Mental accounting and loan choice:

Evidence from a social media survey

Bei Chen[a*], Quan Gan[a], Eliza Wu[a]

[a] Discipline of Finance, University of Sydney, Sydney, NSW, Australia

Abstract

We conduct a survey through social media platforms in Vietnam to examine what personal characteristics impact mental accounting behaviour in consumer loan choice. We find that older (>40 years), female and higher educated individuals in Vietnam are more likely to conduct mental accounting in their borrowing decisions. The finding helps lenders to establish alternative creditworthiness indicators and customise loan products in emerging markets.

Keywords: Mental Accounting; Loan choice; Social Media; Emerging Markets

JEL classification: D10, D91, G40

[*]Correspondence to: Discipline of Finance, University of Sydney, Sydney 2006, NSW, Australia
Email address: bei.chen@sydney.edu.au (B. Chen), quan.gan@sydney.edu.au (Q. Gan), eliza.wu@sydney.edu.au (E. Wu)

1. Introduction

Mental accounting is the human behavioural tendency to separate money into different accounts based on criteria like the source of the money and the intent for the expense (Thaler 1985). Prior research suggests that mental accounting leads to choices with higher borrowing costs (Prelec and Loewenstein 1998; Kamleitner and Kirchler 2006; McHugh, Ranyard, and Lewis 2011). These previous studies on mental accounting and loan preferences are either conducted in developed countries or on well-educated subjects (university students and MBAs). The data in those studies are typically collected from laboratory experiments, semi-structured surveys or interviews. Prior research seldom relates personal characteristics to mental accounting behaviour in loan choice.

To tackle this void in the literature, in this study, we run a survey through popular social media platforms (Facebook, Google Plus, and Twitter) in Vietnam, to examine the relationship between personal characteristics and mental accounting bias in consumer loan choices within less financially developed and bank dependent economies.

Vietnam has one of the fastest-growing economies with underdeveloped credit records for individuals. How to establish a credit system for individuals in Vietnam and other emerging markets presents a challenge to researchers. Our study opens a new approach to infer the creditworthiness of individuals in emerging markets using the relationship between personal characteristics and behavioural tendencies. Our research has practical implications as lenders can also design their loan products and marketing strategy to improve outcomes for financial consumers.

Mental accounting is usually labelled as a “cognitive bias” which leads to the making of suboptimal choices and economic decisions. We argue that a person using mental accounting tends to be financially prepared to use the money in an organised way. In other words, a person

with strong mental accounting tendency is a well-behaved borrower from the lender's perspective. Our argument is consistent with Bénabou and Tirole (2004) that mental accounting is one type of personal rules which enforces self-monitoring and self-control.

The survey was conducted between 9 January and 8 February, 2018, under the sponsorship of Rich Data Corporation (RDC), a global behaviour prediction company (https://www.richdataco.com/). The first part of the survey asks questions regarding loan choices and we use the responses from this survey to measure mental accounting and other related behavioural tendencies. The second part asks questions relating to individuals' personal characteristics, and each question in this part is optional. In total we received responses from 796 respondents. We remove the incomplete responses and have 313 respondents left in our final sample.

Table 1 lists the summary of personal characteristics of the survey respondents.

Table 1: Summary Information of Survey Respondents

Age	(#)	(%)	*Education*	(#)	(%)
Less than 20	82	26.20%	None	16	5.11%
21-30	135	43.13%	High School	141	45.05%
31-40	75	23.96%	Vocational Education	16	5.11%
41-50	20	6.39%	Undergraduate Course	133	42.49%
Over 50	1	0.32%	Master Degree	4	1.28%
			PHD	3	0.96%
Gender					
female	229	73.16%			
male	84	26.84%			

2. Research Design

We measure mental accounting in loan choices by asking the following two questions.

Q1. You need to borrow 10 million Vietnamese dongs (about $430) to pay for your next holiday. Which loan will you choose?

A. 3-month loan with 12% interest rate per annum.

B. 1-year loan with 11.5% interest rate per annum.

Q2. You have entered into a 3-year loan to pay for your iPhone X. It has been two years since you bought the iPhone and it's getting old so you decide to replace it with a new phone. The loan company gives you the following options to repay the remaining amount left on your loan. Which option will you choose?

A. *Repay the remaining loan amount now, which will incur a 1% penalty fee.*

B. *Keep repaying the remaining loan amount in monthly repayments.*

Similar questions are used in the mental accounting literature in different contexts (e.g. Prelec and Loewenstein 1998). Question 1 concerns the initiation of a new loan. Question 2 concerns terminating or continuing the current loan. In both questions, respondents with mental accounting tendencies will prefer choice *A* because they will try to match the time period of the loan payment and the time period of consumption (holiday in *Q1* and usage of iPhone X in *Q2*). Mismatching of loan payment and consumption periods in choice *B* will generate disutility for potential borrowers who have strong tendencies to conduct mental accounting.

We give one score to choice *A* for each question. Hence, for these two questions, a score Y ($0 \leq Y \leq 2$) is assigned to each respondent. A high (low) score indicates a high (low) mental accounting tendency. We use this score as the response variable in our logistic regression analysis.

Then we try to identify variables that determine the mental accounting behaviour. Two related behavioural tendencies are mental budgeting and debt aversion (Prelec and Loewenstein 1998). We use the following questions (*Q3*-*Q5*) to obtain the measure of mental budgeting.

Q3. How do you tend to think about your money?

A. *I think about my money as a lump sum amount, and spend money from this one amount.*

B. *I split my money based on what I spend it on, such as money for paying bills, for travelling, etc.*

C. I split my money based on its source, such as my salary, from interest, gambling, etc.

Q4. Have you ever saved money for a certain goal or purpose? For example, saving for a holiday, or for a big purchase.

A. No.

B. Yes.

Q5. Do you plan and set aside money for meals?

A. No.

B. Yes.

For each question, we give a zero score to choice *A* and one score otherwise. In *Q3*, the respondent has a mental budgeting tendency if he/she chooses *B* or *C* and thus gets one score for either choice. A score ranging from 0 to 3 is obtained as a measure of mental budgeting. A high (low) score stands for a high (low) mental budgeting tendency.

We use the following question (*Q6*) to measure respondents' debt aversion.

Q6. You have the opportunity to get a one-year loan at 0% interest. Do you decide to borrow?

A. No.

B. Yes.

We give one score to choice *A* (representing loan aversion) and zero to choice *B*.

We also asked the respondents to self-report their financial ability at a scale of five (low=0, below average=1, average=3, above average=4, and high=5). Among all responses, 11.50% and 6.07% reported low or below average ability, 43.45% reported average ability, 25.88% and 13.10% reported above average or high ability. There is no obvious overconfidence among Vietnamese respondents with respect to their self-reporting financial ability.

Information on age, gender and education are collected in part two of the survey. We use

two dummy variables to capture age and gender differences, respectively (1 standing for age group over 40/female). Education level is measured as an ordinal variable (no education=0, high school=1, vocational education=2, undergraduate=3, master=4, PhD=5).

3. Empirical Results

We employ the ordinal logistic regression (proportional odds model) as follows.

$$Logit[P(Y \leq k)] = ln\left(\frac{P\{Y \leq k\}}{1 - P\{Y \leq k\}}\right) = \alpha_k - \beta' X, k = 0,1$$

Y is the mental accounting score, and X is the vector of explanatory variables. We run univariate regressions with a single explanatory variable and then multivariate regressions with all variables included. Table 2 presents the coefficient estimates. For simplicity, we omit reporting the estimates of the intercept.

Table 2: Results of ordinal logistic regressions

The table lists the coefficient estimates from ordinal logistic regressions with a single explanatory variable and then with all explanatory variables included. ***, **, and * denote statistical significance at 1%, 5%, and 10% levels, respectively.

Mental Budgeting	0.057						0.078
	(0.129)						(0.132)
Loan Aversion		0.281					0.149
		(0.227)					(0.233)
Financial Ability			-0.022				-0.058
			(0.094)				(0.097)
Old/Young				1.020**			0.872*
				(0.442)			(0.466)
Gender					0.482**		0.451*
					(0.239)		(0.243)
Education						0.189***	0.159**
						(0.067)	(0.068)
R-squared	0.001	0.006	0.000	0.007	0.015	0.029	0.058

Results in Table 2 show that mental budgeting behaviour does not have strong explanatory power on mental accounting in loan choice. Mental budgeting groups either consumption or income streams according to the usages or sources but does not necessarily integrate consumption and repayment into one mental account. In essence, mental budgeting and mental accounting has a subtle but important difference. Loan aversion, as a different behavioural concept, may also lead to loan prepayment choice in *Q1* and *Q2*. Our result shows that loan

aversion, by itself or together with other variables, does not contribute to mental accounting. High levels of financial sophistication may lead to the choice of low cost loans and low mental accounting bias. However, our study does not find such an association.

Table 2 shows that personal characteristics (age, gender and education) rather than the financial related factors are better able to explain individual's mental accounting behaviour. Older (>40), female and higher educated respondents exhibit stronger mental accounting tendencies. Achtziger et al. (2015), using a sample from Germany, show that age is positively correlated with self-control but there is no gender difference in self-control. Lades et al. (2017), using a sample from the UK, find that higher education leads to high levels of self-control. Our results show that personal characteristics contributing to self-control also contribute to borrowers' mental accounting biases.

4. Conclusion

This paper examines mental accounting tendencies displayed in loan preferences using a social media survey in Vietnam, a developing and bank dependent economy. It provides insights on the characteristics of individuals who use mental accounting in credit decisions. We find that age, gender, and education can explain mental accounting behaviour in borrowers. This finding provides two implications. First, some personal characteristics are associated with mental accounting behaviour. Lenders can use this finding to obtain a better understanding of the creditworthiness of borrowers. Second, people with mental accounting biases tend to choose certain financial products (e.g. consumer loans). Loan products and marketing campaigns can be designed to improve the outcomes for financial consumers who may be subject to mental accounting tendencies.

Reference:

Achtziger, A., Hubert, M., Kenning, P., Raab, G., & Reisch, L. 2015. Debt out of control: The links between self-control, compulsive buying, and real debts. *Journal of Economic Psychology* 49: 141-149.
Bénabou, R., and J. Tirole. 2004. Willpower and Personal Rules. *Journal of Political Economy* 112:848–86.
Kamleitner, B.& Kirchler, E. 2006. Personal Loan Users' Mental Integration of Payment and Consumption. *Marketing Letters* 17:281–94.
Lades, L. K., M. Egan, L. Delaney, and M. Daly. 2017. Childhood Self-Control and Adult Pension Participation. *Economics Letters* 161:102–4.
McHugh, S., R. Ranyard, and A. Lewis. 2011. Understanding and Knowledge of Credit Cost and Duration: Effects on Credit Judgements and Decisions. *Journal of Economic Psychology* 32:609–20.
Prelec, D., and G. Loewenstein. 1998. The Red and the Black: Mental Accounting of Savings and Debt. *Marketing Science* 17:4–28.
Thaler, R. 1985. Mental Accounting and Consumer Choice. *Marketing Science* 4:199–214.