

Risk and Business-Owning Families

(First draft)

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Abstract

This paper analyses investment behaviour of family business owners in order to disentangle risk taking patterns in the Spanish context. In particular, this study tries to show whether family business owners are more risk tolerant than no owners, and which features are conditioning risk taking perceptions and behaviour. For that, we use data from the 2002 and 2005 Spanish Survey of Household Finance (EFF). With these data it is possible to conduct longitudinal and cross-sectional Studies to obtain more robust conclusions. Although there are similar Studies for the US economy (Xiao et al, 2000 among others), this is the first study for Continental European family firms, as far as the authors are concerned and the first to present panel data analysis. Results will help to increase the understanding of risk tolerance and may help to design political recommendations with respect to this important part of the economy.

1. Introduction

Risk is endemic to business. Every little firm decision, imply taking risks: financial, industry, professional, political, regulatory, environmental, and reputational. Therefore, controlling and managing risks is crucial to successful organizations. This is especially true for family firms. First because they are normally more financially constrained and second because family members have their own wealth tied to family successful entrepreneurship. Besides, finances of family business and family may be interrelated since some members could also finance the business. This *intrinsic* particular relationship may even cause conflicts between family members affecting the run of the firm. Getting to know family firms' attitudes towards risk and individual business owners risk perceptions would be very useful for establishing political recommendations that encourage entrepreneurship. This is even more relevant for those countries with a high percentage of family firms. The development of household data bases allows understanding the financial behaviour, attitude and situation of families who own businesses.

Some papers have analysed the role of risk tolerance as one of the essential components of investment management. Friend and Blume (1975) propose a framework to measure risk tolerance that focus on the relationship between this tolerance and wealth. Hanna and Chen (1997) dealt also with the links between risk tolerance, wealth and investment horizon through the use of historical investment data and simulations. Within this risk tolerance, some other studies focused on the distinction between risk attitude and behaviour. The former was analysed by Sung and Hanna (1996) and Grable and Lytton (1998). The first paper estimated the effects of demographic and financial variables on risk tolerance attitudes whereas the second completes the analysis using multivariable techniques such as discriminant analysis. The latter was tackled by Jianakoplos and Bernasek (1998). Finally the relationship between both concepts was first analysed by Schooley and Worden (1996).

With respect to risk and family business there are also some previous research. Haynes and Avery (1997) study the decision of whether or not to intermingle family finances and business finances. On the same vein, Haynes, Walker, Rowe and Hong (1999) analyse the superposition of family and business financial resources. Xiao, Alhabeed, Hong and Haynes (2001) examined at the same time risk attitude and

behaviour comparing business-family owners and non owners. The bulk of these papers are based on U.S. data. Evidence on risk attitude and family business in Continental Europe is still missing. This paper takes advantage of the recent availability on Spanish Household data to try to fill this gap.

Building on previous research, this paper analyses investment behaviour of family business owners in order to disentangle risk taking patterns in the Spanish context. In particular, this study tries to show whether family business owners are more risk tolerant than non owners, and which family features are conditioning risk taking perceptions and behaviour. For that, we use data from the 2005 Spanish Survey of Household Finance (EFF). With these data it is possible to conduct cross-sectional studies to obtain more robust conclusions.

Although related to similar analysis for the US economy this is the first study for Continental European family firms, as far as the authors are concerned. Besides, this paper will try to go beyond previous research in several ways. First it will try to improve the definition and measure of risk behaviour and its relationship with risk attitudes. Second, the role of women risk attitude and behaviour on the run of family business will be analysed. Results will help to increase the understanding of risk tolerance and may help to design political recommendations with respect to this important part of the economy.

The rest of the paper is organised as follows. Section 2 reviews the studies on the link between risk tolerance, financial behaviour and family firms. In section 3, we present the data used. Section 4 presents the results. Finally section 5 concludes

2. The link between risk attitude, family features and business ownership

The intermingling between family and business finances is one of many risky decisions faced by family business owners (Xiao et al. 2001). These risky decisions are affected by the level of risk tolerance, among many other factors. To better understand how family business owners make risky financial decisions for the family and/or business, factors associated with the levels of their risk tolerance should be examined. In particular, we will examine the relationship between risk attitude, wealth and family and social features.

In general terms, business owners are said to have more tolerance to risk (Knight, 1947). Previous studies confirm this idea highlighting that self-employment, which is the case for many family businesses, has positive associations with risk-taking attitudes (Sung and Hanna 1996; Grable and Lytton 1998). Family business owners, therefore, are tempted to take an above-average financial risk to maximize their potential success. Second, business-owning families usually have more financial resources that allow them to afford taking above-average risks. Further, risk-taking behavior was found to be positively related to family wealth in studies by Schooley and Worden (1996) and Jianakoplos and Bernasek (1998).

Accordingly, variables that may help increase family wealth, such as family income, education, and home ownership, could increase the level of risk tolerance. Previous studies indicated that non-investment income (Sung and Hanna 1996) or total income (Grable and Lytton 1998) were positively related to the risk-taking attitude.

Age and sex also affect risk attitudes. Sung and Hanna (1996) confirmed that generally, people are more willing to take risks at a younger age, and Jianakoplos and Bernasek (1998) found that age effects on risk-taking behavior have a reverse-U-shape. Women are expected to be more conservative investors than men (Wang, 1997). There is evidence supporting this view, women are more risk-averse than men, in financial decision-making. Recent survey data suggest that wealth holdings of single women are less risky than those of single men of equal economic status (Jianakoplos and Bernasek, 1998, Sunden and Surette, 1998). Also, when asked about their attitudes toward financial risks, women seem to report a lower risk propensity than men (Barsky et al., 1997).

Finally, previous studies showed that the number of young dependents in a household has negatively affected the proportion of risky assets held by married couples (Jianakoplos, and Bernasek 1998).

Table 1 summarizes the expected relationships between risk attitude and family characteristics.

[insert table 1]

3. Data and variable definition

Knowledge of the financial behaviour of households is important for economic analysis and the conduct of economic and regulatory policy (Bover, 2004). The understanding of financial decisions of households who own businesses is more important, specially in those countries with a high percentage of family firms. This is specially true in Spain, where family firms contribute to 70% of economic activity and 60% of the workforce (BBVA, 2003).

The Banco de España started in 2001 a survey on household finances (Encuesta Financiera de las Familias (EFF)) as it is carried out in other countries. In particular, Banca d'Italia survey (Survey on Household Income and Wealth (SHIW) and the US Board of Governors Survey of Consumer Finances (SCF). EFF is multi-imputed dataset in order to enable analysis with complete-data methods. The main feature of EFF is the oversampling of wealthy households (as SCF does). This is done due to the fact that the distribution of wealth is heavily skewed and some types of assets are held only by a small fraction of the population. In this sense, this oversampling achieves not only representativeness of the population but also of aggregate wealth. Besides, it allows for the study of financial behaviour at the top of the wealth distribution. In 2004 it was launched the second edition of the EFF. This second wave tries to overcome some of the weaknesses evidenced in the 2002 wave. First, it has a full panel component. This allows to study of transitions and to account for heterogeneity among households. Second, in addition to the panel component, a complete fresh cross-section was incorporated in order to preserve cross-sectional representativity and overall sample size. Despite these improvements, 2002 and 2005 data are comparable and will allow a longitudinal analysis. Further, 2005 EFF adds some questions about business proprietorship and usage of payment systems. Accordingly, we start analysing 2005 EFF first and then move on to a longitudinal study afterwards.

3.1. Variable definition

In this paper, we analyse the relationship between risk attitude and risk behaviour together with household characteristics. In particular, we compare attitudes and behaviour of families who own a business with families that do not own. For that, we construct measures of risk attitude and behaviour and use different family features that have been previously used in related papers. To account for risk attitude we use the direct perception of willingness to invest in risky assets.

This is the response to question p9_11 of 2005 EFF. The question is “Which of the statements on this page comes closest to the amount of financial risk that you and your (spouse/partner) are willing to take when you save or make an investment? (1) Take *substantial* financial risks expecting to earn substantial returns; (2) Take *above average* financial risks expecting to earn above average returns; (3) Take *average* financial risks expecting to earn average returns; (4) *Not willing* to take any financial risks.” Therefore higher values of this variable indicate less tolerance to risk.

The percentage of risky assets hold by the household is used to proxy the risky behaviour of the family. Similar variables were used in Xiao et al. (2001).

The independent variables are grouped into family and business characteristics.. Family characteristics are home ownership status, household size, family income, and net worth and also include family business owner’s characteristics. These features of family business owners include age, education, and gender.

Business characteristics include the number of employees, gross profits, number of businesses owned and sole proprietorship status. Larger and older businesses are well established and should be less risky. Multiple business owners have extensive experience in owning and operating a business; hence, owners of this type of business should have a lower probability of failing. Involving others (either using a partnership or corporate organization) in a business venture reduces financial risk of the owner. Table 2 presents the variables used in the analysis

[insert table 2]

4. Methods and results

As explained above EFF is a multi-imputed dataset. For each missing value, five imputed values are provided. These imputations are stored as five distinct datasets. To make inferences from the five multiply imputed (MI) datasets one has (1) first to analyze each of the datasets and (2) then combine the results. However, for explanatory analysis, it is enough to use one or two of the MI datasets. Therefore, we will use one MI dataset for descriptive statistics and combine results for regression analysis. In this latter case weights are taken into account because of the unequal probability of the

household being selected into the sample given the oversampling of the wealthy in the EFF and geographical stratification. We follow Cameron and Trivedi (2005) that claim that weights should be used if regression is viewed as a tool to describe population responses

4.1 Descriptive analysis

Table 3 summarizes the characteristics of families that owned or did not own a business. The average age of the business owners was forty eight years old, and they had an average of around five years of education. More men are business owners than women. A comparison between family business owners and non-owners showed that family business owners were slightly younger and worse educated than non-owners. Less family business owners than non-owners are home owners and had a slightly larger family size. Family business owners also had much higher levels of income and net worth than non-owners. All differences are statistically significant except for gender distribution. Similar differences are observed for the studies on U.S. data in the case of age, size, income and net worth. However the magnitude of these differences is not so similar. Business owners' families are much greater in the Spanish case than in the USA where the numbers are very close. The reverse is found in the case of income and net worth. Differences in the US are enormous compared with the case of Spain. Therefore it seems that in Spain running your own family business is not so rewarding in terms of income and net worth as it is in the US. Traditionally, entrepreneurship has been one of the main characteristics of the US economy compared to continental Europe. This difference payoff -income and net worth- could be one of the underlying factors. Two other variables present distinct results: education and home ownership. They do not seem to be the one of the factors behind entrepreneurship in the case of Spain.

[insert table 3]

In order to compare the risk-taking attitude and behaviour of business owners and non owners we calculate the proportion of families that are willing to take different risk levels and the percentage of risky assets held. Results are shown in table 4. Panel A presents findings for risk taking attitude. These numbers evidence that in general, Spanish families have a more conservative attitude towards risk than U.S. The proportion of families not willing to take any risk are well above 50% (61.86% owners and 83.35% non-owners) whereas in the case of US are clearly below 50% (27% and

43% respectively)¹. As in the case of U.S. data family business owners tended to have a higher level of risk tolerance than non-owners. However the difference between them is much more important in the case of Spain: up to five times the proportion of non owners versus less than 60% in the case of U.S. Further, differences between business owners and nonowners are significant for all tolerance levels except for households that want to take substained risks.

Panel B shows the results for risk behaviour. It can be observed that the percentage of family business owners with low levels of risky assets is much lower than nonowners. Accordingly, a higher percentage of family bussines owners have relatively risky portfolios (share of risky assets between 25-75%). All these differences are statistically significant. However, interestingly, nonowners present a higher percentage of risky assets in their portfolios, although this difference is not significant.

[insert table 4]

In order to analyse more deeply the relationship between risk attitude and risk behaviour, we explore the relationship between the family business owners' willingness to take risks and their actual risk behavior (Panel C). Results show some coherence between risk attitude and behaviour. Generally, the share of risky assets held by family business owners increase as the level of risk tolerance increase showing a proportional relationship. This pattern, is not observed however, in the percentage of risky assets held by those household with the greatest tolerance to risk. Therefore, those family business owners who claim to be the most tolerant to risk do not exhibit the highest level of risky assets in their portfolios. This evidence is slightly different from that found in Xiao et al. (2001) for the U.S. where consistency is also found for the riskiest family business owners.

4.2 Regression analysis

Multiple regression analyses are conducted to examine the factors associated with the risk-taking attitude and behaviour measured by the ratio of risky assets to total assets. Table 5 presents the analysis for the risk attitude and behaviour. As we have previously explained, risk attitude is measured through a categorical variable, the higher the value, the lower risk taken. Then a negative coefficient means a positive effect on risk attitude. As hypothesized, several family characteristics present positive effects on

¹ Results presented in Xiao et al. (2001).

the risk-taking attitudes, including education, home ownership, family wealth and net worth. Age shows a negative effect on the risk-tolerance attitudes, suggesting older family business owners are less likely to take risks than younger owners. Sex presents a negative effect as well, therefore, suggesting that women are more risk averse than men as suggested by previous works. Household size presents a positive coefficient, hence implying that larger households tend to take smaller risks when making decisions. Looking at the variable that accounts for the existence of a family business, the coefficient is highly significant and as expected has a positive effect on risk attitude, suggesting that families that owned business are more willing to take risks. This evidence is in line with evidence found for the U.S. However, Xiao et al (2001) find slightly different results since family net worth and household did not show significant effects.

Panel B collect the results for risk behaviour. The variable that proxy for risk behavior is the percentage of risky assets owned by the family. Age, gender, household size and income coefficients are not significant, therefore are not affecting risk behaviour. Therefore, although younger family business owners, women of smaller families and greater income are less willing to take risks they do not invest in less risky assets. Education and home ownership present significant coefficients but negative, different than expected. Less educated families that are not home owners hold riskier assets than those more educated and with real state properties although their risk attitude implied the opposite . This result is a bit surprising and inconsistent with studies on U.S. Net worth maintains the positive and significant effect found for the risk attitude variable. Finally, the business family variable is not significant.

[insert table 5]

Since, owning a firm is an important determinant of risk attitude and behavior, we decide to include some business features and restrict the analysis to family business owners. The business features included are the number of businesses owned, number of employees, profits earned and sole proprietorship. The introduction of business features weaken previous results. Now, only home ownership and household wealth present significant coefficients. Wealth maintains the sign of the coefficient previously estimated, but house ownership changes, affecting positively risk attitudes, (Panel A).

[insert table 6]

Results for risk behavior are also milder when family business features are introduced (Panel B). In this case, only, the number of employees of family business affect negative and significant risk behaviour. Therefore, evidence suggest that households owning larger business tend to be more conservative.

.Further, we classify households attending to their risk attitude to try to disentangle the conflicting relationships between risk attitudes and actual risky behaviour found in the descriptive analysis and in the regression presented in table 5, (Panel C). In particular, we split the sample into households with risk tolerance above and below the average. Again, the introduction of business characteristics weakens results previously commented. Interestingly, results are qualitatively different for the two groups of family business owners, those who are willing to take above average risks and those who are willing to take below the average risks. In particular, for the former group older family business owners with more and larger business present less risky behaviour. In the latter group, only business size seems to be affecting risk behaviour. These results suggest the lack of complete coherence between our measures of risk attitude and risk behaviour, that may be indicating that respondents tend to hide their true preferences about risk in the questionnaire.

5. Conclusions

This study has examined the risk tolerance of Spanish households using data from the 2005 Encuesta Financiera de las Familias (EFF) developed by the Bank of Spain. Due to family business relevance in Spanish economy and considering the owning a business is affecting family risk taking decisions, special attention has been devoted to the comparison between family who own businesses and nonowners. The findings can be summarized as follows: family business owners are more willing to take financial risks and have a larger share of financial assets in risky assets compared to people who do not own a family business. Looking at personal features among family business owners, age, sex, net worth and income affect both risk-taking attitudes and behaviours. However, when we include business features in the analysis results are weaker.

This study is the first to attempt to study the risk tolerance of family business owners in Spain and allow the comparison with evidence of the U.S. The findings indicate that several personal and business-related variables affect the risk tolerance of

family business owners like it has been evidenced for the U.S, however, there are other factors that are not so determining in the Spanish context. The findings of this study represent a first step for future research to further explain the decision-making behavior of business-owning families.

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Table 1

Factors affecting risk attitude	
Family Factors	Expected Sign
Age	-
Education	+
Gender (0=male, 1=female)	-
Household size	-
Home owner	+
Family income	+
Net worth	+
Business Ownership	+

Table 2: Variables and definitions

Variable

Risk taking attitude

Total Assets

Main residence

Other properties

Vehicles

Jewellery

Accounts and deposits

Listed shares

Unlisted shares

Mutual Funds

Fixed income

Other financial assets

Pension schemes

Insurance policy

Other insurance

Business Properties

Family Characteristics

Head's Age

Head's education

Size

Home owner

Family income

Net wealth

Business characteristics

Number of employees

Number of businesses

Business Type

Employment type

Profits

Percentage of business owned

Percentage of business owned by
the family

Percentage of shares owned

Table 3

Descriptive statistics of Families who own and do not own business, weighted sample

Variable	Own business	Do not own business
Weighted percentage	0,274	0,725
Family Characteristics		
Head's age		
<i>Mean</i>	48,4112	52,1197
<i>standard deviation</i>	0,6580	0,2184
Head's education		
<i>Mean</i>	4,7430	5,1848
<i>standard deviation</i>	0,1498	0,0441
Head's sex		
<i>Mean</i>	1,3965	1,4461
<i>standard deviation</i>	0,0271	0,0066
Household size		
<i>Mean</i>	3,3848	2,7723
<i>standard deviation</i>	0,0588	0,0165
Home owner		
<i>Mean</i>	0,0254	0,1161
<i>standard deviation</i>	0,0087	0,0043
Family income		
<i>Mean</i>	10,4011	9,9495
<i>standard deviation</i>	0,0409	0,0120
Net worth		
<i>Mean</i>	12,9114	11,6044
<i>standard deviation</i>	0,0517	0,0249

Table 4

Panel A: Risk tolerance level of business owners and non owners		
Willing to take (%)	non owners	business owners
substained risk	0,77	3,80
above average risk	1,64	9,08
average risk	14,25	25,26
no risk	83,35	61,86

Bold numbers indicate significant differences at 0.01%

Panel B: Risk behaviour of business owners and non owners		
Share of risky assets (%)	non owners	business owners
0-25%	30.69	12.80
26-50%	24.94	39.55
51-75%	22.60	33.16
76-100%	21.75	15.20

Bold numbers indicate significant differences at 0.01%

Panel C: Risk tolerante behaviour by risk attitude of family				
Business owners	Business owners			
	0-25%	26-50%	51-75%	76-100%
Below average risk	14.54	45.38	29.92	10.15
Average risk	3.27	35.56	40.01	21.16
Above average risk	20.83	26.91	20.12	32.13
Substained risk	9.68	1.45	71.44	17.42

Table 5
Risk Attitudes and Behavior by Family Business Ownership

Panel A (risk attitude)

Variable	Coef.	Std. Error
Business	-0.2898***	0.0824
Age	0.0022***	0.0006
Education	-0.0187***	0.0036
Gender	0.0563***	0.0183
Size	0.0216**	0.0089
House Owner	-0.0696*	0.0377
Income	-0.0688***	0.0141
Wealth	-0.0314***	0.0058
Constant	47.003***	0.1370

Panel B (risk behaviour) (% of risky assets)

Variable	Coef.	Std. Error
Business	-0.1352	0.0980
Age	0.0009	0.0027
Education	-0.0139***	0.0054
Gender	0.1008	0.1219
Size	-0.0192	0.0203
House Owner	-0.2709**	0.1297
Income	-0.0831***	0.0230
Wealth	0.3072**	0.1315
Constant	-20.836	19.005

*, **, *** are statistically significant at 10%, 5% and 1% respectively.

Table 6
Risk Attitudes and Behavior by Family Business Owners

Panel A (risk attitude)

Variable	Coef.	Std. Error
Age	0.0057	0.0067
Education	-0.0021	0.0438
Gender	0.0135	0.1834
Size	0.0558	0.0663
House Owner	0.2423**	0.1235
Income	-0.2163	0.1502
Wealth	-0.2014**	0.0960
Number of Busines	-0.2242	0.2317
Profits	-0.0009	0.2698
Number of Employees	0.0074	0.0048
Sole proprietorship	0.4907	2.6727
Constant	7.3638***	1.3801

Panel B (risk behaviour)

Variable	Coef.	Std. Error
Age	-0.0007	0.0004
Education	0.0006	0.0034
Gender	-0.0058	0.0130
Size	-0.0048	0.0085
House Owner	0.0229	0.0169
Income	-0.0194	0.0151
Wealth	0.0330	0.0218
Number of Busines	-0.0174	0.0233
Profits	-0.0038	0.0277
Number of Employees	-0.0011**	0.0005
Sole proprietorship	0.0394	0.2703
Constant	0.7150***	0.1901

Panel C (risk behavior)

Households above/below the average risk attitude)

Variable	Coef.	Std. Error	Coef.	Std. Error
Age	-0.0018**	0.0005	0.0004	0.0008
Education	0.0265	0.0044	0.0006	0.003
Gender	0.0036	0.0203	-0.0063	0.0197
Size	-0.0132	0.0098	-0.0001	0.0067
House Owner	0.0455	0.0295	0.0181	0.0142
Income	-0.0254	0.0172	-0.0072	0.0145
Wealth	0.0327	0.0187	0.0074	0.0134
Number of Busines	0.0374*	0.01879	-0.0195	0.0165
Profits	-0.0044	0.0309	0.0013	0.0255
Number of Employees	-0.0007***	0.0010	-0.0007*	0.0004
Sole proprietorship	0.0607	0.2968	0.0041	0.2487
Constant	0.7560***	0.2093	0.8809***	0.1903

*, **, *** are statistically significant at 10%, 5% and 1% respectively.