An exploration on the nexus between managers' present bias

and corporate investment

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Abstract

This study aims to explore the role of top manager's present bias as a main driver of corporate investment. For this purpose, we embed an experiment in a firm-level panel survey with a sample of top managers from 623 textile and garment firms in Vietnam. The experiment enables us to elicit present bias for each individual manager. We find that firms led by managers with greater level of present bias are more likely to have a lower investment. There also exits evidence that the effect of managers' present bias on corporate investment is stronger for SMEs than for large firms.

1. Introduction

Lucas's (1978) model of control span provides a key insight that only rational individuals can be promoted to the top manager position via internal competition process. However, extant studies have evidenced the role of behavioural traits in driving manager's decision making. There exists overwhelming evidence showing that time preferences, especially present bias, is important in individual life and in firm performance (e.g., Ackert et al., 2019; Charness et al., 2019; Ya'akov et al., 2019). As for firm managers, Chunxiang et al., (2016) document that funds with impatient managers are more likely to invest in risky assets. Likewise, Chen et al., (2014) find that present-biased managers of insurance firms tend to pay out dividends earlier vis-à-vis their patient counterparts.

Expanding the literature, we embed an experiment on an ongoing panel data for a sample of 623 textile and garment firms in Vietnam in 2018 – to explore a link between managers' present bias with corporate investment. Our study directly measures present bias at the individual manager level, and then explore the link between the elicited present bias with corporate's investment strategies. Our study is inspired by the fact that even though top managers play a crucial role in deciding corporate's investment, the literature still greatly remains silent on the behavioural mechanisms driving such decisions (Hoskisson et al., 2017). This shortcoming is mostly due to methodological challenges in measuring manager's behavioural traits. Filling this gap in the literature, we use incentivized behavioral tasks to elicit manager's present bias levels. This allows us to explore a link between manager's traits with corporate investment.

Focusing on present bias, we expect that investment is lower for enterprises that are led by more present biased managers. We find that one point increase in present bias is associated with 1.039 percentage point lower in investment. Our study also sheds new light on how

heterogeneity in present bias of managers in the determination of different investment behaviors of small and medium-sized enterprises (SMEs) and large firms.

2. Methodology

2.1. Experimental design and sample selection

Closely following the approach proposed by Tanaka, Camerer, and Nguyen (2010), we conducted a lab-in-the-field experiment with 623 top managers of textile and garment firms in three provinces of Vietnam in 2018. It is worth noting that we focused on only one industry- the textile and garment industry not only because it is the main manufacturing industry of Vietnam, but more importantly we want to understand the heterogeneity of present bias by managers in the same macroeconomics and business environments. Further, as we examine whether the link between managers' present bias and investments would depend on type of firms: SMEs or large firms. For this purpose, we randomly selected firms with between 10 to 1000 employees. In our sample, there are 229 SMEs accounting for 36.76%, while large firms (394 firms) account for 63.24%. [1]

Collaborating with the General Statistics of Vietnam, we invited managers of textile and garment firms to participate in our experiment. The final sample yielded 623 top managers from 623 firms and most of them are Chief Executive Officers (CEOs) or Chief Financial Officers (CFOs). As the summary statistics in the table 2 indicate, 65.25% sample managers are male, while female managers account for 34.75%. Average age of sample managers is 49.59 years.

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[1] According to the law on enterprises of Vietnam, SMEs are defined to be those with total employees equal or less than 200 people, while those with employees of more than 200 people are large firms.

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Approximately 58% managers have bachelor degrees.

Before each experiment section, our research assistants provided all participants the detailed Vietnamese instructions on procedures. We conducted experiments separately in three provinces; each experiment usually started at 9.30 a.m and finished after 1 hour. As specified clearly beforehand, we paid the participants in conformity with their decisions in some specific tasks, which is likely to motivate them to elicit their real preferences.

2.2. Measuring present bias

Our study consisted of a risk preference experiment and a time preference experiment in line with Tanaka, Camerer and Nguyen's (2010) design to measure the two parameters of the quasi-hyperbolic discounting functions: exponential discounting and present bias framework in Thaler (1981), Ahlbrecht and Weber (1997), among others. See Appendix 1 for detailed experimental instructions and question sets. In addition, we built upon Nguyen (2011) to structurally estimate these parameters using the maximum simulated likelihood (MSL) technique (Train 2009)

It is worth noting that in this study our focus is on present bias estimation. As such, we will elaborate further on the time preference parameters, which were built in 35 questions. In the first question sets, the participants were presented with a series of 18 binary choices between receiving $100 in one week (Option A)- that reward is fixed over the course of question sets, and receiving larger alternatives in two weeks (Option B) – that reward changes throughout the question sets with an increasing outcomes. In the second question set, participants were asked to make 17 pairwise choices between Option A (receiving $100 today) and Option B (receiving varying larger rewards in one week). The obvious pattern, which was instructed in detail to all participants beforehand, is that Option B becomes more attractive when moving down the rows.

Thus, the latter a participant switched from Option A to Option B, the more present biased he/she was.

The present bias parameter β is the derived by comparing the time discounting rate in the first period δ_1 with that in the second period δ_2. Specifically, $\beta = \dfrac{\delta_1}{\delta_2}$. If a participant has $\beta < 1$, he/she is present-biased because he/she is more patient in the long run (1 week in the future) than in the short run (today). On the other hand, he/she is future biased if β>1. When β=1, it is considered to conform to a traditional view of time preference. Notably, in this study we focus on present bias (β<1) and in our following regressions, we define β*= |1- β|, so that a higher value of β* implies higher present bias level.

3. Model specification

The model in investigating the above hypothesis are specified as follows:

$$Y_i = \gamma_0 + \gamma_1 \beta_i^* + \gamma_R R_{i,t-1} + \gamma_M M_i + \gamma_P P_i + \gamma_x X_i + \varepsilon_i \qquad (1)$$

where Y_i represents investment of firm i. Investment is defined as natural logarithm of total investment.

To explore the link between manager's preferences and firm's total investment, we estimate OLS models for equation 1. We would concentrate on the estimated coefficients $\hat{\gamma}_1$ for the effects of managers' present bias. We anticipate that patient managers i.e., whose who have lower β^* are negatively related to firms' investment. In other words, $\hat{\gamma}_1$ is expected to be negative.

$R_{i,t-1}$ is the firm performance proxied by previous year's revenue.

M_i is a vector of manager's demographic characteristics including age, gender, and bachelor degrees

P_i is a set of binary variables indicating the provinces in which the firm operates. These variables incorporate the effects of locations such as economic growth, level of competition, consumer's educational level and so on.

X_i is a vector of specific variables of firm i including firm size as measured by number of employees, and deferred taxes as these variables potentially affect firms' decisions on investment.

ε_i is the error term. Standard errors are clustered at provincial level.

4. Results analysis and discussion

4.1. Characteristics of the data

Table 1 displays the descriptive statistics of the full sample firms and managers, and of SMEs versus large firms. While many previous studies focus on large firms, one advantage of our study is that our sample covers both SMEs and large firms. In our sample 36,76% of the firms are SMEs, and 63,24% are large firms. As expected, the larger firms have average sale revenue of 86,808.42 million Vietnamese Dong (VND), which is equivalent to USD 3,766,092[2], and total investment of VND 37,824.72 million (approximately USD 1,640,986); vis-à-vis 68,105.53 million VND (roughly USD 2,954,687) and 30,421.39 million VND (roughly USD 1,319,800) of SMEs' average sale revenue and total investment, respectively.

(INSERT TABLE 1 HERE)

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[2] According to the State Bank of Vietnam, in 2018 average USD/VND= 23,050

The present bias (β)'s mean value of 0.7258 indicates that our sample managers are less present biased than those in Tanaka et al., (2010) (mean =0.644). Classifying our sample into SMEs and large firms, the average present bias of SMEs and large firms' managers are 0.7268 and 0.7142, respectively, which shows that managers of large firms are as present biased as the managers of SMEs.

4.2. Effects of managers' present bias on firm investment

We first investigate whether managers' present bias correlates with firms' total investment. We then investigate how time preferences of top managers help to explain different investment behaviours of SMEs and large firms in models 2 and 3, respectively. Recall that in the regressions we use $\beta^* = |1 - \beta|$.

(INSERT TABLE 2 HERE)

In model 1, as reflected in the hypothesis, coefficient of present bias (β^*) is expected to be negative, implying that a lower present bias level of managers is more likely to be related with higher firm investment. Supporting the hypothesis, we observe a negative link between managers' present bias and total investment of firms ($\hat{\gamma}_2 = -1.039$, p<0.1). The -1.039 estimated coefficient on β^* implies that 1 point reduction in managers' present bias leads to a roughly 1.039 percentage point increase in firms' investment. This result conforms to the findings of previous studies (e.g., Thaler and Benartzi, 2004; Meier and Sprenger, 2010) for non- manager population that present bias has vital implication for investment decisions. Regarding control variables, we observe a negative relationship between firm investment and managers' age ($\hat{\gamma} = -0.098$, p<0.1), which indicates that firms headed by younger managers make greater investment than those firms led by older managers.

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The coefficients on β^* are significant in both models 2 and 3, but present bias of top managers have stronger impact on investment activities of SMEs than large firms. A one standard deviation increase in present bias level of managers is associated with lower investment of SMEs by 3.985 percentage point ($\hat{\gamma_2}$= -3.985, p<0.05) vis-à-vis roughly 1.359 percentage point reduction in investment of large firms ($\hat{\gamma_2}$= -1.359, p<0.01). These results are consistent with Belenzon et al., (2019) insight that the roles of managers are more salient in small firms than in large firms. As such, their preferences are likely to play a more significant role in driving corporate investment (Russo and Perrini, 2010).

5. Conclusion

Our study offers new insights into the nexus between manager's present bias and corporate investment. One point higher present bias make 1.039 percentage point lower investment. Further, we provide new evidence of how heterogeneity in present bias of managers in the determination of different investment behaviors of SMEs and large firms. Interestingly, while present bias of top managers significantly influences investment activities of both SMEs and large firms, the effect of impatient managers is stronger for SMEs indicating a more salient role of managers in decision making among SMEs. Finally, our findings suggest that manager traits should be considered as essential factors when firms select, recruit, promote managers, and negotiate compensation schemes. It also provides meaningful information for firms' board of directors and stakeholders to carry out strategies on making investment.

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Table 1: Descriptive statistics

Variables	Full sample			SMEs		Large firms	
	Obs	Mean	Std.Dev	Obs	Mean	Obs	Mean
Total investment	623	37268.63	24831.28	229	30421.39	394	37824.72
Firm size	623	447.3728	288.1933	229	154.09	394	480.24
Revenue	623	85417.41	79806.31	229	68105.53	394	86808.42
Deferred taxes	623	1508.386	1131.906	229	1391.92	394	1528.03
Present bias (β*)	623	0.7258	0.7523	229	0.7142	394	0.7268
Age	623	49.596	10.0874	229	50.2046	394	49.546
Gender	623	0.6525	0.3546	229	0.6514	394	0.6526
Bachelor degree	623	0.5486	0.8648	229	0.5618	394	0.5476

Table 2: Effects of managers' present bias on investment

	Full sample	SMEs	Large firms
	(1)	(2)	(3)
Present bias (β)	-1.039**	-3.985**	-1.359***
	(-2.19)	(-2.15)	(-3.61)
Age	-0.098*	-0.224*	-0.049***
	(-1.95)	(-1.82)	(-2.92)
Gender	0.025	1.519	0.137
	(1.17)	(1.07)	(0.22)
Bachelor degree	0.049	0.972***	0.083
	(0.11)	(4.72)	(0.34)
Firm size	0.042***	0.387	0.855**
	(3.12)	(-0.17)	(2.54)
Sale revenue	0.312**	0.514*	0.144
	(2.05)	(1.82)	(1.35)
Deferred taxes	0.013	1.924	0.059
	(0.53)	(0.73)	(0.81)
Province 1	0.099*	0.685***	0.129
	(1.71)	(3.71)	(0.23)
Province 2	0.143***	0.187	0.055***
	(5.59)	(1.55)	(2.72)
Intercept	0.274***	1.486***	3.103***
	(3.41)	(4.89)	(5.26)
Observations	623	229	394
Adjusted R-squared	0.592	0.861	0.418

Note: Table 2 displays the OLS regressions for the effects of managers' present bias on total investment for full sample (model 1), total investment of SMEs (model 2) and large firms (model 3); t-values are in parentheses. Standard errors are clustered at the province level. * $p<0.1$, ** $p<0.05$, and *** $p<0.01$.