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EXPLORING THE LINK BETWEEN MANAGERIAL OUTCOMES AND INVESTMENT PERFORMANCE OF ENTREPRENEURS

Juan David Arranz García* and José David Vicente Lorente

University of Salamanca, Faculty of Economics and Business.
Management and Business Economics Department.
Campus "Miguel de Unamuno" s/n. CP 37007 Salamanca, Spain

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Abstract

This work represents a first attempt to explore possible interactions between the decisions of real and financial investment of an agent that behaves simultaneously as an entrepreneur and as an investor in the stock market. Specifically, we propose a set of hypotheses about the relationship between risk and investment results in real assets, and similar indicators relating to their assets portfolio in capital markets. Taking the "entrepreneur-investor" as the unit of analysis in the Spanish context, we test several hypotheses related to the relationship between indicators of profitability and business growth, and measures of return of investment companies with variable capital (i.e. "Sociedades de Inversión de Capital Variable"; SICAVs) which are significantly owned by the entrepreneur/investor. From a sample that includes 69 significant owners of both real investments and SICAVs during the period 2006-2010, our results confirm that there is a significant and positive relationship between the profitability of both the entrepreneur's real business and her SICAV. We also found a negative link between the growth of the real business and profitability of the SICAV is also detected. Finally, the implications of these findings are presented and discussed.

Keywords: entrepreneur-investor, risk-return, information, managerial resources, assets, SICAV

1. INTRODUCTION

Uncertainty and risk are inherent conditions of decision making in business management. According to Knight (1921), the business risk is excluded from insurance markets for two main reasons. First, the uncertainty associated with many entrepreneurial decisions is idiosyncratic and not measurable, which precludes an efficient assessment of such a risk for outsiders. Second, the relationship between an

* *Corresponding author: jdarranz@usal.es*

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entrepreneur and any potential insurer against an eventual loss is exposed to a moral hazard problem. In this context, the entrepreneur should be characterized by her lower degree of risk aversion and her superior skills for making decisions in highly uncertain environments.

Therefore, the way in which decision-makers face and manage risks are key aspects when looking into particularly relevant issues for business administration and, specifically, for strategic management. Furthermore, risk analysis has been one of the central aspects in the development of models and theories aimed at valuing tradeable assets and serving as a guide for the investor's actions in her rent-seeking behavior. A clear example of such attempts is the Capital Asset Pricing Model (Sharpe, 1964; Lintner, 1965; Black, 1972), based on Markowitz' (1952) theory of portfolio selection. But risk management has also garnered increasing importance in the research field of strategic management when exploring several phenomena of interest in this area, such as corporate diversification decisions (Chiu, 2007), innovation (Genus & Coles, 2006) internationalization (Figueira de Lemos et al., 2011), restructuring (Muñoz-Bullón & Sanchez-Bueno, 2011), real options (McGrath, 1999) or equity control in family business (Gómez Mejía et al., 2007).

However some empirical evidence appears to defy the predictions of the classical perspective on asset pricing models. The seminal work of Bowman (1980) and later evidence (Fiegenbaum & Thomas, 1988) called into question the widely accepted principle within the financial orthodoxy that the average value and the variability of the return of a given investment should be positively related.

Research in strategic management offers interesting but still scarce evidence about the link between risk and strategy. Our work attempts to explore this issue by proposing and testing a set of hypotheses that explore the link between the behavior of the entrepreneur as a manager of her business and her decisions as an investor in the capital market through the instrument of the Investment Company with Variable Capital (SICAV). Our basic objective is to analyze, explain and test the relationship between business growth decisions taken by the entrepreneur and some basic features of her strategy and performance as an investor in the capital market. Given the lack of available evidence on this topic, the present paper should attract substantial interest as a first exploratory attempt to examine the relationship between managerial and investing actions when they are taken by the same decision maker. In particular, we are interested in explaining and exploring the potential link between the risk and profitability associated with running a real business and the outcomes derived from investing in the stock market. The answer to this question not only provides interesting evidence able to fill the existing gap in the literature but can also raise new avenues for the development of possible theoretical advances about why and how entrepreneurs face and manage uncertainty.

2. THEORETICAL FRAMEWORK

Previous research on risky decision-making suggests that there are three clusters of influential factors: characteristics of the individual decision maker, characteristics of the organizational context, and

characteristics of the choice problem itself (Sitkin & Pablo, 1992). Risk propensity or the preference for risk can clearly affect the behavior of different decision makers facing the same choice problem. Brockhaus (1980) stated that the overall attitude of the individual toward risk would predispose some individuals (e.g. entrepreneurs) to undertake more risks than others (e.g. bureaucrats). In addition, some empirical findings are consistent with the idea that more mature decision makers are more risk averse than their less mature counterparts (MacCrimon & Wehrung, 1990). In addition, context-related factors such as the composition of the group (Janis, 1968), the organizational culture (Deal & Kennedy, 1982), the leadership traits (Nutt, 1986), and the organization control systems (March & Shapira, 1987) are also acknowledged to be relevant in the context of risky decisions. Finally, the level of past experience or the level of familiarity with the problem itself may account for significant differences in the response to risky choices (March & Shapira, 1987). Perhaps the most well-known problem-related factor capable of influencing risk behavior is problem framing. This factor is defined as whether the situation is presented to the decision maker as an opportunity or a threat or in terms of gains or losses. The influential work of Kaheman and Tversky (1979) and subsequent empirical evidence (Neale et al., 1986; Singh, 1986) provide support for the idea that individuals tend to be more risk averse when the same problem is presented in terms of potential gains rather than in terms of potential losses.

When studying the behavior of a given decision maker in both a real business and in financial markets, we are implicitly assuming that the individual characteristics remain stable while the context-related and/or problem-related factor can differ between those decisions taken by the entrepreneur when managing her business and those others in which she is acting as an investor in financial markets. In the real sector we will take as the basis of our study the strategy of business growth and its profitability. Business growth is a central aspect of interest in the business administration literature, both for its importance and for the complexity and uncertainty of its results (Rosenberg, 2004). As a basis for the hypotheses proposed in this paper, we find support from different conceptual approaches able to deliver predictions about the link between real and financial decisions of a given decision maker. Within the research field of management we find valuable support from the so-called Resource-based view (Wernerfelt, 1984) and the theory of decision making (Kaheman & Tversky, 1979) as foundations of our theoretical development and hypotheses.

2.1 The relationship between the management of a real business and investment in capital markets

From the perspective of neoclassical economic theory, the main objective of the business owner is to maximize the returns from her investments (Sundaram & Inkpen, 2004) whether they result from real or financial assets. Therefore rational individuals acting as investors would seek to maximize their overall profits resulting from any kind of (real and financial) assets they own.

The resource-based view (Barney, 1991; Peteraf, 1993; Wernerfelt, 1984) emphasizes

the role of certain firm resources and capabilities as dominant factors in acquiring and sustaining a competitive advantage and superior rents. Management skills in terms of an enhanced analytical capability, the ability to identify business opportunities and an efficient process for managing information and risks play a leading role in achieving a privileged competitive position (Aaker, 1989) and in realizing growth opportunities (Kor, 2003). Firms with "inferior" resources but efficiently managed can exhibit better outcomes than other companies with "superior" resources but poorer managerial capabilities (Mahoney, 1995). Such capabilities depend upon both the individual characteristics of the manager and her experience accumulating from past decisions and, hence, they are non-tradeable, scarce and hard to imitate and substitute, key features of a capability to become a basis of a sustainable competitive advantage (Barney, 1991).

Information is another crucial strategic resource particularly relevant to understand the potential synergy of real business and investment decisions. Access to more and better information helps to increase the knowledge base of the firm that can be applied in different arenas. Information can be considered strategic when it places the entrepreneur in a privileged position as it facilitates the detection and assessment of opportunities not obvious for less informed decision makers. Also, the availability of this information has an obvious value for an investor to the extent that she can reduce uncertainty and generate more accurate expectations about the value of a marketable asset[1].

Information and business networks (the set of business relationships, both internal and external) are one of the most important intangible assets in explaining business success (Hall, 1992). Information is transmitted to agents outside firms, due to various social links based on their educational or professional contacts (Cohen et al., 2008; Cohen et al., 2010). Executives are integrated into a social network that includes contacts from their academic and professional careers. This social network is likely to favor the acquisition of valuable information by means of information sharing and exchanging that improves their business outcomes (Fracassi & Tate, 2012), especially regarding corporate financial decisions (Fracassi, 2008), given the restricted access information for agents outside the social network.

This kind of information meets several features of interest that qualify it as a "strategic resource" (Barney, 1991). First, it is a versatile resource, i.e, it can support alternative uses without loss of value. For example, activities related to managing a business in the real sector provide access to data such as customer needs, demand forecasting, and technology, which cannot be easily known by outsiders to the business in that sector. This information can be useful to reduce uncertainty and to create more accurate expectations about investment opportunities or about the value of financial assets traded in public markets. From this perspective, the greater profitability of an "entrepreneur-investor" may be indicative of the existence of private information useful to achieve a greater return of her financial portfolio of marketable assets.

To sum up, as discussed above the entrepreneur's social network and private information would justify a better outcome of both real and financial activities, which lead us to formulate the following hypothesis:

[1] In fact, the existence and control of such information in the latter case is of particular interest for the authorities concerned with the insider trading problem in capital markets, since managers can make an illegitimate use of their proprietary information by taking advantage over outsider investors.

Hypothesis 1a: the performance of the real business management of the entrepreneur-investor is positively related to the outcomes of her financial decisions.

However, some researchers claim that the kind of activities in which a given managerial resource can be successfully applied may vary depending on its nature and, therefore, firm- or industry-specific. In this line, Castanias and Helfat (1991) defined three types of managerial skills: generic, type of business or industry-related, and firm-specific skills. Superior managerial outcomes can be at least partially attributable to the bundle of abilities and expertise that the manager owns and deploys successfully in all of her businesses. A manager's abilities regarding the decision-making process, leadership skills and the expertise to identify profitable investment opportunities can be highly firm-specific since its value when applied to other businesses might decay substantially. The eventually limited scope of these managerial resources would entail a trade-off between the time and effort devoted to running the main business and those required to optimize the manager's portfolio decisions.

In other words, assuming that the information or management skills are industry or business specific, it follows that a manager with private information or superior skills would not necessarily obtain better results from her role as an investor. Under this logic, the available resources and abilities are limited and no potential synergies between real and financial management can be realized because of the specific nature of such resources and skills. Given the limited amount of time and efforts available to a manager, we should expect that the higher manager's commitment to running her real business would result in a poorer outcome in her role as an investor in financial markets. Regarding this point, we are aware that the investor actions of an entrepreneur in financial markets are mostly carried out by specialized agents[2] whose goals are presumably not fully aligned with the investor's interests. If managerial resources and skills are highly specific to her real business, they should deliver little or no value when applied to her investment activities, and the "entrepreneur-investor" must also deflect time and effort from her main business to monitor the agent's behavior.

Thus, assuming that the resources and capabilities of managers are highly specific to their main real business, and given the agency costs associated with the delegation of the investment decisions of the "entrepreneur-investor" in capital markets, we should expect support for the following alternative hypothesis:

Hypothesis 1b: the performance of the real business management of the entrepreneur-investor is negatively related to the outcomes of her financial decisions.

2.2 Relationship between risk of real business and financial portfolio return

From a purely financial perspective, the criteria proposed for assessing and evaluating investment projects are solely based on their expected returns and perceived risk (Markowitz, 1952) and, therefore, the fact that the assets traded and exploited are real or financial is irrelevant. From this perspective, "entrepreneur-investors" will evaluate investment opportunities in the light of their impact on their total wealth, notwithstanding their

[2] This is particularly likely in the case of SICAVs where a large majority is under the control of financial institutions.

decisions involving the management of real and/or financial assets. Assuming that investors are risk averse, criteria for investment choice would favour those options with higher expected returns and lower risk (Brealey & Myers, 1981). Given a limited amount of wealth to invest, rational decision makers confronted with a set of investment options of similar expected return should start by selecting those projects with lower risk. As the amount of initial wealth increases, investors are likely to bear an increasing level of risk in subsequent projects. Under this assumption, a higher return on financial assets enhances the entrepreneur's access to external funding, and she should then be ready to invest in riskier (financial and real investment) projects.

In the case of external financing, reducing information asymmetry between entrepreneur and providers of funds is essential to ensure an efficient functioning of the market as an exchange device (Spence, 2002). When the existence of private information is presumed, the entrepreneur must provide credible information in order to attract resources (Michael, 2009). Following the logic of signaling theory, the entrepreneur (insider) must choose whether and how to signal that private information, and the provider of funds (outsider) must choose how to construe the signal (Connelly et al., 2011). In this vein, a CEO can use as a signal the observable quality of the financial balance sheets of the company to help fund suppliers to identify the unobservable "quality" of the management (Zhang & Wiersema, 2009). We can also venture that a bank as a lender in a competitive but not transparent market can reasonably construe that a high profitability of a financial portfolio is a credible signal able to distinguish those entrepreneurs with superior resources in terms of private information, valuable social contacts or any other managerial resources or skills. As a result, the success of an entrepreneur in her role as an investor in financial markets nurtures the confidence of funds suppliers in her discretional choices when selecting real investment projects related to her main business. From this perspective, the provider of external funding may be willing to offer better conditions (in terms of an extended funding limit or a lower cost) to finance business projects for entrepreneurs who have a proven history of success in the financial market.

Taken together, the implications of the above discussion lead us to propose the following hypothesis:

Hypothesis 2a: the risk level of an entrepreneur's main business is positively related to the return of her portfolio of financial marketable assets.

Conversely, the so-called prospect theory (Kahneman & Tversky, 1979) supports an opposite prediction. From this view, the attitude towards risk is not an inherent trait of individuals but a context-dependant feature and therefore a given individual's response to a choice under uncertainty can vary depending upon how the decision maker perceives and evaluates the uncertainty involved in the decision problem. In particular, previous research supports that when the expected returns of a given action are above a given subjective target level, individuals behave as risk averse, but as lower returns are expected regarding such a target, individuals are liable to riskier behavior (Núñez Nickel & Cano Rodríguez, 2002). This prediction is

supported by previous evidence in the research related to business decision making (Bowman, 1982; Fiegenbaum & Thomas, 2004). Some influential research on using financial assets as an empirical setting suggests that the link between risk and expected return is not statistically significant and even negative (Fama & French, 1992). This finding appears to be even more robust in the case of investment in real assets in accordance to the so-called Bowman paradox (Bowman, 1982; Núñez Nickel & Cano Rodríguez, 2002).

Research on management provides an additional avenue to explore the eventual link between risk and return of an entrepreneur-investor's decisions. Owing to the increasing competition in global markets, companies are trying to reinvent their business and sustain competitive advantage through collaboration (Bititci et al., 2004). From the traditional strategic view where business units were the main subjects of competitive actions (Porter, 1980; Porter, 1985), the new scenario suggests that companies also formulate their strategy in terms of competition between value chains (Horvath, 2001). As a result, firms are urged to adopt new organizational structures and to redefine the conventional role attributed to the sellers and the buyer as subjects of transactions in the market. In this new arena, the search for efficiency and effectiveness prompts companies to reformulate the basis of their links to the upstream and downstream levels of their value chain by integrating trading partners (Barratt & Oliveira, 2001), sharing information and profits (McLaren et al., 2002).

This rationale can also apply to the relationship between the entrepreneur-investor and banks as source of financial services. At this point we must be aware that the level of commitment between an entrepreneur-investor and her bank is reinforced by the fact that the activities involved in such a relationship consist of a broad set of services that exceeds the financing function. Banks are also acting as valuable advisors and consultants in their contracts with the "entrepreneur-investor," who benefits from the specialized knowledge and expertise of banks in both real business-related and investment-related activities. From this view, the level of commitment between the provider of financial resources and services (i.e. the bank) and its client becomes reinforced when such a client acts not only as a borrower but also as a "buyer" of additional financial services such as consulting and mediating activities, which are valuable when investing in capital markets. The multiple and joint contracting of such activities entails obvious shared profits for both parties assuming that the same financial institution that acts as a funds supplier is also providing support for managing the financial investments of the "entrepreneur-investor". A major implication of this fact is that the relationship between a bank and an "entrepreneur-investor" should not necessarily be viewed as a sum of independent contracts (i.e., funding, management and advice of financial assets) but rather it might reflect the outcome of a bargaining process in which all contractual terms are taken into consideration. For example, a bank, which agrees to finance a real investment project with a high level of risk, can claim compensation by charging higher fees or by ensuring that the entrepreneur adds certain financial assets to her portfolio. As a consequence, the increased uncertainty borne by the bank owing to an entrepreneur's risky actions can be insured by a more highly liquid (and

eventually less profitable) financial portfolio, which serves as a collateral warranty in case of financial default.

The above rationale leads us to propose the following hypothesis:

Hypothesis 2b: the risk level of an entrepreneur's main business is negatively related to the return of her portfolio of financial marketable assets.

3. METHODOLOGY: SAMPLE AND VARIABLES

Given that our interest is to examine and test the potential relationships between the two roles of the same individual, we have chosen these individuals or "entrepreneurs-investors" as the units of our analysis. We define "entrepreneur-investor" as the natural person who significantly owns and performs a real business and, simultaneously, acts as an active investor in public financial markets.

This definition entails some complications for empirical purposes since conventional data bases are usually defined on business units or portfolios rather than on information about their owners or managers. To overcome these problems, we have focused on individuals who met the following two criteria: (1) he/she owned a majority share of a "Sociedad de Inversión de Capital Variable" (hereafter SICAV) namely an "Investment Company of Variable Capital" in English terms; and (2) he/she was the chief executive or senior manager and majority owner of a company with activity in the real market.

The SICAV is an investment company with substantial tax benefits since the realized gains are taxed at the reduced rate of 1% while the general tax rate for limited liability Spanish companies ranged from 10% to 35% (Ramos Núñez & Ruiz Almendral, 2006; Tusquets Trias de Bes, 2001). There are also a number of requirements that SICAVs must meet. First, a minimum of 100 sharers of the SICAV is needed even though minimum majorities are not required. Second, the minimum amount of equity must be € 2,400,000. Third, the SICAV cannot hold more than 5% of the total equity of any company of its portfolio and at least 90% of their total investments must correspond to securities listed on official and public markets. Fourth, as a requirement of liquidity, the SICAV must hold at least 3% of its total equity in current accounts.

Clearly, an entrepreneur can opt for investment tools other than the SICAV to operate as an investor in public markets, however given their tax advantages this instrument has become a privileged and very popular way for wealthy investors to operate in official capital markets[3]. In addition, data available from the "Comisión Nacional del Mercado de Valores" or CNMV (analogous to the SEC in the US), provides a desirable level of homogeneity and verification of data on Spanish SICAVs. In addition, SICAVs or analogous investment companies owned by the entrepreneur can also be registered in other countries of the EU such as France, Italy, Luxembourg and Switzerland. The limited access to data of SICAV registered in other countries and the eventual problem of heterogeneity of such data led us to consider in our sample only the SICAV registered in Spain.

To build our database we accessed the records of the 3,083 SICAVs registered in Spain according to the CNMV records. We identified the chairman of the board of the listed SICAVs and searched for

[3] According to the database of the Spanish Security Exchange Commission (CNMV), more than 2,900 SICAV are currently registered in Spain.

correspondences among the CEOs of the 5,000 largest Spanish companies by sales in 2010 published by the specialized journal "Actualidad Económica", and produced by Iberinform International® on a yearly basis. Finally, our sample for empirical purposes consisted of the set of individuals that met these two criteria: (1) she/he appears as the Chairman of the Board of at least one SICAV and (2) she/he was also registered as CEO or Chairman of the Board in one or more or the 5,000 largest Spanish firms in 2010.

After identifying our list of "entrepreneurs-investors", we collected data from their main real business from the specialized journal "Actualidad Económica", and the Worldscope® database, compiled by Thomson Reuters®. Data on SICAVs were gathered from the CNMV files. Our data correspond to a five-year period (2006 to 2010), and the final number of "entrepreneur-investors" was 69 with a total sample size (individual-year) of 265 observations.

Some of our hypotheses are based on the assumption that the financial institution that supported the foundation and management of the SICAV is the same one that acts as a financial provider of funds and further assistance in terms of consulting and advice. Although this assumption cannot be confirmed by the available data we venture that it is very likely given the advantages for both parties of multiple contracting in terms of information economies and the simplification of administrative and bureaucratic processes. In addition, not only SICAVs but also a great majority of the professionals in capital markets investment are employees, delegates or agents of some of the largest banks in Spain. A similar argument can serve to justify that there are no obvious advantages in holding the majority ownership of two or more SICAVs, given the minimum level of equity required and the eventual diversification of resources entailed in managing several investment companies. However we did find several cases of entrepreneurs who owned a major share of two or more SICAVs. A potential explanation for this fact is that such entrepreneurs might find advantages in collaborating with several financial institutions as a result of their focus and specialization in certain financial services such as consulting in internationalization, innovation or partner searching activities.

3.1 Variables of interest

Since our goal is to analyze the relationship between risk and performance variables of both real and purely financial decisions taken by an entrepreneur-investor, we should propose representative measures of these constructs (risk and expected return) for this individual's role as manager and owner of a real business and her behavior as an investor in financial markets. Such indicators and variables are described below.

Real assets risk (Growth): We approximate the level of risk of the real business by means of the yearly growth rate of total firm assets. A growth strategy fulfills a broad set of conditions to be considered a risky decision (Sturdivant et al., 1985; Hamilton & Shergill, 1992). Against the more secure option of supplying the current customers with the existing resources, enlarging the firm size entails an increased commitment in terms of additional resources, shifting organizational structures and satisfying new needs and/or customers. All these activities are characterized by a variable level of uncertainty with scarcely predictable outcomes. Clearly, managerial

choices related to the growth of the company are core decisions because they often imply important changes in the firm's organizational objectives and future performance, and can even alter its chances for survival.

Firm growth has been a widely studied variable in management and strategic research (Weinzimmer et al., 1998). Also, professionals and scholars have questioned the conventional ways of measuring business risk (Ruefli et al., 1999). Assets pricing models such as the CAPM have been criticized because they turn out to have corporate strategies based on synergies (Robins, 1992).

Real assets return (ROA): The return of the real business of the entrepreneur is approximated by the ROA computed by the ratio of total net income over total book value of assets. This measure has been widely used in the empirical literature as it appears to capture the business return consistently with other measures of performance (Keats & Hitt, 1988).

Financial assets return (ProfitSicav): The profitability of the financial portfolio of the "entrepreneur-investor" is measured by the ratio of the total return of the SICAV of a given year over the total value of investment at the beginning of the corresponding year. Returns of the SICAV include dividend yields and variations in the market value of total investments.

3.2 Control variables

As control variables we use the SICAV diversification index as a proxy for the financial risk of the portfolio, the company's size, its leverage and its age. The former is measured as Herfindahl's index of the SICAV portfolio for each year, calculated as $H = \Sigma P_i^2$ (P_i is the proportion of the wealth invested in the financial asset *i* over the total value of investment of the SICAV)[4]. The size of the company (**Size**) is measured as the natural logarithm of the assets of the firm (Hart & Oulton, 1996). We use the natural logarithm of total assets to approximate firm size, following previous work (Kim & Mathur, 2008). **Leverage** is calculated as the ratio of debt to total assets, which approximates the portion of investment financed with borrowed funds (Short & Keasey, 1999). Firm age (**Age**) is computed as the difference between the current year and the one in which the company was founded. We also included the quadratic term of this variable (**Age²**) to control for possible non-linear effects of this variable. We also included a dummy variable to control time effects.

3.3 Estimated models and samples

To test our hypotheses we employ different specifications of panel data models

Table 1. Descriptive statistics

Variable	N	Mean	Median	S.D.	Min	Max
Growth	177	-0,0051	-0,0184	0,2116	-0,4716	1,2470
ROA	177	0,0459	0,0241	0,1786	-0,1589	1,8418
Herfindahl	177	0,1374	0,0850	0,1362	0,0144	0,8007
ProfitSicav	177	-0,0229	0,0053	0,1332	-0,4948	0,3674
Size	177	5,0025	4,8451	1,5042	2,4033	10,2870
Leverage	177	0,5792	0,5874	0,2563	0,0003	1,3278
Age	177	31,3847	25,8167	21,5129	3,0000	109,6444
Age^2	177	1.445,1890	666,5003	1.972,2620	9,0000	12.021,9100

[4] An alternative measure of diversification commonly used is provided by the entropy index (Jacquemin & Berry, 1979; Palepu, 1985), defined as $E = \Sigma P_i Log\ (1/P_i)$. It is claimed that the properties of the entropy index are advantageous in measuring diversity whereas the Herfindahl index appears to better capture the concentration (Acar & Sankaran, 1999). Our empirical results are presented using the Herfindahl index since additional estimation models (not shown in this paper) offered similar results after employing the entropy index.

according to the following expressions:

$$Growthit = \lambda_i + \beta_1 ROA_{it} + \beta_2 Herfindahl_{it} + \beta_3 ProfitSicav_{it} + \beta_4 Size_{it} + \beta_5 Leverage_{it} + \beta_6 Age_{it} + \beta_7 Age^2_{it} + \varepsilon_{it}$$

$$ROA_{it} = \theta_i + \alpha_1 Growth_{it} + \alpha_2 Herfindahl_{it} + \alpha_3 ProfitSicav_{it} + \alpha_4 Size_{it} + \alpha_5 Leverage_{it} + \alpha_6 Age_{it} + \alpha_7 Age^2_{it} + \varepsilon_{it}$$

We estimated the above regressions using three alternative specifications. First, the specification without individual effects ("pooled data") assuming that $\lambda_i = \lambda$ and $\theta = \theta_i$ for all *i*. The second set of models takes λ_i and θ_i as fixed individual unobservable effects ("fixed effects model") and the third one considers those parameters as random unobservable effects ("random effects model"). To determine the likelihood of the different specifications we performed the usual tests: F-statistic to test equal fixed effects and the χ^2 Hausman statistic to assess the relative validation of the fixed versus random effects model.

In order to evaluate the robustness of our estimates against "outliers" we also carried out an additional confirmation by splitting our data into two sub-samples. One of them included all the resulting data as described in the section "Methodology". Then we constructed a subsample of the previous observations that excludes observation with extreme values of the variables ROA, ROE and Growth (ROA greater than 20%, ROE above 60%, and Growth greater than 30%). With this procedure we attempted to control for spurious effects owing to unobserved phenomena (e.g. mergers and acquisitions) or "outliers" that could distort our estimates. The resulting subsample has 166 observations, 68 "entrepreneurs-investors".

4. RESULTS

A first look at the descriptive statistics (Tables 1 and 2) provides some stylized facts about our evidence for the adverse scenario of the Spanish economy during the period of reference (2006-2010). Average growth in assets for the real businesses in our sample is slightly negative and their returns on assets exhibit an average value of ROA of 4.59% and a median value of 2.41%. These results are even worse in the case of SICAVs with a negative average return (-2.29%), albeit slightly positive when measured by their median value (0.53%).

Estimates of the models representative of the risk and return of real business are exhibited in Tables 3 and 4, respectively. For the sake of conciseness, estimates of dummy variables for the year are not included. Table 3 shows the results obtained from a

Table 2. Correlation matrix

	Growth	ROA	Herfindahl	ProfitSicav	Size	Leverage	Age	Age^2
Growth	1,0000							
ROA	0,4517***	1,0000						
Herfindahl	-0,1159	-0,1075	1,0000					
ProfitSicav	-0,1132	0,0412	-0,0497	1,0000				
Size	0,0451	-0,0484	0,0778	0,0205	1,0000			
Leverage	-0,1220	-0,4473***	0,1554*	-0,0689	0,1668	1,0000		
Age	-0,0495	-0,0964	0,0672	0,0304	0,2400**	-0,2626***	1,0000	
Age^2	-0,0493	-0,0731	0,1250†	0,0411	0,2401**	-0,1909	0,9452***	1,0000

† p<0,1 * p<0,05 ** p<0,01 *** p<0,001

Table 3. Results for Growth as dependent variable

Growth	REGRESSION POOLED DATA		RANDOM EFFECTS		FIXED EFFECTS	
	Total sample	Without extreme values	Total sample	Without extreme values	Total sample	Without extreme values
ROA	0,613***	0,777***	0,613***	0,748***	0,728***	-0,374
	(0,090)	(0,204)	(0,090)	(0,210)	(0,201)	(0,356)
Herfindahl	-0,081	-0,015	-0,081	-0,014	-0,115	0,065
	(0,109)	(0,082)	(0,109)	(0,083)	(0,209)	(0,141)
ProfitSicav	-0,579***	-0,308**	-0,579***	-0,312**	-0,627***	-0,271*
	(0,157)	(0,115)	(0,157)	(0,114)	(0,166)	(0,119)
Size	0,004	0,014*	0,004	0,014†	0,382*	0,618***
	(0,100)	(0,007)	(0,100)	(0,007)	(0,152)	(0,119)
Leverage	0,080	0,031	0,080	0,030	0,396†	-0,023
	(0,678)	(0,056)	(0,068)	(0,058)	(0,235)	(0,170)
Age	0,001	0,000	0,001	0,000	-0,139**	-0,025
	(0,002)	(0,002)	(0,002)	(0,002)	(0,048)	(0,034)
Age^2	0,000	0,000	0,000	0,000	0,000	0,000
	(0,000)	(0,000)	(0,000)	(0,000)	(0,000)	(0,000)
_Cons	-0,124	-0,128*	-0,124	-0,126*	1,386	-2,488*
	(0,077)	(0,059)	(0,077)	(0,061)	(1,410)	(1,036)
N	177	166	177	166	177	166
R2	0,319	0,183	0,319	0,183	0,009	0,017
Adj R2	0,278	0,130				
F[a]	7,79***	3,47***				
χ2 Wald[b]			77,87***	32,07***		
F[c]					1,28	1,68*
Hausman[d]					30,74***	32,17***

† p<0,1 * p<0,05 ** p<0,01 *** p<0,001

F[a]: pooled data regression model significance

χ2 Wald[b] : Random effects goodness of fit

F[c]: Individual fixed effects significance

Hausman[d]: Fixed effects vs. Random effects test

Estimates of dummy variables of the "year" effect were included but not shown in the table

representative model of the real risk borne by the "entrepreneur-investor." A negative and robust co-variation between performance of the SICAV and the risk in the real main business is supported in all models even though the significance level of this variable becomes attenuated when excluding the extreme values and when performing the "fixed effects" estimation. Therefore, this evidence offers strong support for hypothesis *H2b.*

The profitability of the real business proxied by its ROA depicts a positive effect on firm growth and the impact is significant in all models at the highest levels of confidence. This finding is consistent with the interpretation of our dependent variable as a proxy variable for risk of investment of real assets inasmuch as a higher return is expected as a result of the augmented risk associated with a larger business growth.

Regarding the estimated effects of the control variables, we observe a positive effect of size on the risk of real business even though the statistical significance of this effect varies depending upon the specification of the empirical model. Coefficients of firm age and leverage as

Table 4. Results for ROA as dependent variable

ROA	REGRESSION POOLED DATA		RANDOM EFFECTS		FIXED EFFECTS	
	Total sample	Without extreme values	Total sample	Without extreme values	Total sample	Without extreme values
Growth	0,354***	0,110***	0,212***	0,052*	0,161***	-0,033
	(0,052)	(0,029)	(0,042)	(0,025)	(0,044)	(0,031)
Herfindahl	-0,550	0,012	0,033	0,013	0,007	0,022
	(0,083)	(0,031)	(0,079)	(0,031)	(0,099)	(0,042)
ProfitSicav	0,330**	0,048	0,204*	-0,009	0,086	-0,040
	(0,121)	(0,044)	(0,083)	(0,035)	(0,083)	(0,036)
Size	0,007	0,000	0,003	0,001	-0,280***	0,091*
	(0,007)	(0,003)	(0,010)	(0,003)	(0,068)	(0,039)
Leverage	-0,328***	-0,146***	-0,303***	-0,147***	-0,080	-0,109*
	(0,045)	(0,018)	(0,056)	(0,021)	(0,112)	(0,049)
Age	-0,005**	0,000	-0,004*	0,000	-0,008	-0,006
	(0,002)	(0,000)	(0,002)	(0,000)	(0,023)	(0,010)
Age^2	0,000*	0,000	0,000	0,000	0,000	0,000
	(0,000)	(0,000)	(0,000)	(0,000)	(0,000)	(0,000)
_Cons	0,307***	0,129***	0,294***	0,152***	1,631*	-0,099
	(0,054)	(0,020)	(0,082)	(0,017)	(0,645)	(0,316)
N	177	166	177	166	177	166
R2	0,449	0,411	0,434	0,393	0,014	0,000
Adj R2	0,416	0,373				
F[a]	13,51***	10,83***				
χ2 Wald[b]			65,40***	68,24***		
F[c]					5,69***	3,53***
Hausman[d]					NA	26,44**

† p<0,1 * p<0,05 ** p<0,01 *** p<0,001

F[a]: pooled data regression model significance

χ2 Wald[b] : Random effects goodness of fit

F[c]: Individual fixed effects significance

Hausman[d]: Fixed effects vs. Random effects test

Estimates of dummy variables of the "year" effect were included but not shown in the table

independent variables are less robust considering that their effects are significant only in the "fixed effects" models and/or with the subsample without potential outliers.

Looking at the specification tests, the outcomes of Hausman statistics favors the rejection of the "random effect" specification in all cases but the results regarding the choice of "pooled data" versus "fixed effects" models differ depending upon the sample employed for estimation. When using the whole sample, the F-test does not reject that fixed individual effects are irrelevant and therefore "pooled data" models are supported. Conversely, after excluding observations with extreme values, individual effects become significant at the 95% level of confidence.

Table 4 exhibits the estimates obtained from the representative model of the real business return as a dependent variable. These results support hypotheses *H1a* as we identify a positive relationship between the profitability of both the return of the real business and the portfolio profitability at the usual confidence levels for the whole sample with the "pooled data" and the "random

effects" models. However, this effect fails to be significant in the "random effects" model and in those models using the restricted sample.

In line with the results of previous estimates, the risk and profitability of the real business managed by the entrepreneur-investor are strongly and positively related, especially when using the whole sample. No significant impact of SICAV's level of diversification on the real business profitability is detected.

According to the results of the fixed effect model, firm size displays a contradictory impact on the real business return depending upon the use of the complete (negative effect) or restricted (positive effect) sample. This fact can reflect the differential growth opportunities for firms depending upon their maturity. We see a potential explanation for this finding in the fact that higher growth rates are more likely for small or starting business rather than for large and mature companies. From this view, small companies can face more restrictive and expensive accessing to debt as a source of funds and, therefore, their inclusion in the sample can justify the reverted sign of the estimated size effect.

We also find a consistent and negative effect of leverage on firm return in almost every estimated model. This fact is fully consistent with the adverse financial scenario in terms of higher lending rates and credit restrictions that has characterized the Spanish debt market since 2008. After a decade of easy and cheap borrowing, Spanish companies are now obliged to rule out their growth plans by downsizing and refocusing in order to minimize their financial costs in an adverse environment of an overall declining market.

Regarding the specification tests, fixed effects models are favored over the "random effect" estimates according to the Hausman statistic, and we cannot reject the relevance of individual effects at a 99.9% level of confidence.

5. CONCLUSION

Our evidence of the relationship between profitability and risk of the "entrepreneur-investor" offers two major findings and has several implications for further research.

First, we have verified our conjecture that seemingly different economic activities performed by the same individual cannot be viewed as independent sets of unrelated choices but as interlinked decisions heavily influenced by some underlying individual factors such as behavioral issues and the resources of the decision maker. Within our sample of entrepreneur-investors we have found that the performance of a business manager and owner as an active investor in public markets is negatively related to the risk that she is willing to take in her own business. We justify this finding as a result of the eventual bargaining process between the entrepreneur and her supplier of financial resources and services: as the entrepreneur requires financing for her growing business, the bank will secure the managed portfolio by "advising" to invest in more liquid and less profitable resources and/or by charging higher fees for its services.

Second, we have confirmed a positive link between success in the role of the investing and managing activities carried out by the same individual. From our perspective, this finding supports the existence and value of certain managerial or entrepreneurial resources and capabilities than can entail advantageous positions in

both economic activities. Critical resources such as information, social networks and individual experience are likely to play a crucial role in the broad catalogue of actions deployed by an entrepreneur. Moreover, these underlying resources and skills appear to be non-specific as they can be applied successfully in seemingly non-related activities.

These main results also open some avenues for further research. Our results are fully consistent with the logic that there exist some common factors among the choices taken by a given entrepreneur as a decision maker. However, the particular nature of such factors remains unknown. For instance, a closer look into the set of particular agreements existing between the entrepreneur and the bank would offer a better understanding of the apparent trade-off between business growth and the profitability of SICAV's portfolio. A similar shortcoming can be claimed in the case of the evidenced link between the returns of the real business and the financial portfolio. We suspect that there is a common factor to explain success in managerial and investing activities but we are unable to identify its nature and sources (privileged information, experience, social networks). A deeper look into this finding could deliver interesting implications for practice as the success of an entrepreneur-investor was highly correlated to wider social networks or sources of privileged information.

The particular and contextual features of our empirical setting (i.e. a set of Spanish 'entrepreneur-investors') can also raise some interesting questions about the validity of our findings in alternative scenarios. Whether our findings about the relationships examined in this research can also be valid in other contexts than the Spanish is an empirical question. However, we can offer some insights on this issue. First, the so-called globalization process has been accompanied by an increased level of interdependency of managerial and investing decisions among national open economies. Nowadays entrepreneurs and investors are forced to compete in a global markets and therefore successful decisions and strategic decisions must be heavily guided by a correct evaluation of global opportunities and threats rather than the narrow scope based on scanning local or regional contexts. As a consequence, successful managerial practices are likely to be identified and imitated by international actors with no distinction based on their nationality. This logic would support the conjecture that our findings can also be extended to any open economies other than the Spanish one. Nonetheless we cannot ignore that managerial and entrepreneurial decisions are also conditioned by institutional and cultural factors that can determine the individual and collective behaviors of entrepreneurs and investors. Differences in values and principles, cultural background, regulation, and institutional frameworks can lead to heterogeneous evaluation business opportunities and threats or a divergent appraisal and attitude against risk. As a result, the link between entrepreneurial and investing behavior of individuals could significantly depend on local environmental conditions and, therefore our evidence would have a more limited validity. In any case, these competing hypotheses certainly deserve attention in future research.

This research also suggests some relevant implications for managerial practice. First, our evidence confirms that successful entrepreneurs are likely to have better performance in investment activities in the

stock market. In essence we claim that there exist synergies between investing and managerial activities based on some valuable individual resources (such as information and social networks), attitudes and/or skills. A straightforward direction from this rationale follows: an entrepreneur should make a thorough inventory of his resources, attitudes, and skills in order to find and deploy any potential base for a synergy in his investment and managerial decisions. This requires for entrepreneurs to broaden their perspective in the search of profit opportunities beyond the restricted field of their actual business by finding complementary applications of extant resources and skills. Second, the negative link between investment and business risks suggest that managers must be aware that their choices in both economic activities are not independent as an increased risk in the real business appears to be compensated by a more conservative position in stock markets. At this point, entrepreneurs-investors should design their investing and business plans as partial and interlinked decisions of a broader strategy to the extent that variations of the risk level of their real business will exhibit significant effects on their portfolio of stock market investments. Thus, entrepreneurs committed to business growth should foresee that current and future decisions on their investment portfolio could be restricted as a result of such commitment.

Moreover, our evidence also has implications about information as a core resource of entrepreneurs and managers, and insider trading, which is a major concern of regulatory agencies of stock markets. Clearly, the use of private information can be considered as illegitimate insofar as it is used to take advantage of uninformed investors in public markets. From this view, the verification of a long-lived high performance of a real business and the financial portfolio controlled by the same individual can serve as an observable signal to identify potential unlawful practices that may deserve further investigation. In any case, additional research about the nature and sources of private information would help to clarify this issue in order to determine the legitimacy of such information. In the specific case of the SICAVs this procedure could be effectively implemented with few additional costs given the requirements of these companies in terms of transparency and accountability.

Also, our research would benefit from future extensions based on the inherent limitations of the available data. First, some problems owing to the endogeneity/ simultaneity problem of empirical models can be claimed. In this regard we point out that our hypotheses are formulated under the covariation or relatedness between variables, and therefore no assumption about causal relationships are stated in our predictions. In this vein, alternative empirical settings could be useful for looking into possible causal relationships.

To sum up, our study can be viewed as preliminary research into the complexity and interactions that characterize the behavior of the entrepreneur as decision maker in seemingly unrelated actions and, in particular, our findings provide new evidence linking the behavior of individuals who act in the real sector as entrepreneurs, and in the financial sector as investors. Our analysis has focused on the strategic decision for company's growth as a risky decision but our basic premises should also hold for a number of strategic decisions such as corporate diversification, outsourcing, innovation and internationalization strategies. It would also be of interest to

delve more deeply into the potential interactions between entrepreneurs' role as investors and a more fine-grained category of financial decisions of real business such a debt/equity issuance and dividend policy.

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ИСТРАЖИВАЊЕ ВЕЗЕ ИЗМЕЂУ МЕНАЏМЕНТ ИСХОДА И ИНВЕСТИЦИОНИХ ПЕРФОРМАНСИ ПРЕДУЗЕТНИКА

Juan David Arranz García, José David Vicente Lorente

Извод

Овај рад представља први покушај да се истраже могуће интеракције између одлука стварних и финансијских инвестиција агената који се у исто време понашају као предузетници и као инвеститори на тржишту акција. Посебно, предложен је сет хипотеза о везама између ризика и резултата инвестирања у некретнине, као и слични индикатори који се односе на портфолио њихове имовине на тржишту капитала. Узевши "предузетник-инвеститир" као јединицу анализе у Шпанском контексту, тестирано је неколико хипотеза које се односе на однос између индикатора профитабилности и раста бизниса, као и мера повраћаја инвестиције компанија са варијабилним капиталом (односно "Sociedades de Inversión de Capital Variable"; SICAVs) које су у већинском власништву предузетника - инвеститора. На основу узорка који је укључивао 69 власника инвестиција и "SICAV" акција, током периода 2006-2010, резултати су потврдили да постоји значајна и позитивна веза између профитабилности предузетничког бизниса и "SICAV"-а. Такође је пронађена негативна веза између раста реалног пословања и профитабилности "SICAV"-а. На крају су предствљене и дискутоване импликације ових резултата.

Кључне речи: предузетник-инвеститор, ризик, повређај инвестиције, информација, имовина, "SICAV"

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