How do Banks and Investment Funds affect Family Risk Taking? Evidence from the Financial Crisis

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Abstract

We study the risk-return relationship for an international sample of family and nonfamily firms in the period 2007 to 2014. According to prior studies and following the Prospect theory, we obtain a nonlinear risk-return relation and a target level of profitability for family firms in order not to assume excessive level of corporate risk taking. This relation is more prominent in companies from countries with lower protection to creditors and less aversion to uncertainty. Also, we find evidence that institutional investors exert pressure on family firms to increase corporate risk taking, even when the return is lower than the target, with the negative consequence of reducing the profitability and going to bankruptcy, as it happened during the years of financial crisis. While banks, as big shareholders, reduce risk because they try to preserve their financial relationship with family firms. This conservative role is positive to the profitability of the firm for values lower than the return target.

Keywords: Prospect theory, target and nonlinear risk return relation, family firms, institutional and cultural factors, banks and investment fund.

1. Introduction

The study of the behaviour and characteristics of family firms is increasingly being focused on issues of corporate governance. As part of this analysis, research on risk taking in family firms and their effect on performance has been particularly fruitful. The theoretical and empirical debate has hinged on two visions. On the one hand, some authors argue that family firms are more risk averse than non family firms (Mishra and McConaughy 1999; Croci et al. 2011; Le Breton-Miller et al. 2011; Anderson et al. 2012). The theoretical reasons behind these results are several. First, the agency theory suggests that the family in its simultaneous role of large shareholder and manager minimizes agency costs arising from the separation of ownership and control (Fama and Jensen 1983). However, families as large shareholders often invest much of their wealth in the family company, which encourages low levels of risk taking in corporate decision making in order to reduce the risk of jeopardizing family wealth. In addition, family firms are very concerned about the long term survival of the company (James 1999; Anderson and Reeb 2003). One of the most important goals of family businesses is therefore to keep the family firm alive and in the hands of the family so a higher risk taking might endanger this goal of business succession (Chua et al. 2003; Hiebl 2012).

The second view, headed by Gomez Mejia et al. (2007), argues that family firms could be both risk taking and risk averse. This apparent paradox is explained by combining the fundamentals of prospect and agency theories to construct a new theory called Behavioral Model Agency or BAM (Wiseman and Gomez-Mejia 1998). The agency theory assumes the existence of divergence of interests between stakeholders (principals and agents) of the company, leading to the emergence of agency costs (Jensen and Meckling 1976). In this context, the objective of corporate governance is to try to align the behavior of participants in order to minimize these agency costs and increase corporate value. However, corporate governance solutions suggested by agency theory are limited by the assumption of consistent risk aversion among agents and its modeling of a recursive influence from risk choice on performance (Wiseman and Gomez-Mejia 1998). Prospect theory (Kahneman and Tversky 1979) suggests that individuals exhibit a mixture of risk-seeking and risk averting behavior that depends on their perception of gains and losses relative to a reference point or target.

So, the contribution of our paper is firstly to document the existence of a U-shaped relationship between risk and return in family firms. Also, we analyze the relationship between corporate risk taking and the institutional environment and we find that corporate risk taking is stronger both in countries with stronger creditor rights and with greater uncertainty avoidance. Secondly, we analyze the role played by institutional investors in corporate risk taking in family firms. Particularly, we analyze the behavior of institutional investors both before and beyond the optimum value of a U-shaped relation. We present evidence that the pressure of investment funds before the target is negative for the profitability of the firm, especially in a period of financial crisis while the conservative role of banks to preserve the long-term financial relationship with the firm could has a positive impact on profitability.

The rest of the paper is organized as follows. In section 2, we develop the theoretical framework of the research using agency and behavioral theories. Also in this section,

we raise the hypotheses derived from the theoretical framework. The second section discusses the empirical research design, with the description of the sample, the model and the methodology used. The discussion of the main results can be found in the fourth section. The paper ends up with a section in which we present the main conclusions and suggestions for future studies.

2. Literature review and hypotheses set

2.1. Risk taking and performance for family firms in different legal environments

The behavioral theory suggests that firms set a target annual performance to achieve (Fiegenbaum and Thomas 1988; Miller and Bromiley 1990). So when the company is below this target it may tend to increase risk taking in order to achieve it. By contrast, when the company is above this target, it tends to moderate its level of risk taking. Thus the relationship between risk and return may assume a U-shape, as figure 1 shows. The greater the difference between the performance obtained by the firm and the performance target figure, the greater the level of risk that the firm will take to try to reach it (which leads to an inverse relationship between risk and return). However, after reaching the target performance, the firm will only assume higher levels of risk if it is compensated with an adequate increase in profitability (leading to a direct relationship between risk and return). For family firms the primary reference point is the loss of their socioemotional wealth. The concept of socioemotional wealth refers to "*non financial aspect of the firm that meet the family's affective needs, such as identity, the ability to exercise family influence and the perpetuation of the family dynasty*" (Gomez Mejia et al. 2007). In this context, when the family faces a possible loss of control of the firm due to bad performance (which implies a loss of socioemotional wealth), then the family may decide to increase risk taking of the firm in order to avoid such loss of control. So, family firms could be risk averting and risk seeking. We can formulate our Hypothesis 1a as follows:

Hypothesis 1a: There exist a U-form relationship between risk and performance in family firms.

<FIGURE 1 ABOUT HERE>

However, risk appetite of (family and non- family) firms is influenced by institutional factors. Bruno and Shin (2014) specifies that the influence of external finance dependence and even the role of a global factor in the level of liquidity of the financial system can affect corporate risk taking. This study analyzes also a nation's investor protection rights and its level of uncertainty avoidance as factors that could affect corporate risk-taking. Accordingly, Claessens et al. (2000) find that stronger protection of shareholders and creditor rights is associated with less financial risk. In countries where the rights of investors are better protected, following the Law and Finance approach (La Porta et al. 1998), they have more power to limit the level of risk-taking by managers and protect the value of their claims. This same inverse relationship is contrasted by Acharya et al. (2011) showing that strong creditor rights in case of default

lead firms to reduce risk. In strong creditor rights countries, shareholders and managers reduce the probability of default of the company by reducing cash-flow risk in order to avoid the costs associated with bankruptcy (La Porta et al. 2000). By contrast, John et al. (2008) find that corporate risk-taking is positively related to the quality of investor protection. The argument is twofold. On the one hand, in countries with poor investor protection, large shareholders decide on taking corporate risks. Following the traditional arguments, less diversified wealth of these large shareholders leads them to take fewer risks. On the other hand, non-equity stakeholders, such as banks, labor unions, and the government, may constrain value-enhancing corporate risk-taking to protect their interests.

Cultural values such as the degree of uncertainty avoidance could also affect corporate risk taking. Mihet (2012) and Li et al. (2013), find a negative association between uncertainty avoidance and risk-taking. Uncertainty avoidance expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity (Hofstede 2001). Individuals from countries with greater uncertainty avoidance are more resistant to change and possess a greater fear of failure so they are less likely to take risks. According to these arguments, we can formulate our Hypothesis 1b as follows:

Hypothesis 1b: Companies in countries with stronger creditor rights and higher aversion to uncertainty assume lower levels in corporate risk taking.

2.2. *The role played by institutional investors in the profitability of family firms*

There has been a worldwide shift in capital markets from individual investors having the control of firms toward institutional investors playing a central role (Amihud and Li 2006). This trend has likely numerous causes such as financial disintermediation, cuts in welfare state coverage, financial innovation along with the increasing sophistication of financial assets, and advancements in information technologies.

This new central role of institutional investors has raised the question about whether these investors tend to play a passive role, focused only on the short term financial return or whether – and if so, to what extent – they actively engage in the firm's main strategic decisions (Coffey and Fryxell 1991; Cox et al. 2004). This question has been recently stressed by the failure of US investment banks and the alleged lack of the banks' answers in the face of firms' financial troubles in recent years.

Institutional investors are considered outside shareholders interested in the financial return of their investments. Hutchinson et al. (2015) show a positive relationship between firm risk, risk management policy and performance for firms with increasing institutional shareholdings. The authors also find that when firms are financially distressed, institutional investors are more likely to incentive short-term performance or exit rather than support long term value creation.

Nevertheless, the considerable stake they may hold and their focus on financial return can lead them to take part actively in the governance of the firms whose shares they own. Bhattacharya and Graham (2007) and Li et al. (2006) show that the various

attitudes and roles played by institutional investors may be attributed to their nature and legal status. Traditionally, empirical studies distinguish between two types of institutional investors: a) institutional investors who are more inclined to accept the decisions made by the management team of the company i.e. banks and insurance companies. These investors usually maintain a close relationship with the management so they are less independent in making decisions. This group was called by Brickley et al. (1988) as *pressure-sensitive*; and b) institutional investors who do not have close ties with the management team (i.e. mutual and pension funds or investment advisers) and therefore are less sensitive to the pressures that can receive from it. Such investors are more independent and are called *pressure-resistant*.

Pressure-resistant institutional investors can efficiently control managers and large shareholder' discretionary decisions if the legal framework for corporate governance enhances this monitoring. On the contrary, pressure-sensitive institutional investors can exacerbate the problems of corporate governance by maintaining both business and investment relations with nonfinancial firms. In the case of family firms, the complex relationship between institutional investors and a family that controls the firm can lead to different behaviors in risk taking depending on the level of performance that the company is in (below or above the target).

2.2.1. *Institutional investors in family firms when profitability levels are below the desired target*

Investment funds invest in family firms to obtain a certain expected level of return. When they become a large shareholder, they pressure more and more, as risk seekers, in order to obtain higher returns (Faccio et al. 2011). The target return can be obtained according to the industry's performance or the historical performance of the company as a proxy for expected performance (Fiegenbaum and Thomas 1988; Fiegenbaum 1990; Bromiley 1991; Gomez-Mejia et al. 2007).

When ROA is less than the target return, the case of many family firms during this recent financial crisis, investment funds may play a perverse role because they could pressure to family to assume more risk to achieve the target but they may however get an opposite effect. As figure 2 shows, following the prospect theory, a high level of risk taking for low values of ROA can reduce more the returns with negative consequences for family firms that can end to bankruptcy. Particularly, in the years of the financial crisis, many family firms went to collapse for the pressure exerted by investment funds.

<FIGURE 2 ABOUT HERE>

Accordingly, we formulate our third hypothesis as follows:

Hypothesis 2a: There exists a negative relation between the presence of investment funds as shareholders and profitability in family firms when ROA is lower than the target level.

Banks play a more conservative role than investment funds because they can have also a financial relation with the family firm. So, they try to avoid excessive level of corporate risk taking, particularly when ROA is less than the target and it is more difficult to service the debt. Prospect theory suggests, as figure 3 indicates, that a policy of minor risk taking in this context can increase the returns.

<FIGURE 3 ABOUT HERE>

Accordingly, we formulate our fourth hypothesis as follows:

Hypothesis 2b: There exist a positive relation between bank ownership and profitability in family firm when ROA is lower than the target level.

2.2.2. *Institutional investors in family firms when profitability levels are above the desired target*

When ROA is higher than the target, there is a positive relationship between risk and return, as figure 4 shows, and the presence of investment funds influences increased risk taking in family firms in order to increase expected returns.

In this context, banks can maintain a conservative role and accordingly may attempt to avoid that the company assumes more risk, especially in family firms. So, for values of ROA more than the target a conservative role is negative for the return of the company.

It is possible than banks can play really as investment funds, particularly in family firms, when the financial relations is covered, banks can increase risk taking to get higher profitability levels (DeYoung et al. 2013). The new proactive attitudes of banks in the last years as shareholder is the result of a decline in their net interest income and a major financial deregulation all over the countries. This effect is more prone in common law system, so investment banks of these countries maintain a more speculative position in family firms, as figure 4 shows.

<FIGURE 4 ABOUT HERE>

Accordingly, we formulate our fifth hypothesis as follows:

Hypothesis 3: The pressure of investment funds to assume risk has a positive influence on profitability levels in family firms and the presence of banks (as shareholders) influences negatively on profitability levels, when ROA is more than the target.

3. Sample and method Sample and Method

3.1. ***Sample, Variables and Empirical Model***

Our sample consists of 6,180 firms from developed countries (USA, Canada, EU, Japan, Korea and Australia) for the period 2007-2014, resulting in 38051 observations. More than 1.000 companies are owned and controlled by families. We have obtained data from financial statements (balance sheet and profit and loss statements), on corporate ownership structure and share prices of the firms from THOMSON ONE BANKER database. Table 1 provides a summary of the sample by country. The difficulty in obtaining data on the ownership structure prevents the analysis of all listed companies. We note also that this selection represents companies of all kinds of different sizes.

<TABLE 1 ABOUT HERE>

For testing corporate risk-taking, we use the standard deviation of return on assets in a time period of 3 years to measure the organizational risk (RTDT). This measure is widely used in previous literature on prospect theory and behavioral theory (Chang and Thomas 1989; Chou et al. 2009; Fiegenbaum 1990; Palmer and Wiseman 1999; Sinha 1994). As previously stated, the accounting variables (like the return on assets) relate to the organizational risk defined as the uncertainty of a company's income stream (Palmer and Wiseman 1999). In this sense, for the return measure (ROA) we use the ratio EBIT divided by total assets, widely used in the literature (Deephouse and Wiseman 2000; Fiegenbaum 1990; Sihna 1994). Since we propose a nonlinear effect of return on the risk, the model has a quadratic relation to the variable (ROA). This hypothesis also implies the existence of a turning point. This point is calculated by performing the first partial derivative risk regarding return. In this way, we obtain the breakpoint calculated as $(-\beta_1/2\beta_2)$. In our case, since it is a minimum point, the second partial derivative must take values greater than zero, that is $(2\beta 2)>0$ (see De Miguel et al. (2004) for a further explanation of this procedure).

The model includes the variable (FAM) to identify the nature of the reference shareholder. FAM is a dummy variable that equal 1 if the major shareholder of the company is a family (or individual) and/or is managed by a family member as CEO, Chairman or CFO and 0 otherwise.

The international dimension of our sample implies the existence of differences in legal and social environments that could influence the corporate risk taking decisions. Thus, we consider two additional variables. Firstly, the creditors rights which are measured by the level of legal protection of creditors in each county (LaPorta et al. 1998). We also introduce in the analysis the uncertainty avoidance index (UAI) proposed by Hofstede (2001). The UAI variable measures the 'extent to which the members of a culture feel threatened by uncertain or unknown situations' (Hofstede 2001). The higher the UAI is, greater the aversion to the future uncertainty. Thus, we expect the uncertainty avoidance (UAI) to be negatively related to risk-taking.

The ownership variables in our research are the percentage of shares held by the largest owner (OWN1), the percentage of shares held by institutional investors (INVESTFUND) and by banks (BANKOWN). And we use creditors' rights to determine these variables in each country. So, we have the percentage of shares held by banks in countries more prone to risk and with less level of creditors' rights where banks are, in many cases, investment banks (BANKSOWNanglo).

Our models also include some control variables which are often used in the literature, allowing our study to be comparable with other related research. Although these are not the focus of our analysis, such variables provide significant information, absence of which could mean running the risk of omitted variable biases. Accordingly, we included in the analysis the Market-to-book value ratio (MB), defined as the ratio of the market value of a firm to its book value. Although several different alternative measures of growth opportunities are available (e.g., price-earnings ratios, market-to-book ratios), Adam and Goyal (2008) show that the market-to-book assets ratio has the highest informational contents with respect to investment opportunities. The market value of the firm is defined as the sum of the equity market value plus the debt book value, as it is commonly defined in current research (Maury and Pajuste 2005; Villalonga and Amit 2006). The rationale is that the higher the market-to-book ratio is, the lower is the value attached to the assets in place and, in turn, the higher the value arising from growth opportunities.

We also controlled for firms' capital structure (LEV), measured as the financial leverage ratio (i.e., debt-to-equity ratio). To account for firm size (Holder-Webb et al. 2009), we calculated the log of total assets (LOGAST). Because international business can be affected by firms' sectorial affiliation we have also set included appropriate sectorial dummies. All control variables are measured for each firm in each year. Finally, we include industry dummies and year dummies (INDUSTRY and YEAR, respectively).

Our model (1) is used to obtain the target of the U Form relation between risk and return and to contrast the hypothesis 1 of our study and it is as follows:

$$RTDT_{it} = \beta_0 + \beta_1\ ROA_{it} + \beta_2\ ROA^2_{\ it} + \beta_3\ CR + \beta_4\ UAI + \beta_5\ MB_{\ it} + \beta_6\ LEV_{\ it} + \beta_7\ LOGAST_{\ it} + \beta i\ \text{Country dummies} + \eta i + \varepsilon_{\ it} \quad (1)$$

where i denotes the firm, t denotes the time period, η_i is the fixed-effects term of each firm or unobservable and constant heterogeneity, and $\varepsilon_{i,t}$ is the stochastic error used to introduce possible errors in the measurement of the independent variables and the omission of explanatory variables.

Our model (2) is used to contrast the hypotheses 2 and 3 of our study, before and beyond the ROA target, and it is as follows:

$$ROA_{it} = \beta_0 + \beta_1\ ROA_{it-1} + \beta_2\ RTDT_{it} + \beta_3\ OWN1_{it} + \beta_4\ INVEST_{\ it} + \beta_5 BANK_{\ it} + \beta_6\ CR + \beta_7\ UAI + \beta_8\ MB_{\ it} + \beta_9\ LEV_{it} + \beta_{10}\ LOGAST_{\ it} + \beta i\ \text{Country dummies} + \eta i + \varepsilon_{\ it} \quad (2)$$

where i denotes the firm, t denotes the time period, η_i is the fixed-effects term of each firm or unobservable and constant heterogeneity, and $\varepsilon_{i,t}$ is the stochastic error used to introduce possible errors in the measurement of the independent variables and the omission of explanatory variables.

3.2. ***Empirical Method***

The empirical analysis is divided into two stages. First, we offer a descriptive analysis to show the main characteristics of our sample and to stress examine the consistency of our data with the results of previous research. This step provides preliminary evidence about a possible differential effect of financial deregulation on corporate risk taking and about possible differences among institutional investors. Second, we test our hypotheses through an explanatory analysis to validate the relation between corporate risk-taking and financial freedom, creditors' rights and institutional ownership in a period of financial crisis.

Our database combines time series with cross-sectional data, allowing the formation of panel data, estimated with an appropriate panel data methodology (Arellano and Bond 1991; Arellano and Bover 1990; Bond 2002). Using this technique has two advantages. First, we can control the so-called constant unobserved heterogeneity, since the peculiarities of each company may affect their risk levels and these characteristics persist over time. Second, we can treat the possible endogeneity of the variables by using a generalized method of moments (GMM). We use system estimator, an enhanced version of the estimator GMM in which variable differences are also used as instruments in levels by equations (Blundell and Bond 2000; Blundell et al. 2000; Bond 2002).

The consistency of the GMM estimators depends on the absence of a second order serial correlation in the error term of the waste and the validity of the instruments. For this reason, in Table 4 and Table 5 we present the model specification tests. The validity of the instruments is assessed through the Hansen test of over identifying restrictions that evaluates the joint validity of the selected instruments. We also perform a test (AR2) to verify that the error terms in the regressions do not present a second-order serial correlation, since the definition of the model makes the existence of first-order correlation very likely.

4. Results

4.1. Descriptive Statistics

Table 2 presents the mean value, the median, the standard error, and the maximum and minimum values of the main variables for all the companies of the countries of our whole sample.

<TABLE 2 ABOUT HERE>

Table 3 presents the mean value, the median, the standard error, and the maximum and minimum values of the main variables for all the family companies of countries with high or less level of creditors' right. We identify each country using the measure of the creditors' right proposed by La Porta et al. (1998) which divides our sample in the group of countries with high level of protection to debtholders, values equal or higher than 2, and countries with lower level of protection to debtholders, values between 0 and 1. In the first group we have Sweden, France, Spain, Japan, Italy, Belgium, The

Netherlands, Germany, Austria, Korea, Finland, Luxembourg and Norway and in the second group are Ireland, Australia, Canada and USA.

<TABLE 3 ABOUT HERE>

The values of table 3 for family firms evidence that the differences in the mean values for all the variables listed of companies for countries with high or less creditors right are statistically significant. Particularly, the average risk is higher in the companies of countries with low creditors rights but not the average ROA which can reinforce the possible non-linear relationship between the two variables that our work raises in line with the Prospect theory. Besides the mean of the variable MB is higher in countries with low creditors right that contains Anglo countries that are characterized by a stronger influence of capital markets.

Table 4 presents the mean value, the median, the standard error, and the maximum and minimum values of the main variables for all the family companies of countries more prone or less prone to risk. We identify each country using the measure of the Hofstede variable (UAI) which divides our sample between a group of countries with a culture less threatened by uncertain or unknown situations, values of (UAI) lower than 85, and a group of countries with more fear over uncertainty. In the second group we have France, Spain, Belgium and Japan.

<TABLE 4 ABOUT HERE>

Similar to the values of table 3, in table 4 we show evidence that the differences in the means of all variables of companies for countries more and less prone to risk is significant except for the variable INVESTFUND. So, we can observe differences that can have an important influence in the econometric results. Particularly, the average of risk is higher in the companies of countries more prone to risk but not the average of ROA in the line of the possible non-linear relationship suggested by the Prospect theory.

4.2. Regression Analysis

Our regression analysis expands the results of the descriptive analysis. Tables 5, 6 and 7 report the results from the estimation of equation (1) and (2).

<TABLE 5 ABOUT HERE>

Results of the table 5 evidence the non lineal relation between risk and return in family firms according to the hypotheses set and following the prospect theory framework. And also the positive and significant coefficients of the institutional variables confirm the differences among countries in the risk-return relation as hypothesis 1b set. In particular, the positive and significant coefficient of the variable (ANGLO) evidences a higher orientation to risk of Anglo firms. And, similar to this value, the negative and significant coefficient of the variable (CR) and the variable (UAI) confirm that

companies of the countries with more legal protection to the creditors and with more level of uncertainty avoidance are more conservative and taking less risk decisions.

With this model, we can obtain the inflection point of ROA using the first and second derivative. The value is obtained by the ratio ($-\beta_1/2\beta_2$) taking the coefficients of the variables ROA and ROA squared. And the value is 0,16 which will be the value used to separate the results included in table 6 where we report the relation between ROA and the ownership by institutional investors and banks.

<TABLE 6 ABOUT HERE>

Results in table 6 for firms below the profitability target indicate a positive and significant relation of the coefficient of (BANKOWN) and confirm the hypotheses set where the financial entities try to avoid the corporate risk taking when they are shareholders in order to keep a long term financial relationship with the company when the value of ROA is low. We also obtain a negative and significant coefficient for the variable (INVESTFUND) when firms are below the target level of ROA. So, we can observe evidence in favor of the stated hypotheses as the institutional investors seem to exert pressure to increase corporate risk taking in family firms with negatives consequences for the profitability of the firm when ROA is very low.

Results for firms whose ROA is above the target indicate a positive and significant relation of the coefficient of (INVESTFUND) and confirm the hypotheses that the pressure of investment fund to increase family corporate risk taking when ROA is higher than the target level. And the coefficient of the variable (BANKOWN) is negative and significant, as the hypothesis set, due to the conservative role that they maintain. Looking at control variables the results confirm the influence of leverage and firm size in corporate risk taking.

We conduct a series of sensitivity analyses to test the robustness of our results. First, we calculate the variable BANKOWNanglo to include the influence of the shares of these banks in Anglo companies because they are mainly investment banks and can influence as an institutional investor. The results are shown in table 7.

<TABLE 7 ABOUT HERE>

For the results obtained over firms where ROA is below the target level the coefficient of the variable (BANKOWNanglo) is negative and significant similar to the result obtained by the variable (INVESTFUND). And it is negative also in the case when ROA is higher than the target, in contrast with the variable (INVESTFUND) following the nature of the rest of the banks. The remaining results are analogous to those discussed above and are not presented for reasons of parsimony.

5. Conclusions

We have studied the behavior of family firms in the risk return relation in different countries for the period 2007 and 2014. The Prospect theory allows confirming the

nonlinear relation and the pertinence of defining a target level of profitability in order not to assume excessive level of corporate risk taking.

This profitability target is obtained as the optimum value of return according the situation of the company and sector and a number of important institutional factors. We show evidence that the levels of protection of creditor rights and of uncertainty avoidance in each country are relevant factors to explain the level of risk taking by family firms.

We have found that large shareholders try to influence family firms level of risk taking. Particularly, we show that institutional investors seem to exert their pressure to family owners to increase risk, even if the company is below the target, with the negative consequence of reducing further on the levels of profitability. That fact has been dramatic in the years of financial crisis when many family firms have gone to bankruptcy by assuming excessive level of risk taking due to the negative influence of investment funds. At the same time, banks, as big shareholders, seem to be more worried about maintaining their core business, and are therefore more conservative in order to preserve a long term financial relationship with the family firm. This policy seems to generate better returns even when profitability is lower than the target, mainly in the critical years of the financial crisis.

Our research can have promising implications for practitioners, policy makers and academia. Since we base our analysis on market information, our research is informative for practitioners about how it is necessary to know the risk return relation for a given company and the profitability targets to exert an adequate influence in corporate risk taking, mainly by big institutional investors in family firms. And, also, the cultural aspects and the institutional factors of every country, as the protection to creditors' rights or the aversion to uncertainty, are a necessary background to take into account before adopting a certain level risk taking.

Several directions for future research are apparent. We have limited our scope to the influence of family firms but new research could introduce the factors considered to other companies.

Finally, new research could introduce the influence of foreign institutional investors that can be an additional factor to explain the level of corporate risk taking.

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FIGURE 1: U-Shaped relation between Risk and Return

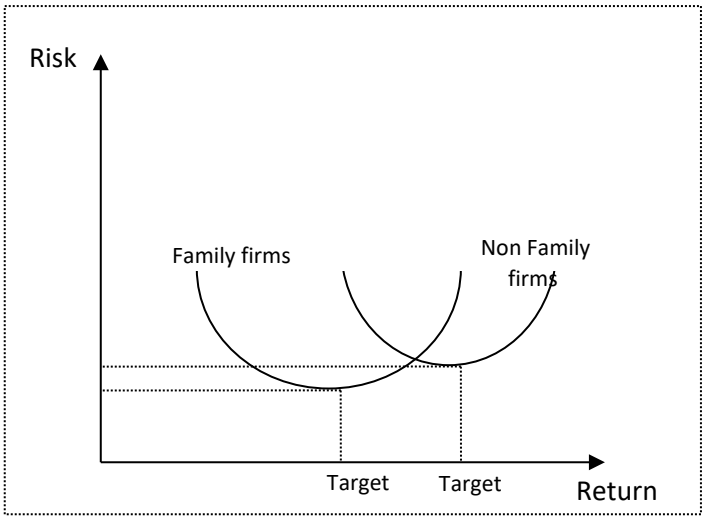

FIGURE 2: Family firms' risk-return relationship in the presence of relevant investment funds (institutional investors) ownership when profitability is below the target

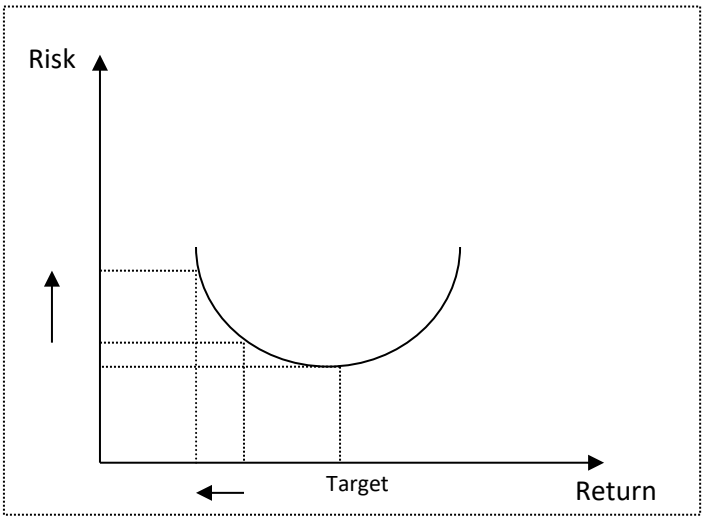

FIGURE 3: Family firms' risk-return relationship in the presence of relevant bank ownership (institutional investors) ownership when profitability is below the target

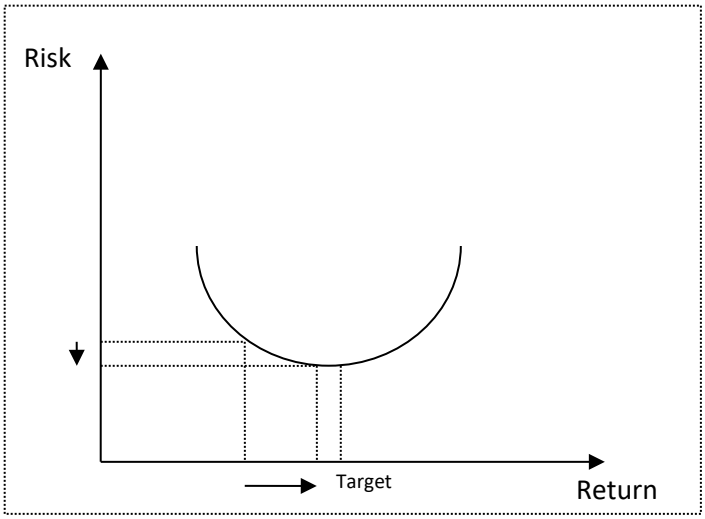

FIGURE 4: Family firms' risk-return relationship in the presence of relevant bank ownership and investment funds when profitability is above the target

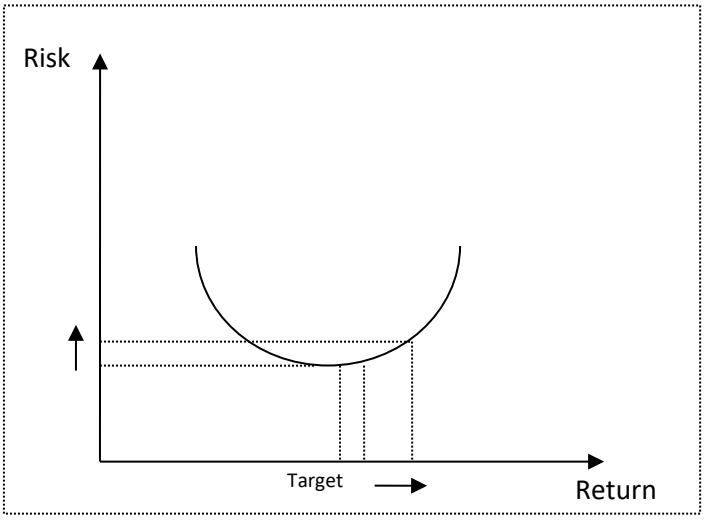

Table 1. Composition of the sample by countries (family and non-family firms)

Country	# Observations
USA	11,978
CANADA	832
EU	7,685
JAPAN	14,272
KOREA	2,762
AUSTRALIA	522
Total	**38,051**

Table 2. Descriptive statistics (family and non-family firms)

Variable	Mean	Std. Dev	Median	Min	Max
RTDT	0.052	0.065	0.0317	0	0.410
ROA	0.267	0.220	0.212	0	1.171
OWN1	0.168	3.133	0.026	0	0.400
INVESTFUND	0.802	21.15	0.069	0	0.350
BANKOWN	0.028	0.463	0	0	0.500
MB	0.720	0.726	0.494	0	4.335
LEV	0.559	0.200	0	0	1
LOGAST	9.963	1.226	10.018	3.744	14.47

Mean, median, standard deviation, maximum, and minimum value of the variables. RTDT is the standard deviation of return on assets in a time period of 3 years to measure the organizational risk. ROA is the return on assets; OWN1 is the percentage of shares held by the largest owner; INVESTFUND is the proportion of shares held by investment funds; BANKOWN is the proportion of shares held by banks; MB is the market-to-book ratio; LEV is measured as total debt divided total assets; LOGAST is the log of total assets. The *t*-test value is the maximum level of significance (*p*-value) to reject the null hypothesis of equality of means between both subsamples according to the parametric *t*-test, whereas *MW*-TEST is the maximum level of significance to reject the null hypothesis of equality of means between both subsamples according to the Mann-Whitney nonparametric test**.*****,**and*indicate significance at the 99%, 95%, and 90% confidence level, respectively.

Table 3. Descriptive statistics for family firms

	Mean						
	Countries wih high CR	**Countries with low CR**	**t-test *p*-value**	**Std. Dev.**	**Median**	**Min**	**Max**
RTDT	0.044	0.076	***	0.075	0.038	0	0.410
ROA	0.305	0.287	***	0.243	0.226	0	1.143
OWN1	0.282	0.091	***	0.094	0.02	0.02	0.998
INVESTFUND	0.061	0.111	**	0.090	0.093	0	0.865
BANKOWN	0.017	0.001	***	0.029	0	0	0.732
MB	0.643	0.990	***	0.7335	0.443	0	4.021
LEV	0.431	0.550	***	0.277	0.522	0.07	1
LOGAST	10.032	8.625	***	1.225	9.064	3.543	12.223

Mean, median, standard deviation, maximum, and minimum value of the variables. RTDT is the standard deviation of return on assets in a time period of 3 years to measure the organizational risk. ROA is the return on assets; OWN1 is the percentage of shares held by the largest owner ; INVESTFUND is the proportion of shares held by investment funds, BANKOWN is the proportion of shares held by banks; MB is the market-to-book ratio; LEV is measured as total debt divided total assets; LOGAST is the log of total assets. The *t*-test value is the maximum level of significance (*p*-value) to reject the null hypothesis of equality of means between both subsamples according to the parametric *t*-test, whereas *MW*-TEST is the maximum level of significance to reject the null hypothesis of equality of means between both subsamples according to the Mann-Whitney nonparametric test**.*****,**and*indicate significance at the 99%, 95%, and 90% confidence level, respectively.

Table 4. Descriptive statistics for family firms

	Mean						
	Countries less to risk	**Countries prone to risk**	**t-test *p*-value**	**Std. Dev.**	**Median**	**Min**	**Max**
RTDT	0.054	0.073	***	0.074	0.038	0	0.410
ROA	0.315	0.277	***	0.246	0.226	0	1.171
OWN1	0.292	0.077	***	0.080	0.02	0.02	0.956
INVESTFUND	0.113	0.112		0.090	0.094	0	0.854
BANKOWN	0.016	0.001	***	0.026	0	0	0.781
MB	0.525	0.826	***	0.7335	0.450	0	4.335
LEV	0.541	0.524	***	0.277	0.536	0.08	1
LOGAST	10.044	9.564	***	1.317	10.014	3.704	13.900

Mean, median, standard deviation, maximum, and minimum value of the variables. RTDT is the standard deviation of return on assets in a time period of 3 years to measure the organizational risk. ROA is the return on assets; OWN1 is the percentage of shares held by the largest owner ; INVESTFUND is the proportion of shares held by investment funds, BANKOWN is the proportion of shares held by banks; MB is the market-to-book ratio; LEV is measured as total debt divided total assets; LOGAST is the log of total assets. The *t*-test value is the maximum level of significance (*p*-value) to reject the null hypothesis of equality of means between both subsamples according to the parametric *t*-test, whereas *MW*-TEST is the maximum level of significance to reject the null hypothesis of equality of means between both subsamples according to the Mann-Whitney nonparametric test**.*****,**and*indicate significance at the 99%, 95%, and 90% confidence level, respectively.

Table 5. Results of the estimation of model 1

	Family	Non Family
Constant	0,157 ***	0,158 ***
	(0,016)	(0,007)
ROA	-0,042 ***	-0,004
	(0,011)	(0,005)
ROAsq	0,132 ***	0,128 ***
	(0,011)	(0,005)
CR	-0,006 **	-0,008 ***
	(0,003)	(0,001)
UAI	-0,001 **	-0,001 ***
	(0,001)	(0,001)
ANGLO	0,029 ***	0,015 ***
	(0,008)	(0,004)
MB	0,010 ***	0,001
	(0,001)	(0,001)
LEV	0,014 ***	0,018 ***
	(0,002)	(0,005)
LOGAST	-0,017 ***	-0,013 ***
	(0,001)	(0,001)
Wald Test	1046,18 ***	4568,65 ***
	(15)	(15)
R2	0,0567	0,618
n	7258	31978

Estimated coefficients (standard errors) form the estimation of equation 1. Standard errors are robust to heteroskedasticity of equation (1). The dependent variable is the RTDT measured by the deviation standard of return on assets in a time period of 3 years to measure the organizational risk. ROA is the return on asset and ROAsq is the squared variable; CR, the creditors right, measures the level of legal protection of creditors in each country (La Porta et al., 1998); UAI is the uncertainty avoidance index proposed by Hofstede (2001); ANGLO takes value 1 if it is an anglo company and 0 otherwise; MB is the market-to-book ratio; LOGAST is the log of total assets; LEV is measured as total debt divided total assets. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

Table 6. Results of the estimation of model 2 below and above the target of ROA in family firms

	ROA< 0.16	ROA>0.16
Constant	0.004 ***	0.208 *
	(0.037)	(0.128)
ROA(lag1)	0.820 ***	0.82 ***
	(0.051)	(0.014)
RTDT	-0.188 ***	0.248 ***
	(0.046)	(0.051)
OWN1	0.0062 ***	0,001 ***
	(0.001)	(0.001)
INVESTFUND	-0.0008 **	0.001 *
	(0.001)	(0,000)
BANKOWN	0.002 ***	-0.003 ***
	(0.001)	(0.001)
CR	0.005	-0.038 **
	(0.007)	(0.015)
UAI	0.01	-0.001 ***
	(0.01)	(0,001)
ANGLO	-0.008	-0.001
	(0.027)	(0.069)
MB	0.014 ***	0.016 ***
	(0.003)	(0.004)
LEV	0.022 ***	0.021 *
	(0.008)	(0.012)
LOGAST	-0.002 ***	-0.003
	(0.002)	(0,004)
Year2013-Year2008	Yes	Yes
Observations	2009	3810
Number of firms	752	1346
Hansen test	55.73	50.54
m2	0.47	0.30

Estimated coefficients (standard errors) form the estimation of equation. Standard errors are robust to heteroskedasticity of equation (1). The dependent variable is the return on assets (ROA); RTDT is the deviation standard of return on assets in a time period of 3 years to measure the organizational risk; OWN1 is the proportion of ownership of the largest shareholder; INVEST is the proportion of shares held by investment funds; BANKOWN is the proportion of shares held by banks; CR, the creditors right, measures the level of legal protection of creditors in each country (La Porta et al., 1998); UAI is the uncertainty avoidance index proposed by Hofstede (2001); ANGLO takes value 1 if it is an Anglo company and 0 otherwise; MB is the market-to-book ratio; LEV is measured as total debt divided total assets; LOGAST is the log of total assets;. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

Table 7. Results of the estimation of model 2 below and above the ROA target in family firms

	ROA< 0.16	ROA>0.16
Constant	0.004 ***	0.179
	(0.037)	(0.222)
ROA(lag1)	0.827 ***	0.671 ***
	(0.046)	(0.013)
RTDT	-0.265 ***	0.187 ***
	(0.006)	(0.035)
OWN1	0.006 ***	0.001 ***
	(0.001)	(0.001)
INVESTFUND	-0.0005 **	0.001 *
	(0.001)	(0.000)
BANKOWN	0.002 ***	-0.003 **
	(0.001)	(0.001)
BANKOWNanglo	-0.152 ***	-1.278 ***
	(0.0413)	(0.228)
CR	0.003	-0.041 ***
	(0.007)	(0.031)
UAI	0.001	0.001
	(0,001)	(0,001)
ANGLO	-0.004	0.024
	(0.027)	(0.113)
MB	0.016 ***	0.019 ***
	(0.003)	(0.004)
LEV	0.021 **	0.030 **
	(0.008)	(0.016)
LOGAST	-0.001	-0.004
	(0.002)	(0,004)
Year2013-Year2008	Yes	Yes
Observations	2009	3810
Number of iden	752	1346
Hansen test	67.20	72.58
m2	0.46	0.26

Estimated coefficients (standard errors) form the estimation of equation. Standard errors are robust to heteroskedasticity of equation (1). The dependent variable is the return on assets (ROA); RTDT is the deviation standard of return on assets in a time period of 3 years to measure the organizational risk; OWN1 is the proportion of ownership of the largest shareholder; INVEST is the proportion of shares held by investment funds; BANKOWN is the proportion of shares held by banks; CR, the creditors right, measures the level of legal protection of creditors in each country (La Porta et al., 1998); UAI is the uncertainty avoidance index proposed by Hofstede (2001); ANGLO takes value 1 if it is an Anglo-Saxon company and 0 otherwise; MB is the market-to-book ratio; LEV is measured as total debt divided total assets; LOGAST is the log of total assets;. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.