

A behavioral perspective to financing decisions in family and nonfamily firms

by

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This paper analyzes the impact of behavioral aspects on financing decisions of owners of privately held family and nonfamily firms. Based on a dataset of 148 privately held companies, results suggest that family companies are partly loss averse and take investment decision based on reference points. In addition, the authors find differing endowment effects for differing business goals as control and return.

By using a methodology rooted in behavioral finance, the authors show that behavioral aspects play a significant role in how managers of privately held firms take investment choices.

Keywords: investment choices, control risk, capital structure, behavioral finance

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1 Introduction, theoretical foundations and research questions

The existing literature on capital and investment decisions in firms refers back to the works by Fisher, in particular to his book *Theory of Interest* (Fisher, 1930). One of the central finding of Fisher was coined as the Fisher Separation Theorem, providing a justification for both the "Net present Value rule" and the separation of ownership and management.

Originally stated for a deterministic world with perfect markets, the separation theorem says that an investor considering both productive opportunities and financing opportunities for borrowing and lending can decompose this problem into simpler *production* and *portfolio-consumption* problems that may be solved sequentially. In the production problem, the investor chooses among alternative production plans to maximize the present value of the income generated. In the portfolio-consumption problem, the investor chooses a borrowing and lending strategy that maximizes his utility for consumption given that his initial wealth has been increased by the maximal project value (Smith, 1996).

A key feature of this separation result is that the solution to the production problem depends only on objective information (the project's cash flows and the market rate for borrowing and lending) and can be determined independently of the investor's subjective preferences for consumption. Thus investors with diverse preferences may cooperate in projects and delegate production decisions to a manager who need not know anything about the preferences of the investors. The manager's task is to maximize the present value of the project and all investors will agree on the appropriate course of action (Smith, 1996).

One of the basic implications of the Fisher Separation Theorem is therefore that a firm's choice of investments are separate from its owner's attitudes towards the investments (Copeland and Weston, 1988).

Since its publication the Separation Theorem has been further developed. For example Miller and Modigliani (1958) studied the impact of financing decisions on firm value, Myers and Majluf (1974) found a hierarchy of investment instruments based on their costs, Jensen and Meckling (1976) focused on the control problems between owners and managers and Ross (1977) studied the signaling of information through financing decisions. These approaches have clearly contributed to improving our understanding on how investment decisions are taken.

However, all these studies are rooted in the paradigm of pure rationality and examined the exogenous determinants of decision taking (Cho, 1998). Endogenous, subjective factors like managerial preferences (Arrow, 1974; Casson, 1995) that are internal to the firm and can not be explained by external approaches remained widely neglected.

Duxbury (1995) and Kroll et al. (1988) and Kroll and Levy (1992) experimentally tested the Separation Theorem with regard to asset allocation by individuals in investment portfolios consisting of riskfree and risky assets. Their findings cast serious doubt on the validity of the Separation Theorem.

With regard to corporate financing, Van Auker (2001) introduced that the familiarity of owners with alternative forms of capital affects financing decisions. In addition, Romano et al. (2000) stated that financing decisions are influenced by firm owners' attitudes toward the utility of debt as a form of funding as moderated by external environmental conditions (e.g. financial market considerations). Sociological concepts as altruism (Schulze et al., 2003) or trust (Arrow, 1974; Casson, 1995) extended the traditional theories rooted in the finance paradigm (e.g. agency theory). Furthermore,

Barton and Gordon (1988) and Barton and Matthews (1989) proposed that researchers should take a broader “managerial perspective” which considers nonfinancial and behavioral factors as perceived business risk (Kale et al., 1991; Matthews et al., 1994) and individual managerial perceptions and preferences (Norton, 1991).

The above-cited literature on behavioral aspects of corporate financing is able to cast a certain light on investment preferences of managers. However, the methodologies chosen are not rooted in behavioral finance although this stream of research has discovered inferences, heuristics and biases as explanations for differences between actual and optimal decisions and behavior (Kahneman, Tversky, 1972, 1973; Nisbett, Ross, 1980; Einhorn, 1982).

In particular, Kahneman and Tversky (1991) find that the outcomes of risky prospects are evaluated using a value function that is common to most individuals. This value function is characterized by two main specificities. First, individuals tend to make decisions depending on a reference point (Myagkov and Plott, 1998). Second, people tend to be loss averse and display endowment for valuable goods, meaning that the utility loss of giving up one good is greater than the utility gain associated with receiving it (Kahneman et al., 1990).

The goal of this paper is to test whether individual behavior as described by Kahneman and Tversky (1991) is at play when family and nonfamily managers take financing decisions with impact on the capital structure of their firms. In particular, the paper strives to answer two questions.

First, when taking investment decisions affecting the capital structure are the choices of the family and nonfamily managers affected by reference points? Second, do managers of privately held family and nonfamily firms display loss averse behavior that is characterized by differing endowment effects for the return and the independence goal.

2 Predictions and hypotheses

As outlined above, individual managers tend to take decisions depending on reference points (Myagkov and Plott, 1998). This means that the point of view from which a project or an asset is evaluated has a significant impact on the valuation of the project. For example, a bottle that is half filled with water might be valued differently from a person who is nearly dying with thirst in comparison to a person who is selling fresh water bottles.

Applied to the risk taking propensity Matthews et al. (1994) argue that entrepreneurs behave differently depending on whether the decision affects the private or business sphere. For example, some entrepreneurs might be willing to risk more money in both their businesses and their personal lives. Other entrepreneurs may draw a line between personal and business funds, willing only to make risky investment decisions within the business context, safeguarding all personal funds from uncertainty.

Most family entrepreneurs have a large of their fortune invested in the firm (Forbes Wealthiest American Index, 2002; Pictet, 2006) and hence do not display an effective separation between private and business wealth. Hence, it can be expected that family managers will display a high loss aversion towards the independence goal, as their private sphere is immediately affected by a reduction in independence even at the expense of a reduction in return.

Hypothesis 1:

Family firm managers are more loss averse regarding the independence goal than regarding the return goal.

In addition it can be expected that decisions of family firms depend on reference points. As mentioned above, reference points can be understood as the perspective from which decisions are evaluated. As family firms primarily strive for independence (Zellweger and Fueglistaller, 2005), it can be expected that this type of entrepreneur will try to avoid projects characterized by low independence (in terms of equity level) but high returns. Consequently they will rather look for investment projects characterized by a high independence in the way they can be financed, even if the projects are less profitable.

On the other side it can be expected, that from a vantage point with high independence (characterized by a low leverage of the firm) but low returns, family managers will try to adhere to this favorable situation.

Hypothesis 2:

Family managers take investment decisions depending on reference points.

Above hypotheses are rooted in the observations by Leary and Roberts (2004), who find that firms tend to actively rebalance their leverage levels to stay within an optimal range of indebtedness. In addition these authors show that the probability of further leveraging increases (diminishes) if leverage level is low (high). Furthermore, Leary and Roberts (2004) report an asymmetrical adaptation of leverage, which means that firms are rather concerned with high than with low leverage. This view of financing choices is inline with "Dynamic Pecking Order Theory" (Fischer et al., 1989).

In contrast to family managers, it is expected that nonfamily managers display a different type of loss aversion. As the private fortune of nonfamily managers is not as

closely tied to the firm, and as bequeathing the firm to the subsequent generation is not the primary goal of this type of managers, it is expected that investment choices are not as strongly affected by the independence goal as for the family managers. It is hypothesized that the relative significance of the independence goal in comparison to the return goal is diminishing, and that nonfamily managers are more loss averse regarding the return goal.

Hypothesis 3:

Nonfamily managers are more loss averse regarding the return goal than regarding the independence goal.

Whereas investment preferences of family managers are expected to be influenced by the independence goal, it can be expected that the lower significance of the independence for the nonfamily managers will not only affect their choice of financing alternatives. In addition to that it is questionable whether family firms will adapt their investment preferences according to reference points. This hypothesis is rooted in the observation that in contrast to family firms nonfamily firms display a higher willingness to fund their projects with debt (Gallo and Vilaseca, 1996). Due to that we expect a lower pressure in family firms to adapt (lower) their leverage levels according to reference points in order to stay within an optimal level. In contrast to family managers, who are often emotionally attached to their firms (Sharma and Manikutty, 2005), nonfamily managers are rather expected to decide according to the net present value postulate by Fisher (1932), and thus decide independent from reference points.

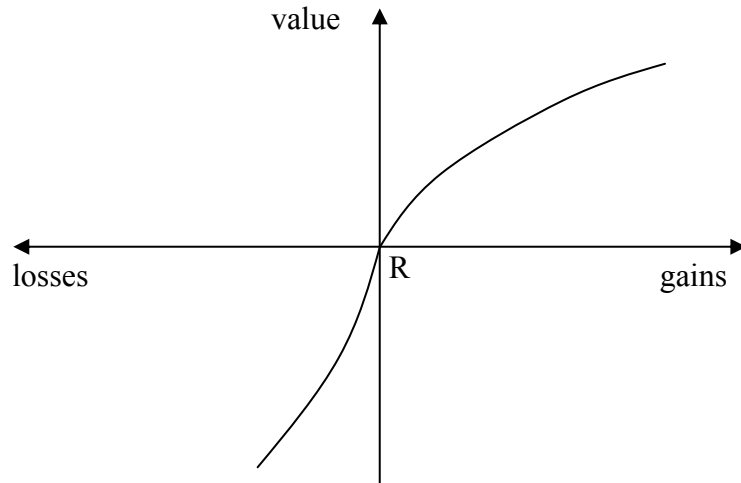
Hypothesis 4:

Nonfamily managers take investment decisions independent from reference points.

3 Research design

Within the theory developed by Kahneman and Tversky (1991) loss aversion implies that a given difference between two options will generally have greater impact when it is evaluated as a difference between two losses than when it is viewed as difference between two gains (Kahneman, Tversky, 1991). Hence, it is expected that the impact of gains and losses in a valuable good can be represented by an S-shaped value function, concave above the reference point and convex below it (Figure 1).

Figure 1: Value function (adapted from Kahneman, Tversky, 1991)



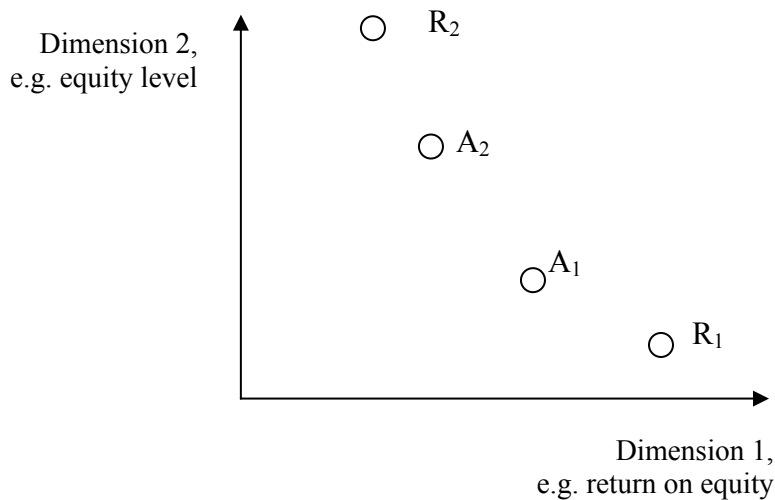
R = reference point

If family managers display loss averse behavior, we expect that a comparable gain and loss in a certain valuable good (e.g. return expected from the project) will induce a more negative valuation if it is viewed as a disadvantage (relative to a reference point) than if it is viewed as an advantage (relative to a reference point).

According to Kahneman and Tversky (1991) loss aversion implies that individuals tend to take decisions depending on reference points. Reference levels play a large role in determining preferences in the sense that the choice of an option may switch depending on the reference state from which it is evaluated.

For example, in below Figure 2, A1 (investment alternative 1) is more likely to be preferred over A2 (investment alternative 2) from R1, as the difference between A1 and A2 in dimension 1 implies disadvantages relative to R1 and advantages relative to R2. A similar argument applies to dimension 2.

Figure 2: Multiple reference points for the choice between A1 and A2



In a test of this prediction on reference point dependent preferences, managers of privately held firms were asked two questions (refer to Table 1) regarding their investment choices under two different hypothetical situations. The individuals were asked to imagine a situation (situation 1) in which their firm is confronted on the one hand by low equity levels but on the other hand by high returns on equity. The entrepreneurs were asked to decide between two investment projects, alternative 1 and alternative 2, which lead to diverging equity levels and returns on equity. (Table 1).

Table 1: Test of loss aversion and reference point dependence

	Equity level	Return on Equity
Reference point 1	Low	15%
Alternative 1	Moderate	10%
Alternative 2	High	5%

Consequently, the entrepreneurs considered the present situation as their reference point. Considered from reference point 1, the different equity levels reachable through both alternatives were considered as gains, whereas the decreases in return on equity were considered as losses. These relations were reversed in situation 2 with reference point 2 being characterized by very high equity levels and a return on equity of 3%.

Considerations of reference point dependence and loss aversion predict that more persons will choose alternative 1 under reference point 1, than under reference point 2. Similarly, more persons are expected to choose alternative 2 under reference point 2, than under reference point 1.

4 The research – sample and data collection

To obtain representative data 148 owner-managers of privately held companies in Switzerland, Germany and Austria were interrogated with an anonymous questionnaire. The respondents all headed small and mid sized firms with 10 to 400 employees. The respondents were interrogated while visiting management seminars at the Swiss Research Institute of Small Business and Entrepreneurship. The return rate amounted to 55%, due to the fact that the respondents were asked to fill out the questionnaire during a break of the seminar. The persons interrogated did neither have any special training on family firm management nor on financing theory.

The equity levels of the firms ranged from 0% to 95%, the median equity level was 50%. The median return on equity of the firms was 8.75%. 40% of the respondents were active in construction industry, 23% in manufacturing, 19% in the service sector and 8% in trading - the remaining 10% were in other sectors. The age of the respondents varied between 28 and 55 years.

The definition of family firms is based on the measurement of Substantial Family Influence (SFI) (Klein, 2000; Shanker and Astrachan, 1996). SFI measures the share of family participation on three levels: equity, governance board and management board. For details on the definition refer to the Appendix.

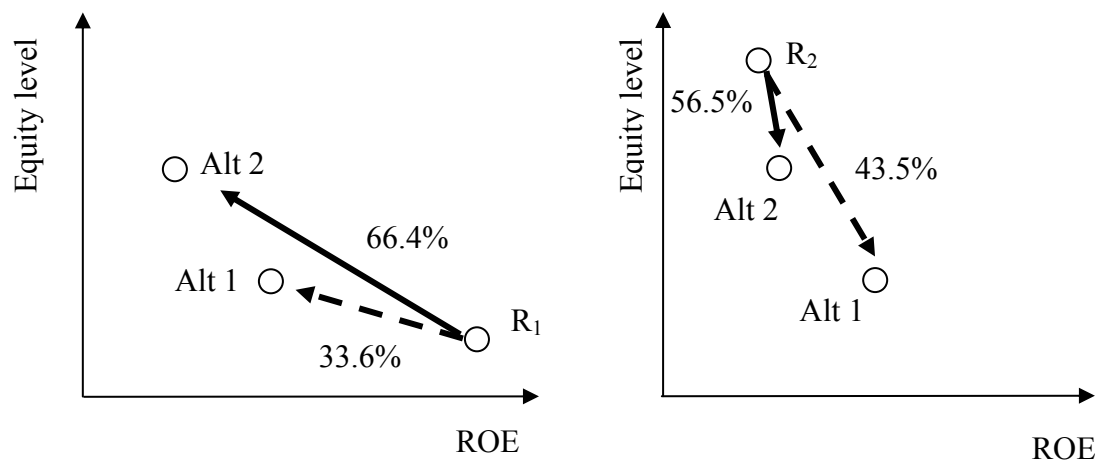
5 Empirical results

The empirical analysis revealed differing results for the family and nonfamily managers. The data sample could be split into 124 family managers and 24 nonfamily managers.

5.1 Results for family firms

The answers of the 124 family entrepreneurs displayed a specific pattern, as illustrated in Figure 3.

Figure 3: Loss aversion and reference dependence - family managers



These findings provide distinct insight into the behavioral aspects of investment choices of family managers.

Firstly, there is an absolute preference for alternative 2, as the majority opted for this alternative when considered from both reference points. Whatever their reference point, the family managers preferred high equity levels and a return on equity of 5% to moderate equity levels combined with 10% of return.

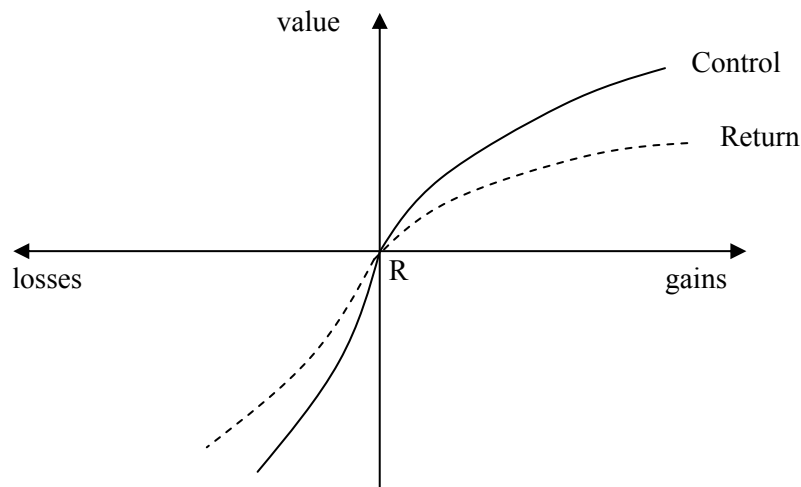
This result provides evidence for a differing loss aversion for return and control (measured in terms of leverage levels). The empirical results illustrate that the loss aversion for independence is greater than for return. This is due to the observation that a decrease of 10% in return on equity from reference point 1 to alternative 2 is acceptable

to a majority of people (66.4% of the responding family entrepreneurs, refer to Figure 3). However, only a minority of the answering family entrepreneurs (43.5% of the responding family entrepreneurs, refer to Figure 3) was willing to accept a reduction in equity financing from very high (reference point 2) to medium (alternative 1).

Apparently, a comparable change in control and return produces a diverging impact in value. With the family managers the felt increase in value due to an enhancement of return is smaller than the one induced by a comparable increase in independence (Figure 4). Hypothesis 1 can therefore be accepted.

Figure 4: Value function for return and control for family managers

The figure is adapted from Kahneman and Tversky (1991).



R = reference point

Secondly, the data provides evidence for reference point dependence. Whereas under reference point 1, 33.6% of the respondents opted for alternative 1, 43.5% opted for it under reference point 2.

The dependence from reference points was empirically tested. Out of the 42 persons, who opted for alternative 1 under reference point 1, 9 (=21.4%) chose alternative 2 under reference point 2 (Table 2) and can therefore be considered as loss averse under both reference points.

However, of the 70 family managers who opted for alternative 2 under reference point 2, only 9 (=12.9%) chose alternative 1 when considering the alternatives from reference point 1 and can therefore be considered as loss averse under both reference points (Table 2).

Table 2: Descriptive statistics and Chi square test

How to read below table: Under reference point 2, 70 persons opt for alternative 2. Out of these 70 persons 9 opt for alternative 1 under reference point 1 and thus could be considered as loss averse under both reference points, as defined by Kahneman and Tversky (1991). Significance levels: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$.

Distribution of answers		Reference point 2		
		Alternative 1	Alternative 2 (loss averse)	
Reference point 1	Alternative 1 (loss averse)	33	9	42
	Alternative 2	21	61	82
		54	70	124

Chi square test

	Value	Asymptotical significance (2- sided)	True significance (2-sided)	True significance (1-sided)
Chi-square after Pearson	31.690	0.000 ***		
Correction for continuity	29.572	0.000 ***		
Likelihood quotient	32.880	0.000 ***		
Fisher test			0.000 ***	0.000 ***
Relation linear-linear	31.434	0.000 ***	0.005 **	
McNemar-Test				
Number of valid n	124			

Chi square testing on the distribution of the variables “loss averse answer under reference point 1” and “loss averse answer under reference point 2” showed that the two

variables were significantly independent. Hence the answers of the family managers indeed depend on reference points.

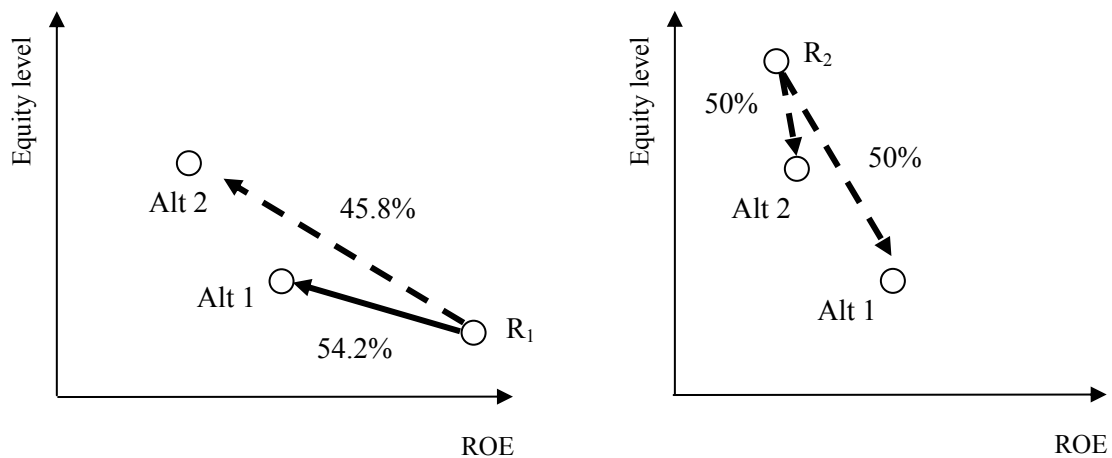
The reference point dependence found provides distinct insight into investment and financing behavior of family firms. The results show that family managers are considering investment alternatives leading to a higher indebtedness but also increased profitability, as too "insecure" as, in their eyes, the independence of the firm is excessively put at risk. In addition, the results provide insight into a specific willingness to bear control risk. This willingness depends on the reference point. The attractiveness of alternative 1 (with medium equity level and 10% return on equity) rises as it is considered from reference point 2. The share of family managers opting for this alternative rises from 33.6% to 43.5%. Such behavior provides evidence that family managers do not generally avoid control risk. Rather, family managers are willing to bear additional control risk when they can revert to a "secure" initial position.

This contradicts the widespread opinion that family firms do generally avoid control risk. The empirical results draw a differentiated picture in which family managers appear as cautious investors. However, as soon as they have reached their independence goal, they are progressively more willing to accept investment projects with increased control risk.

5.2 Results for nonfamily firms

The 24 nonfamily managers chose differently than the family managers.

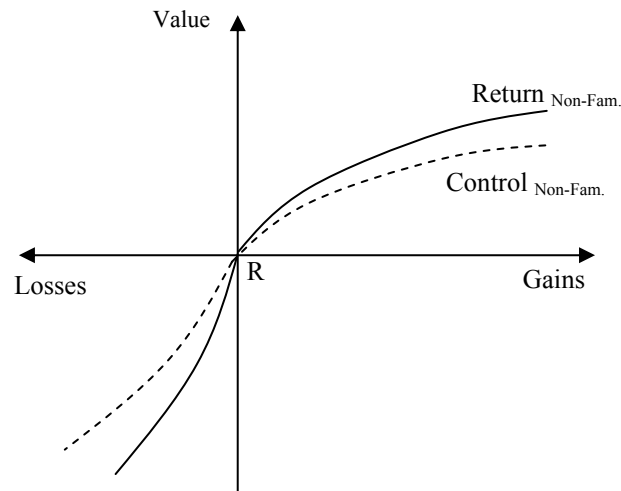
Figure 5: Loss aversion and reference dependence - nonfamily managers



The absolute preference for alternative 2 as observed for the family managers has disappeared. Alternative 1 reached roughly 50% of the votes under both reference points.

When considered from reference point 1, the majority of nonfamily entrepreneurs (54.2%) opted for alternative 1 and can therefore be considered as loss averse according to the definition by Kahneman and Tversky (1991). Apparently, the loss in return on equity of further 5% (when comparing alternative 1 and 2) is considered as more harmful than the increase in independence from medium to high. In contrast to the nonfamily managers, the family managers had decided conversely.

Hypothesis 3, which predicted that nonfamily managers are more loss averse regarding the return than regarding the independence goal can therefore be accepted. This is graphically displayed in Figure 6.

Figure 6: Value function for return and control for nonfamily managers

In addition, the results do not display a significant dependence of the decisions from reference points. Hypothesis 4 can therefore be accepted as well.

Table 3: Descriptive statistics and Chi square test - nonfamily managers

Example: Under reference point 1 13 nonfamily managers opted for alternative 1. Five persons out of these 13 nonfamily managers chose alternative 2 under reference point 2 and can therefore be considered as loss averse under both reference points according to the definition by Kahneman und Tversky (1991). Significance levels: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$.

Distribution of answers		Reference point 2		
		Alternative 1	Alternative 2 (loss averse)	
Reference point 1	Alternative 1 (loss averse)	8	5	13
	Alternative 2	4	7	11
		12	12	24

Chi square test

	Value	Asymptotical significance (2-sided)	True significance (2-sided)	True significance (1-sided)
Chi-square after Pearson	1.510	0.219	0.414	0.207
Correction for continuity	0.671	0.413		
Likelihood quotient	1.527	0.217		
Fisher test			0.414	0.207
Relation linear-linear	1.448	0.229		
McNemar-Test			1	
Number of valid n	24			

6 Conclusion and implications for practice

The Fisher Separation Theorem postulated that a firm's choice of investments is separate from its owner's attitudes towards the investments. So far, this theorem has been extended in many ways as for example the failure of separation in incomplete markets. Researchers have identified special cases where separation holds in incomplete market settings (Diamond, 1967) or with regard to specific risk as exchange rate risks (Baron, 1976).

The present text goes one step further and questions the Fisher Separation Theorem not only by challenging or modifying the perfect capital market assumption. The text asked whether investment choices are affected by individual behavior and preferences.

Whereas several authors have applied behavioral aspects to financing issues of privately held companies (e.g. Sadler - Smith et al., 2003; Mishra et al., 2000; Zahra, 2005), their understanding of behavior was not originally rooted in the findings of behavioral finance theory. The present paper draws from findings and methodologies of behavioral finance to investigate above-outlined question.

The relevance of this question is based on the observation that family managers display a high preference for independence (Ward, 1997; Zellweger and Fueglistaller, 2005). This is due to the fact that a large share of private fortune is tied to the firm (Forbes Wealthiest American Index, 2002; Pictet, 2006) and that most family managers strive to bequeath their firms to subsequent generations (Casson, 1999; Chami, 1999; Becker, 1981). As proven empirically, in contrast to nonfamily managers these preferences have an influence on their investment and financing decisions.

First, the results display that family managers are more loss averse for the independence than for the return goal. A comparable loss in independence and return leads to differing changes in the felt value for the entrepreneur. This loss in value is larger for the

independence goal. It was shown that family managers were willing to renounce to profitable projects if they harm their independence goal.

Second, the analysis showed that family entrepreneurs take investment choices depending on reference points. Depending on the reference point their preferences changed. It was shown that family managers were willing to incur investments with higher control risk (measured in terms of debt level) if they could act starting from a "safe" starting position, characterized by high equity levels. This provides distinct insight into the investment and financing behavior of family firms: they are not generally more control risk averse. However, they are only willing to bear additional control risk when they can revert to a secure independent initial position. Once the independence goal is met, the family entrepreneurs are willing to start projects with increased control risk, as "one can afford it".

Such behavior stands in contrast to the findings for the nonfamily managers. The nonfamily managers display a higher loss aversion for the return goal and take their decisions independently of reference points. They rather correspond to the Fisher separation (1932) which posits that investment choices are irrelevant from preferences and individual behavior.

The present text displays certain limitations. Firstly, the argumentation is based on an experiment, which does not consider adaptation costs for changing leverage levels (Leary and Roberts, 2004). Secondly, the experiment is restricted to one period and does not respect changing financing preferences depending on differing asset prices over several periods (Fischer et al., 1989). Thirdly, further analysis is needed regarding the reference point and a possible confounding effect. Respondents might confound the reference point given in the question and use instead their own experience and reference point and then run the selection against this own internal reference point.

Even if the individual model is particularly prolific when analyzing smaller and private firms that are strongly dominated by one or few persons, it might be interesting to further test the results with CFOs and CEOs of larger and publicly quoted companies.

We therefore conclude that investment preferences in privately held firms - in particular family firms - is affected by individual behavior.

These findings are relevant for practice. For commercial banks these results show that family firms need to be consulted in a specific way, respecting their strive for independence and their punctual willingness to finance investment projects with debt. Financial service providers need to understand that they need to assist family firms with their strive for independence. Only in a second phase, when the family firms can invest from an independent initial position, the banks will be able to sell their traditional debt financing services.

In sum we show that decision making of most privately held companies is influenced by nonfinancial goals and human behavior of the person(s) leading the firm. As researchers in the field we need to accept that financing in most privately held companies cannot be fully explained with traditional financial theory based on the paradigm of pure rationality. The present text tried to take a step in this direction..

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7 Appendix

Substantial Family Influence (SFI) consists of three elements (Klein, 2000):

1. The share of family in the capital of the firm, under the condition that the family holds at least some capital, plus
2. The share of family of the seats on the governance board, plus
3. The of family of the seats of management board.

According to Klein (2000) and Astrachan and Shanker (1996) an enterprise is considered as a family firm, if the sum of the above three components is at least 1.

In maximum a family can control all three elements and then reaches an SFI of 3. In an analytical manner SFI can be written as follows:

$$\text{If } EQ_{Fam} > 0 \text{ SFI} : \left(\frac{EQ_{Fam}}{EQ_{total}} \right) + \left(\frac{GB_{Fam}}{GB_{total}} \right) + \left(\frac{MB_{Fam}}{MB} \right) \geq 1$$

With:

EQ = Equity; SFI = Substantial Family Influence; GB = Government Board; MB = Management Board; Fam = Family.