Asia relies on internal funds. The estimated coefficients on the control variables also record the expected signs.

In line with H1, family and non-family firms differ in their reliance on cash flow. The estimated coefficients on the cash flow variable in columns 2 (family firms) and 3 (non-family firms) reveal that internal finance has a positive and statistically significant impact on growth in non-family firms, whereas it is statistically non-significant in family firms. Next, the sample is restricted to non-family firms with concentrated ownership structures in order to rule out the possibility that ownership concentration explains family firm growth's lower sensitivity to cash flow. A comparison between the estimated coefficients for cash flow in columns 2 (family firms) and 4 (non-family firms with concentrated ownership) still provides support for H1.

The institutional environment in which companies operate may also affect their growth patterns and the type of financial resources used to grow. Columns 1 (common law countries) and 2 (civil law countries) in Table 3 show that operating in a region with more efficient and protective institutions facilitates firms' access to external finance and reduces their dependence on internally generated funds.

The estimated coefficients in columns 3 and 4 in Table 3 indicate that family control reduces business growth's reliance on internal funds when external lenders' rights are better protected by legal institutions. Conversely, as regards companies operating in a civil law environment (see columns 5 and 6 in Table 3), both family and non-family firms depend on their cash flow to grow. These findings support H2.

4.3. Business growth models with interaction terms

Thus far, this study has investigated whether cash flow's positive effect on firm growth differs across subsamples by estimating our baseline model separately for each firm category. A similar approach has been used in previous studies (e.g., Ferrando and Mulier, 2013). An alternative strategy is to use the full sample in the same regression and extend our baseline growth model by including

Table 4
Effect of internal finance on business growth: Empirical models with interaction terms.

Dep. var.: Firm growth$_{it}$	Family control	Family control & ownership concentration	Legal origin	Family control & legal origin
	(1)	(2)	(3)	(4)
β_1 Firm growth$_{i,t-1}$	-0.061	-0.033	-0.057	-0.059
	(0.045)	(0.050)	(0.052)	(0.039)
β_2 Cash flow$_{it}$	1.510***	2.232***	3.197***	1.771***
	(0.285)	(0.804)	(0.847)	(0.588)
γ_2 Cash flow$_{it}$*Family dum$_i$	-2.571***	-2.470***		-1.854***
	(0.613)	(0.616)		(0.554)
ω_2 Cash flow$_{it}$*Common law dum$_i$			-2.852***	-1.207***
			(0.969)	(0.275)
δ_2 Cash flow$_{it}$*Own. con. dum$_i$		-0.857	-1.523*	-0.034
		(0.827)	(0.795)	(0.625)
β_3 Family dum$_i$	0.203***	0.226***	0.045	0.143***
	(0.052)	(0.054)	(0.031)	(0.045)
β_4 Growth opp$_{it}$	0.513***	0.530***	0.448***	0.560***
	(0.063)	(0.071)	(0.068)	(0.052)
β_5 Leverage$_{it}$	0.346***	0.348***	0.374***	0.348***
	(0.093)	(0.114)	(0.101)	(0.093)
β_6 Size$_{it}$	-0.077***	-0.074***	-0.034	-0.067***
	(0.019)	(0.019)	(0.021)	(0.019)
β_7 GDP per capita$_{it}$	0.049	0.067	0.021	0.028
	(0.046)	(0.044)	(0.046)	(0.033)
β_8 Credit to GDP$_{it}$	0.223*	0.190***	0.378***	-0.007
	(0.114)	(0.058)	(0.114)	(0.045)
β_0 Constant	-1.077	-1.175*	-1.931**	0.058
	(0.757)	(0.603)	(0.769)	(0.511)
$t_1 - H_0$: $\beta_2 + \gamma_2 = 0$	-1.99	-0.23		-0.10
$t_2 - H_0$: $\beta_2 + \omega_2 = 0$			0.36	1.05
$t_3 - H_0$: $\beta_2 + \gamma_2 + \omega_2 = 0$				-1.52
Time dummies	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
z	49.20 (7)	44.81 (8)	44.69 (8)	158.11 (9)
m_2	0.524	1.032	0.048	0.969
Hansen	18.51 (17)	13.84 (16)	9.14 (12)	49.21 (28)
Firms	39,857	39,857	39,857	39,857
Observations	249,273	249,273	249,273	249,273

This table presents the GMM regression results from several extensions of the empirical model (2). The full sample comprises 39,857 firms (249,273 firm-year observations). For the rest of the information needed to read this table, see Table 2.

interaction terms to capture cash flow's differential effect on growth for specific firm categories.[2] Column 1 in Table 4 shows that the positive relationship between cash flow and growth is weaker in family firms, in line with our initial empirical evidence. Moreover, the regression results presented in column 2 show that family control still mitigates the impact of cash flow on growth after controlling for ownership concentration.

Column 3 in Table 4 reveals that private firms operating in common law countries depend less on internal finance. Finally, column 4 confirms that family firms in common law countries have a weaker relationship between internal funds and growth, as proposed in H2. Therefore, both family control and a common law origin mitigate the positive impact of cash flow on business growth.

5. Robustness tests

Two alternative proxy measures from the World Bank's Doing Business Report are used to show the extent to which the law protects the rights of external stakeholders: (i) the creditor protection index, and (ii) the investor protection index. A dummy variable is defined (strong creditor/investor protection) that equals 1 for those firms operating in countries with a level of creditor/investor protection in the upper tercile. The new findings confirm that family firms in regions with more protective institutions are mainly the ones that benefit from a weaker relationship between internal finance and growth (Table 5).

6. Conclusions

This study has investigated whether (i) the financing constraints imposed by a scarcity of internal funding affect the growth of family and non-family firms differently, and whether (ii) the country's legal origin shapes the relationship between cash flow and

[2] This approach, which has also been used in prior research to capture incremental differences (Gao et al., 2017), has the advantage of closer comparability among the estimated coefficients from the same regression.

Table 5
Effect of internal finance on business growth: The institutional environment.

Dep. var.: Firm growth$_{it}$	Creditor protection	Family control & creditor protection	Investor protection	Family control & investor protection
	(1)	(2)	(3)	(4)
β_1 Firm growth$_{i,t-1}$	0.030	-0.040	-0.069	-0.077*
	(0.071)	(0.060)	(0.048)	(0.044)
β_2 Cash flow$_{it}$	2.968***	2.506***	3.399***	3.101***
	(0.773)	(0.748)	(0.672)	(0.659)
λ_2 Cash flow$_{it}$*Strong creditor protection dum$_i$	-0.946**	-0.910***		
	(0.424)	(0.339)		
ω_2 Cash flow$_{it}$*Strong investor protection dum$_i$			-2.120***	-1.673***
			(0.366)	(0.304)
γ_2 Cash flow$_{it}$*Family dum$_i$		-2.092***		-2.625***
		(0.594)		(0.597)
δ_2 Cash flow$_{it}$*Own. con. dum$_i$	-1.391*	-0.634	-1.513**	-0.858
	(0.715)	(0.703)	(0.671)	(0.682)
β_3 Family dum$_i$	0.023	0.169***	0.041	0.238***
	(0.027)	(0.051)	(0.026)	(0.051)
β_4 Growth opp$_{it}$	0.467***	0.542***	0.385***	0.448***
	(0.054)	(0.051)	(0.054)	(0.052)
β_5 Leverage$_{it}$	0.566***	0.539***	0.482***	0.407***
	(0.106)	(0.106)	(0.091)	(0.095)
β_6 Size$_{it}$	-0.104***	-0.132***	-0.037**	-0.066***
	(0.023)	(0.021)	(0.018)	(0.019)
β_7 GDP per capita$_{it}$	-0.050	-0.050	0.021	0.019
	(0.037)	(0.039)	(0.039)	(0.039)
β_8 Credit to GDP$_{it}$	0.167**	0.143*	0.234***	0.211***
	(0.083)	(0.077)	(0.059)	(0.059)
β_0 Constant	0.272	0.685	-1.353**	-0.908
	(0.514)	(0.503)	(0.615)	(0.593)
$t_1 - H_0$: $\beta_2 + \lambda_2 = 0$	3.06	0.47		
$t_2 - H_0$: $\beta_2 + \gamma_2 = 0$		2.60		0.55
$t_3 - H_0$: $\beta_2 + \lambda_2 + \gamma_2 = 0$		-0.57		
$t_4 - H_0$: $\beta_2 + \omega_2 = 0$			2.00	2.35
$t_5 - H_0$: $\beta_2 + \omega_2 + \gamma_2 = 0$				-1.30
Time dummies	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
z	66.03 (8)	65.25 (9)	77.34 (8)	75.40 (9)
m_2	1.38	0.83	-0.47	-0.30
Hansen	29.09 (21)	54.58 (28)	23.76 (19)	40.97 (28)
Firms	39,857	39,857	39,857	39,857
Observations	249,273	249,273	249,273	249,273

This table presents the GMM regression results from several extensions of the empirical model (2). The full sample comprises 39,857 firms (249,273 firm-year observations). For the rest of the information needed to read this table, see Table 2.

business growth. Our results show that family ownership mitigates the extent to which private firms depend on internal finance for their growth. Further, we find that private family firms in common law countries have a lower dependence on internally generated funds when expanding their businesses.

CRediT authorship contribution statement

Pablo Doucet: Conceptualization, Methodology, Software, Formal analysis, Writing – original draft, Writing – review & editing, Funding acquisition. **Ignacio Requejo:** Conceptualization, Methodology, Software, Formal analysis, Writing – original draft, Writing – review & editing, Funding acquisition.

Declaration of competing interest

None.

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Appendix

Definition of variables and data sources.

Dependent variable	Definition	Data source
Firm growth	Growth of a firm's total assets, as in Carpenter and Petersen (2002) and Guariglia et al. (2011).	Orbis
Explanatory variables	**Definition**	**Data source**
Cash flow	Net income plus depreciation expenses scaled by total assets.	Orbis
Growth opportunities	Growth of firm operating revenues. Operating revenues are used instead of net sales due to data availability.	Orbis
Leverage	Total debt scaled by total assets.	Orbis
Size	Natural logarithm of a firm's total assets measured in thousand US$.	Orbis
GDP per capita	GDP per capita measured in constant 2010 US$.	Global Financial Development Database of The World Bank
Credit to GDP	Private credit by deposit money banks and other financial institutions to GDP (%).	Global Financial Development Database of The World Bank
Dummy variables	**Definition**	**Data source**
Family dummy	Dummy variable that equals 1 if the ultimate owner at the 50% control threshold is an individual or family, and zero otherwise.	Orbis
Ownership concentration dummy	Dummy variable that equals 1 if the firm has an ultimate owner at the 50% control threshold, and zero otherwise.	Orbis
Common law dummy	Dummy variable that equals 1 if the firm operates in a common law country, and zero otherwise.	La Porta et al. (1998)
Strong creditor protection dummy	Dummy variable that equals 1 if the firm operates in a country in which the creditor protection index is in the sample's upper tercile, and zero otherwise.	The World Bank's Doing Business Report
Strong investor protection dummy	Dummy variable that equals 1 if the firm operates in a country in which the minority shareholder protection index is in the sample's upper tercile, and zero otherwise.	The World Bank's Doing Business Report

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