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Addressing Bootstrap Financing Constraints on Family Start-Ups from a Mental Accounting Perspective

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Abstract

Few studies have examined bootstrap financing in family start-ups (FSUs) from a mental accounting perspective. This study enriches the theoretical stream by providing an updated framework for FSUs' bootstrap financing decisions. Regression models were employed to investigate empirically how capital-constrained entrepreneurs allocate limited financing resources to self-funded businesses. It found that household savings significantly hinder entrepreneurship in high-income and wealthy families. While bank loans were the most important financing resource for FSUs, credit cards were usually used to make stock investments to earn short-term returns. The heterogeneous results suggest that necessity entrepreneurs lack sufficient family savings to support their start-ups; against the rules, they cashed out family assets and

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misappropriated a portion of bank loans to invest in stocks, but put the returns into their safe account rather than for business growth. In contrast, opportunity entrepreneurs prefer to use family assets to fund their start-ups to create opportunities that will increase their wealth. They have a safe account separate from their FSUs in which to deposit their liquid assets. Such findings demonstrate that FSUs' financing restraint results from entrepreneurs' cognition, not only from financial resource limitations but also from reference values for entrepreneurs and investors in other emerging countries to deal with the worldwide financing challenge.

1. Introduction

Large and rapidly growing companies have many financing options, including venture capital (VC), private equity (PE) funds, and initial public offerings (IPOs). In addition to these equity financing sources, bank financing is the preferred debt financing option for these companies (Michieles & Molly, 2017). Unlike firms with potential investment returns, family start-ups (FSUs) are small businesses with fewer employees and are often in the very early stages of development; thus, they have no capital, research and development (R&D), technology, or marketing advantages (Fernandez, 2023), nor have they demonstrated their growth potential. Accordingly, external investors are not interested in investing in these start-ups (Berger & Udell, 2003). Meanwhile, because start-ups have fewer assets and less cash flow, they do not qualify for adequate asset-based and/or cash flow loans to expand their businesses. When entrepreneurs are granted loans, creditors and bankers may increase their interest rates to compensate for the higher transaction risk. Therefore, these FSUs are confronted with more liquidity constraints than other firms because of limited external financing resources and must self-fund their businesses.

Self-funding is inevitably considered a solution for FSU survival when other financing sources are unavailable, particularly for technology-based businesses (Auken, 2005). This self-funding approach is known as financial bootstrapping or bootstrap financing, which refers to any strategy used to acquire multiple types of financing resources in small amounts but without any long-term external funding (Winborg & Landstrom, 1997). This financing option is often used in emerging economies, where access to formal debt and equity markets is limited or unreliable. This allows FSUs to have firm control rights and leverage resources while minimising their reliance on external financial institutions. Efficient allocation of bootstrap financing resources is crucial for entrepreneurial success, but the literature on this aspect is scarce. Auken (2005) suggested that some entrepreneurs are not knowledgeable about diversified capital sources and structures. We argue that most family business owners in emerging countries know even less than those in developed economies; thus, a study to delve into the causes and effects is needed. Therefore,

examining self-funding FSUs in emerging economies is crucial for creating a path to reducing financing pressures.

Although addressing bootstrap financing constraints is crucial because liquidity constraints significantly inhibit entrepreneurial activities, and some studies suggest that financial inclusion is critical to deal with the issue through many channels, no solution has yet been reached (Weng & Zhang, 2015). We argue that the financing constraint is not only a money-supply specific but also a money-use issue; misleading financial cognition of money allocation may worsen the constraints, even if financing resource diversity raises the amount of money. Individuals classify money differently based on subjective criteria, which usually leads to irrational spending and financially counterproductive investment decisions, defined as mental accounting (Thaler, 1999).

The concept of mental accounting is defined as a set of cognitive operations that individuals use to keep track of financial activities and documents that value money in different ways, which exposes them to irrational decision-making (Thaler, 1999). Mental accounting is reflected in various domains of applied behavioural sciences. For example, investors choose assets for investing to create speculative and safe portfolios. Investors separate safe portfolios from speculative portfolios so that negative returns from the latter do not affect positive returns from the former. This indicates that investors have extra money that they can afford to lose and are comfortable investing in uncertain and speculative investments. In mental accounting, entrepreneurs treat their assets as less fungible than they are. Even seasoned investors are susceptible to this bias when they view recent gains as disposable 'house money' (Thaler & Johnson, 1990) that can be used for high-risk investments. To do so, they make separate decisions regarding each mental account. As all money is the same and no decision would justify losing any money, no division should exist between safety capital and money that can afford to be lost. Therefore, mental accounting is associated with bootstrap fundraising and may address the bootstrap financing constraints; however, this has not yet been discussed.

Motivated by the growing attention on the financing restraint of FSUs worldwide, this study bridges this gap with a novel theoretical framework. This study investigates how family entrepreneurs without external financial support use their limited financial resources to self-fund their businesses. To find a solution to the financing dilemma faced by household start-ups, this study examines the relationship between household financing resources and entrepreneurial activities and identifies stock investments as a mediating mechanism. Most studies in this field document the existence of liquidity constraints among FSUs (Kimhi, 1997; Weng & Zhang, 2015) without shedding light on potential solutions for these financing hardships. Our study attributes these results to mental accounting bias in financing decisions and suggests

that developing start-ups diversify their financial bootstrapping resources. Applying a mental accounting perspective to bootstrap FSU financing in an emerging economy allows us to gain insights into entrepreneurs' decision-making processes and the strategies employed to obtain and allocate financial resources.

This study makes three contributions. The most important contribution is its practical implications for dealing with the liquidity constraints of FSUs, encouraging them to diversify their bootstrap financing resources and avoiding the financing bias that results in irrational financing decisions. Consequently, small family businesses' financing constraints are expected to be resolved or reduced. Second, this study enriches existing studies on entrepreneurial finance in emerging economies by investigating the relationship between household financing resources and entrepreneurial activities using stock participation as a mediating mechanism, and provides some interesting heterogeneity analyses. Third, this study is the first to employ mental accounting theory to account for FSUs' bootstrap financing constraints, adding to existing financing theories, such as credit rationing (Yu & Fu, 2021) and signalling by risk-bearing (Czaja & Roder, 2022). Our research concludes that entrepreneurs' mental accounting creates financing decision bias and liquidity constraints; consequently, diversifying household financial resources is suggested to address these hardships. This theoretical application is expected to enrich the existing literature on this topic.

1. Theoretical Framework and Hypotheses

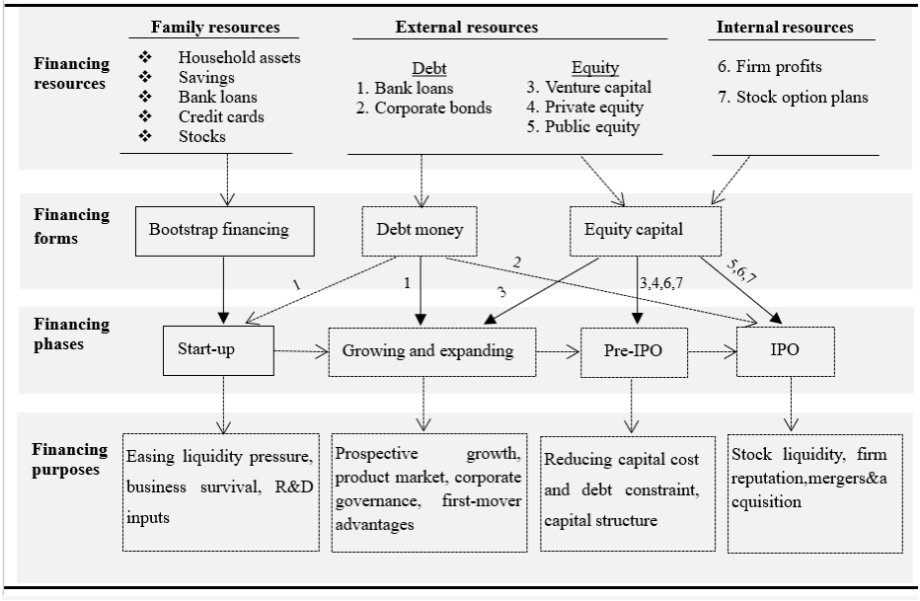
2.1 Theoretical Framework

Studies have documented certain financing solutions for entrepreneurial firms, ranging from start-up to IPO. Based on related literature, Figure 1 comprehensively presents a theoretical framework that outlines three major financing resources (family, external, and internal) with three features (bootstrap, debt, and equity) across the four financing phases.

In the initial start-up phase, Figure 1 shows that entrepreneurial firms are unable to access external debt or equity resources. Although debt financing via bank loans is accessible, it is very limited. FSUs rely primarily on self-funding from household finances, which is known as bootstrap financing. Bootstrap financing from household members and friends is the dominant approach used by start-ups. This type of financing relies on entrepreneurs' social networks and trust (Turvey & Kong, 2010). The three most important resources are household assets (Li et al., 2021), savings (Ivashina et al., 2021), and bank loans (Remble et al., 2014). The prevailing and most effective approaches for coping with abrupt capital shortages encountered by most entrepreneurs

are stock returns and credit cards. Therefore, this study views stocks and credit cards as household financing resources.

Figure 1 Financing Resources Acquisition in Different Phases of Entrepreneurial Firms



Unlike large-scale and IPO firms, start-ups have limited access to external financial resources due to their small size and information asymmetry (Cassar, 2004). Additionally, they are unable to obtain internal capital resources because of their uncertain growth potential and low cash flows. Funding from large financial institutions is especially challenging for small family businesses (Tilburg, 2009). As entrepreneurs are unable to access most external funding and financing resources, they must use household savings and contributions from relatives and friends (Harrison et al., 2004). Although some FSUs may obtain bank loans (Fig. 1, No. 1), their largest resource is policy-supported capital.

Entrepreneurial firms that survive the first phase have access to debt financing via bank loans during their rapid growth and expansion phases, but can also access equity capital from VC investors (Fig. 1, No. 3). Both types of financial resources are crucial for growth and expansion. VC-backed firms perform better than others (Barry & Mihov, 2015) and go public as soon as possible, because an IPO is an optimal exit option for VCs (Black & Gilson, 1998). In the pre-IPO phase, entrepreneurial firms have access to more financing resources and may receive external funding from private

equity investors (Matanova et al., 2022).

In the subsequent pre-IPO phase, entrepreneurial firms become quite attractive to equity investors and have greater access to a variety of equity fund suppliers, such as VC, private funds (Fig. 1, No. 4), public funds (Fig. 1, No. 5), internal capital from firm profits (Fig. 1, No. 6), and stock option plans (Fig. 1, No. 7). These capitalists prefer to invest in a range of entrepreneurial firms approaching IPOs. For instance, VCs, as a kind of equity capital, prefer to invest in fast-growing and expanding ventures and offer substantial managerial expertise to such ventures. By contrast, growing firms rely on timely VC investments to succeed and become the earliest movers (Davila et al., 2003). However, most entrepreneurial firms, particularly early-stage start-ups, lack access to venture capital. As Davis (2003) indicated, almost 90% of start-ups receive little funding from VCs, and over 95% of entrepreneurial financing is obtained from other sources. In terms of industrial sectors, Cumming et al. (2008) documented that in illiquid markets, venture capitalists prefer to invest in high-tech and early-stage firms to postpone exits. By contrast, when markets are liquid, VCs tend to invest in later-stage firms to exit as quickly as possible. Private equity investors prefer to fund mature, large-scale, public, and undervalued firms (Matanova et al., 2022).

When entrepreneurial firms have successful IPOs, they may raise funds publicly and have increased bargaining power with creditors and other investors, subsequently enhancing their financial capabilities (Rajan, 1992). IPO firms prefer public funding that provides them with a substantial amount of funding for targeted M&As. Additionally, creditors prefer to fund IPO firms with bond loans because they can generate abundant cash flows and raise money from capital markets. In addition to these external resources, IPO firms have the advantage of attracting internal resources. For instance, they can reinvest their earnings to support firm growth (Yiu et al., 2013) or raise internal funds through stock option plans (Core & Guay, 2001). Finally, they can raise public equity funds through IPOs, which improves their access to additional financial resources. Hsienh et al. (2011) argued that IPO firms have various intermediaries through which they can raise funds from capital markets by issuing shares or corporate bonds (Fig. 1, No. 2). Thus, equity investors choose to invest in fast-growing and IPO-accessible ventures to pursue high investment returns.

Entrepreneurs should comprehensively assess the pros and cons of these financing resources and choose one or more favourable options to support their businesses. Bettigines and Brander (2007) identified a bilateral moral hazard issue for entrepreneurs and VCs because of their inability to verify each other's efforts. Entrepreneurs may be required to dilute their share of equity ownership to benefit from VC investments, which reduces their incentives. Financing is a bilateral arrangement

between financiers and investors. Thus, investors must understand how entrepreneurs use capital to secure expected returns. However, FSUs are not essential in attracting external investors.

Assessing the pros and cons of financing decisions is not only a form of science but also a mental behaviour that involves entrepreneurs' personal traits, as different risk attitudes may result in financing decisions that vary substantially (Parker, 1996). For instance, Ahn (2010) found that risk preference had a significantly positive effect on entrepreneurial choices; entrepreneurs with higher levels of social trust were more likely to obtain financing opportunities (Ding et al., 2015).

The framework, based on existing theories, sheds little light on addressing the principal financing constraints of FSUs. This study bridges this research gap using a novel theoretical framework. Entrepreneurship can determine household wealth, which, in turn, affects entrepreneurial performance. This study offers insights into the mechanism of this relationship by identifying how entrepreneurs allocate their limited bootstrap financing resources, including household assets, savings, and bank loans, to self-fund their businesses. As in the Chinese financial market, other developing markets have similar financial constraints due to ineffective resource allocation, and many developing economies with emerging markets face financing constraints along with other issues, such as income inequality (Lecuna 2020). The entrepreneurs from such economies may benefit from this study to optimise their financial allocation for sustainable entrepreneurship. Meanwhile, developing economy-focused literature is scarce, except for evidence from China (Ge et al., 2021; Li et al., 2021; Yuan et al., 2021), so the aforementioned theoretical framework, along with the findings of this study, is expected to contribute to decreasing bootstrap financing pressure in other developing economies and provide a reference value for future studies based on comparable economies.

2.2 Hypotheses

Household savings and bank loans are highly liquid assets that dominate financial bootstrapping. U.S. evidence shows that entrepreneurship-oriented families have statistically higher household savings than other families (Quadrini, 2000). Taveras (2010) confirmed this point of view and documented that entrepreneurial families have more savings and vice versa, but their savings decrease once household entrepreneurship ends. However, Caner (2003) used U.S. data from 1984 to 1994 to reveal that no significant relationship existed between them. Cai (2018) presented a different viewpoint in China, suggesting that Chinese families engage in entrepreneurship because of China's unique social relationships (called Guanxi in Chinese). These families must initially pay higher costs to maintain their broad social

networks, which are crucial for business success in China's guanxi-dominated society (Patel & Terjesen, 2011). Thus, household savings are expected to have heterogeneous effects on FSUs in China.

Apart from liquid assets, other household assets, such as homes, vehicles, and intangible assets, also facilitate entrepreneurship. In developed economies, where more financial derivatives are available to support entrepreneurial financing, prospective entrepreneurs' credit shortages may be resolved by increasing the collateral value, especially when the housing market is booming (Adelino et al., 2015). Fan et al. (2022) documented that in China's developing economy, significantly increasing house prices encouraged more homeowners to start new businesses using housing collateral loans. Moreover, intangible assets such as political backgrounds and connections result in higher household wealth, better social capital, and fewer liquidity constraints, thus facilitating household businesses (Ge et al., 2021).

Various factors determine household assets, including social networks, household wealth, and asset allocation behaviours. For instance, extensive social networks may improve a household's risk-taking ability, and entrepreneurs from such families are more willing than others to engage in risky entrepreneurial activities (Fafchamps & Gubert, 2007). However, they may also prefer to allocate their household assets to risk-dominated stock markets with high yields (Wu & Yin, 2019). In addition, some entrepreneurial families may benefit from their close connections with politicians and have greater access to bank loans, particularly in China (Li et al., 2020). Given this context, Hypothesis 1 was proposed as follows:

> **H 1**. The contribution of bootstrap financing resources to family start-ups varies, depending on multiple factors.

As social networks are associated with household financial asset allocations (Ge et al., 2021), families with wider social networks may have better access to investment opportunities and professional advice, thereby reducing the cost of stock market participation. Additionally, entrepreneurs with close relationships with politicians can easily access bank loans and are more likely to apply for credit than those without such relationships (Li et al., 2020). These entrepreneurs tend to allocate their household assets to risky stock markets with high yields (Wu & Yin, 2019). The financial education literature suggests that individuals with greater financial literacy are more likely to invest in risky financial assets than their counterparts (Liao et al., 2018). Well-educated entrepreneurs in China are assumed to have higher levels of financial literacy than those with less education, and prefer holding stocks to launch start-ups. Entrepreneurs with access to bank loans and investment opportunities are more likely to allocate household wealth to stock trading. The short-term stock returns

generated are used to launch businesses for long-term profits or to deal with the liquidity constraints of families already engaged in business.

> **H2**. Stock market participation mediates the relationship between household financing resources and start-ups.

Credit cards are widely used in both developed and developing countries because they enhance consumption financing and release household liquidity constraints (Deidda, 2014). However, they also drive entrepreneurial activities by fostering fundraising; evidence from the United States shows that credit card deregulation increases the probability of entrepreneurial entry (Chatterji & Seamans, 2012). Even with failed investment projects, individuals can maintain their daily consumption through credit card financing (Karlan, 2007). Entrepreneurs play an intermediary financial role using their personal credit lines from commercial banks to finance household businesses when they encounter credit constraints (Yuan et al., 2021). In the developing country of China, entrepreneurs use credit cards to reduce household liquidity constraints. Xu et al. (2022) documented that credit cards are crucial for small and medium enterprises (SMEs) in China because credit card debt is considered a substitute when bank loans are declined or financing is lowered. Even if entrepreneurs have access to bank loans, credit card debt is desirable because it has different functions. Yuan et al. (2021) documented that while credit card access facilitates small family businesses, it also increases business survival rates. However, in China, credit cards are available only to those with well-paying jobs and no default records. Previous studies have not discussed the moderating effect of credit cards on FSUs. Accordingly, we proposed Hypothesis 3.

> **H 3**. Credit card usage moderates the relationship between financing resources and entrepreneurship, and moderates the mediating effect of stock participation.

As discussed, bootstrap financing resources vary depending on multiple factors, including heterogeneity in terms of region, economic strength, stock participation, household income and wealth, and entrepreneurship motivation. Therefore, their contributions to the FSUs should be heterogeneous. For instance, household investment behaviour is heterogeneous across regions due to imbalanced local economies (Ge et al., 2021). Rural entrepreneurship is usually need-based and focuses on labour-intensive small businesses (Démurger & Xu, 2011), whereas urban entrepreneurship is commonly opportunity-motivated (Bosma & Sternberg, 2014).

Regions with greater economic activity usually have more developed financial markets than others. An open and competitive economic environment and financial

accessibility are crucial factors for improving enterprise innovation quality. This promotional effect is also heterogeneous and depends on regional, industrial, and enterprise-specific characteristics (Li et al., 2024). Entrepreneurial firms are expected to experience regional heterogeneity.

Household income inequality occurs because of imbalanced regional development and economic strength. Household and individual incomes should be considered when studying small family businesses because higher stable household and business operating incomes are prerequisites for FSUs' debt financing, suggesting that sustainable businesses provide long-term income sources (Yuan et al., 2021). According to China's banking rules, a stable individual income is also considered for a credit card application.

Entrepreneurs generally have stronger savings preferences than non-entrepreneurs (Meh, 2005). Engaging in entrepreneurial activities is much more challenging and riskier than regular employment, and entrepreneurial incomes are more irregular. Thus, they must save more to secure their household's quality of life. Different savings styles combined with income inequality ultimately result in clustered heterogeneous household asset accumulation across entrepreneurial families. Inherited wealth provides entrepreneurial advantages for the following generation, which is more likely than its counterparts to engage in entrepreneurial activities (Quadrini, 1999). Moreover, their considerably greater financial resources facilitate entrepreneurial activities (Fairlie & Krashinsky, 2012); thus, a heterogeneity analysis should be considered. Therefore, we proposed the following hypothesis regarding heterogeneity:

> **H 4.** Entrepreneurial financing constraints are heterogeneous in terms of rural and urban regions, regional economic strength, household income, household assets, and entrepreneurial type.

The existing literature discusses this financing pressure from a money-supply perspective, resulting from limited financing resources and attributing it less to inappropriate capital allocation due to the misleading financial cognition of entrepreneurs; thus, the mental accounting literature cannot be extensively reviewed. Nevertheless, based on the statistical results from these testable hypotheses, this study deduces a mental accounting effect on FSUs' bootstrap financing constraints to consolidate prior theoretical underpinnings.

2. Data and Methodology

3.1 Data

National survey data were collected mainly from the official websites of the

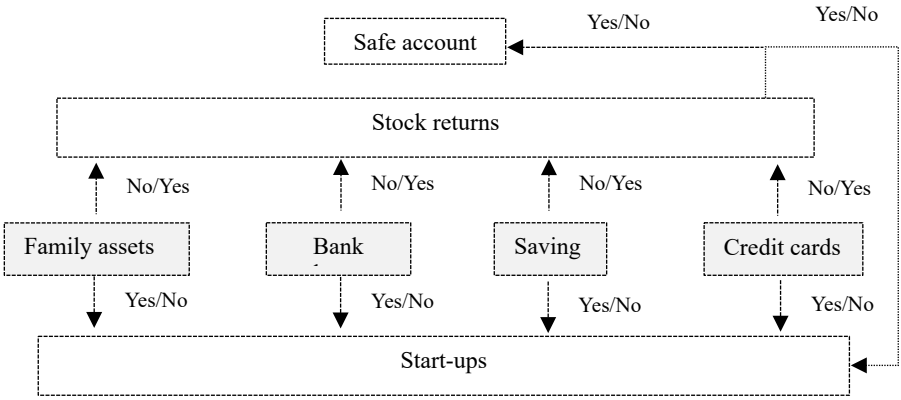
Survey and Research Center for China Household Finance at the Southwest University of Finance and Economics (https://chfs.swufe.edu.cn/index.htm, https://chfser.swufe.edu.cn/datasso/). The main content covers a range of household finances, including housing assets and financial wealth, liabilities and credit constraints, income and consumption, social security and insurance, intergenerational transfer payments, demographic characteristics and employment, payment habits, and other related information to provide high-quality micro household financial data for academic research and government decision-making.

This survey adopted a three-stage, stratified, and proportional to population size (PPS) survey method through scientific sampling, modern survey technology, and survey management methods, such as the Computer-Assisted Survey System (CAPI), to collect micro-information on China's household finances. The sample covers 29 provinces (municipalities and autonomous regions), 353 counties (districts), and 1,417 communities (villages), excluding Tibet, Xinjiang, Hong Kong, Macao, and Taiwan, and provides 40,011 households with microlevel research data on Chinese household finances. The survey had a low refusal rate, and the demographic characteristics were similar to the national census data; therefore, the data were representative. The questionnaire is available upon request.

3.2 Methodology

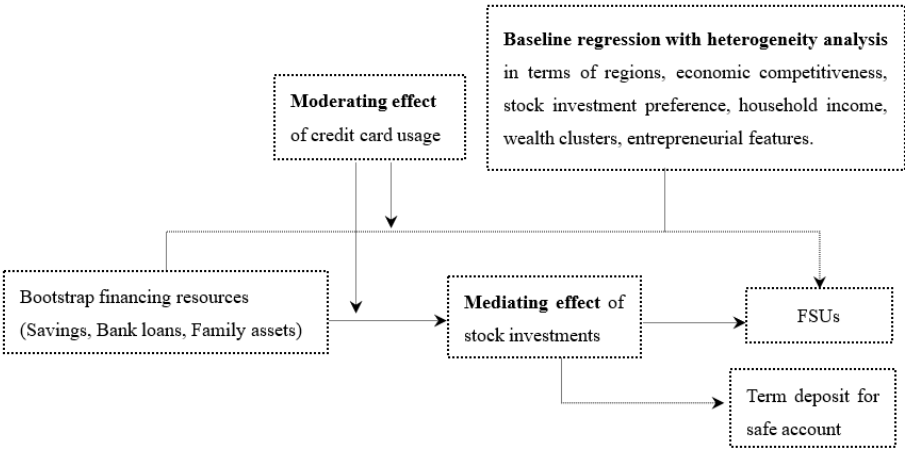
According to the updated theoretical framework shown in Figure 1, family business owners have one or more types of initial financing resources (family assets, bank loans, household savings, or credit cards) with which to start their businesses. As many individuals and entrepreneurs frequently participate in stock trading, it has been proposed that stock participation plays a mediating role in financial decisions. Based on the framework in Figure 1, Figure 2 presents a mind map of financial decision-making regarding financing resources. The mind map shows that entrepreneurs may use these funds to finance start-ups directly, invest a proportion of the funds in stocks for higher returns, or deposit them into safe accounts to secure a high quality of life.

Figure 2 A Mind-Map of Financial Decisions on Financing Start-Ups



Following this financial decision concept, Figure 3 illustrates our empirical research strategy. Starting with a baseline probit regression to investigate the relationship between bootstrap financing resources and FSUs, we examined the resulting heterogeneity by various factors and tested the moderating effect of credit card usage on the relationship. Additionally, we examined the mediating effect of stock participants on both FSUs and safe accounts. Based on the statistical results, this study employed a post-hoc analysis to deduce an uncovered mental accounting effect on the bootstrap financing of family businesses.

Figure 3 A Flow Diagram of Empirical Methodology



Having this research design and following Remble et al. (2014) and Fairlie and Krashinsky (2012), this study built probit regression models to investigate the financing resource contribution to FSUs, having household assets (*Asset*), bank loans (*Loan*), family savings (S*aving*), and personal bank credit (*CreditC*) as independent variables in equation (1).

$$FSUs_i = \beta_0 + \beta_1 Asset_i|Loan_i|Saving_i|CreditC_i| + \beta_n Control_i + \varepsilon_i \quad (1)$$

Existing studies investigate entrepreneurship in the United States (Heaton & Lucas, 2000), a financial market dominated by institutions and entrepreneurs who decrease their stock shares. In contrast, individual investors dominate the Chinese stock market; many individuals and entrepreneurs are keen to pursue stock trading′s faster and higher returns rather than investing in small family businesses. Therefore, stock participation is a significant factor in family financing decisions. We examined the mediating effect of stock participation on entrepreneurship using equations (2) and (3):

$$Stock_i = \omega_0 + \omega_1 Asset_i|Loan_i|Saving_i|CreditC_i| + \omega_n Control_i + \varepsilon_i \quad (2)$$

$$FSUs_i = \theta_0 + \theta_1 Stock_i + \theta_n Control_i + \varepsilon_i \quad (3)$$

As behavioural and psychological data are limited, this study used a safe account (*Safe*) tested by a term deposit to demonstrate the mental accounting effect if the entrepreneurs put ongoing family savings in their safe accounts or use the funds for stock investment for high returns flowing into the safe account, rather than start-up business growth. A regression model was constructed as follows:

$$Safe_i = \varphi_0 + \varphi_1 Stock_i + \varphi_n Control_i + \varepsilon_i \quad (4)$$

In terms of control variables, Kinnan and Townsend (2012) revealed that individual trust helps people gradually accumulate social capital and improve the quality of their social networks, thereby creating conditions favourable for successful entrepreneurship. Kim and Li (2014) found that residents' social trust in emerging countries promotes entrepreneurship by effectively addressing their inadequate legal environments. Mack (2017) argued that Internet usage effectively facilitates engagement in entrepreneurship and that higher educational attainment increases business achievement (Bates, 1990). Ge et al. (2021) suggested that family business financing is associated with marital status and rural versus urban regions. In addition,

Remble et al. (2014) and Ge et al. (2021) suggested that health status and medical insurance may influence family business financing. Social interaction not only helps individuals obtain private financing from family and friends but also increases their likelihood of obtaining loans through formal financial institutions such as banks (He & Chen, 2019). Block et al. (2022) showed that entrepreneurs' risk tolerance is vital. Consequently, these variables were included as the control variables.

Table 1 Variable Measurements

Variables	*Abbreviation*	*Measurements*	*References*
Family start-ups	FSUs	Having entrepreneurial experience: yes=1, no=0	
Safe account	Safe	Ln (amount of family term deposit)	
Household savings	Saving	Having regular savings: yes=1, no=0	Remble et al. (2014)
Stock investment	Stock	Having stock investment experience: yes=1, no=0	
Credit card usage	CreditC	Having credit cards: yes=1, no=0	
Family assets	Asset	Ln (household assets except savings, bank loans)	Li et al. (2021)
Bank loans	Loan	Receiving bank loans: yes=1, otherwise=0	Ivashina et al. 2021
Internet usage	Internet	Using the Internet; yes=1, otherwise=0	Mack (2017)
Housing demolition	HouseD	Having housing demolition: yes=1, otherwise=0	
Social interaction	Interaction	Ln (communication and internet fees)	Ge et al. (2021)
Medical insurance	Medical	Medical insurance payment fees/medical expenses	Remble et al. (2014)
Risk tolerance	Risk	Degree of risk aversion (1 to 5). Extreme aversion to risk=1, Extreme preference for risk=5	Block et al. (2022)
Social trust	Trust	Level of trust in others (1 to 5). Very distrustful of others=1, Very trustful=5	Kim and Li (2014)
Health status	Health	Respondent's health status (1 to 5). Very unhealthy=1, Very healthy=5	
Education experience	Education	Schooling years	Ge et al. (2021)
Marital status	Marriage	Married=1, otherwise=0	
Family regions	Region	Urban resident (Hukou)=1, otherwise=0	

Owing to China's large-scale urban renewal, a considerable number of urban families have received large sums of housing demolition compensation. As housing represents a substantial portion of most households' wealth, this factor, as a financial windfall that affects family finances, may substantially influence the family wealth and

consumption behaviours of individuals and households (Zou & Deng, 2019). Additionally, increasing housing prices across China have led to a housing bubble affecting family wealth (Glaeser et al., 2017). This has discouraged entrepreneurial activities (Li & Wu, 2014) and reduced the supply of high-quality labour (Li & Xiao, 2020) in China. Consequently, housing demolition was included as a control variable. Table 1 outlines the variable measurements based on previous studies.

Additionally, according to the correlation analysis and VIF test results in Appendix 1, the coefficients of each variable were all less than 0.4; the highest VIF value of 1.47 was less than the critical value of 10, proving that there is no serious multicollinearity problem in the model.

3. Results and Analysis

4.1 General Regression Analysis

Table 2 presents the statistical relationships between these financing resources and FSUs. Column 1 indicates a significantly positive relationship between family entrepreneurship and family assets, including bank loans, and a negative relationship with family savings. These results suggest that the two features of financing resources facilitate FSUs, but savings hinder family entrepreneurship. This result supports H1.

Compared to Column 1, Column 2 suggests that credit card usage does not significantly contribute to family businesses; however, Column 3 indicates that it contributes the most to stock investments. Column 3 also shows that both family assets and savings are positively associated with stock participation, implying that greater wealth and savings lead to greater stock investment. Although family savings discourage FSUs, they encourage stock investment. In contrast, bank loans and stock investments do not have a significant relationship, which means that bank loans support family businesses but are not used for stock investments. Column 4 indicates that stock investments are negatively associated with start-ups, showing a mediating effect on family entrepreneurship, as confirmed in column 5. These results support hypothesis H2.

Interestingly, Column 5 shows that credit card usage makes a remarkable contribution to FSUs, although its contribution is non-significant in Columns 2 and 4. Combined with the negative relationship between the interaction term (stock investment*credit card usage) and start-ups, we can infer that credit card usage increases stock investments. However, greater stock participation leads to fewer FSUs because of the association between the increasing allocation of financial assets and liquidity constraints (Zhao et al., 2023). This result indicates the mediating effect of stock participation and confirms H3.

In addition to the effects of financial resources, certain non-financial factors are positively associated with FSUs, such as Internet usage, social interactions, and risk tolerance. By contrast, other factors (health, education, and marital status) were not associated with FSUs.

Table 2 Relationships between Family Start-Ups and Financing Resources

Variables	*FSUs*				
	1	*2*	*3*	*4*	*5*
Asset	0.098***	0.099***	0.244***	0.109***	0.109***
Loan	0.160***	0.161***	-0.053	0.164***	0.162***
Saving	-0.220***	-0.220***	0.116**	-0.212***	-0.210***
Stock				-0.360***	-0.546***
CreditC		0.010	0.448***	0.039	0.305**
*Stock*CreditC*					-0.313**
Internet	0.126**	0.128**	0.645***	0.145***	0.152***
HousingD	-0.093	-0.093	-0.006	-0.093	-0.091
Interaction	0.292***	0.292***	-0.030	0.291***	0.291***
Medical	-0.388***	-0.388***	0.122**	-0.386***	-0.387***
Risk	0.057***	0.058***	0.190***	0.067***	0.068***
Trust	0.065***	0.065***	0.058*	0.067***	0.068***
Health	-0.032	-0.032	-0.027	-0.032	-0.032
Education	0.010	0.010	-0.015	0.009	0.010
Marriage	0.038	0.038	-0.049	0.035	0.035
Region	0.029	0.029	0.103*	0.034	0.035
Observations	5940	5940	9800	5940	5940
LR chi^2	448.330***	448.350***	1019.220***	470.070***	473.990***
PseudoR^2	0.101	0.101	0.270	0.106	0.106

*Notes: *** p<0.01, ** p<0.05, * p<0.1.*

To address the endogeneity issues caused by sample selection, we employed the Propensity Score Matching (PSM) method to deal with the sample selection bias and mitigate the endogeneity bias caused by omitted variables. Households with regular savings behaviour were grouped and matched with households with similar characteristics but without savings. All control variables were used as covariates for matching, and grouped samples were paired using a 1:1 nearest neighbour matching method. The control group was then matched based on the propensity score and a balance test was performed with the premise of an insignificant difference between the

treatment and control groups on the matching variables. This balance test can effectively evaluate the effect of propensity score matching.

Table 3(A) shows that after matching, the standard error absolute values of the covariates were all within 10%, indicating very low deviations. The p-values of the t-test results after matching were greater than 0.1. The PseudoR^2 coefficient was 0.002, which is very low, indicating that the goodness of fit of the model was consistent with expectations. These results indicated no significant differences between the treatment and control groups after matching, and the matching effect was statistically acceptable.

To enhance the robustness of the results, we used six different matching methods on the full sample data and calculated the average treatment effect (ATT) of the relationship between regular savings behaviour and household entrepreneurship. The results showed high consistency among all six estimations, with the ATT values passing the 1% significance level. Table 3 (B) shows that the average ATT value (-0.043) reflects that households with regular savings are 4.3% less likely to start a business than households without regular savings, suggesting that regular savings significantly inhibit household entrepreneurship.

Table 3 (A) Balance Test Results before and after Propensity Score Matching

Variables	*%bias* *（Before/After）*	*%reduct |bias|*	*t-test（Before/After）*	
			t	p>|t|
Asset	73.1/-2.2	97.0	20.98/-0.65	0.000/0.518
Internet	38.7/-1.7	95.7	11.98/-0.42	0.000/0.672
Loan	-2.7/1.9	30.7	-0.85/0.48	0.395/0.628
HouseD	10.9/1.1	90.1	3.54/0.26	0.000/0.796
Interaction	24.7/-4.6	81.4	7.37/-1.21	0.000/0.226
Medical	31.3/5.3	83.0	9.74/1.34	0.000/0.181
Risk	17.0/-0.7	96.0	5.20/-0.17	0.000/0.865
Trust	17.2/4.1	76.0	5.33/1.05	0.000/0.294
Health	2.3/1.9	18.5	0.73/0.47	0.466/0.635
Education	3.1/3.1	1.6	0.98/0.77	0.328/0.443
Marriage	1.7/0.8	53.1	0.53/0.20	0.599/0.844
Region	-0.8/-1.6	-102.9	-0.25/-0.40	0.802/0.686
PseudoR^2			0.094/0.002	
Prob＞chi2			0.000/0.907	

Table 3 (B) Average Treatment Effect Results

Matching method	*Samples*	*Treat groups*	*Control groups*	*ATT*	*Z(t)*	*S.E.*
	Before	0.112	0.130	-0.018	-1.720	0.011
One-to-one nearest neighbor matching	*After*	0.111	0.156	-0.045***	-2.830	0.016
One-to-four nearest neighbor matching	*After*	0.112	0.150	-0.038***	-3.100	0.012
Radius match	*After*	0.112	0.157	-0.046***	-4.190	0.011
Kernel matching	*After*	0.111	0.157	-0.045***	-4.150	0.011
Local linear regression matching	*After*	0.111	0.153	-0.042***	-2.630	0.016
Spline matching	*After*	-	-	-0.042***	-3.950	0.011
Mean	-	-	-	-0.043	-	-

Notes: The radius in radius matching is set to 0.01; the standard error of spline matching is calculated using the bootstrap method, with 500 repeated samplings, the spline matching is the Z value, and the rest are t values. *** p<0.01.

4.2 Heterogeneity Analysis

Several economic factors determine entrepreneurship and financing performance; therefore, these results may vary in different contexts. Accordingly, a heterogeneity analysis was performed to gain additional insights into the findings in terms of urban–rural and regional economic competitiveness, stock participation, household income, and entrepreneurial features. Confirming the findings in Table 2, Table 4 also illustrates the heterogeneous results for rural and urban regions. The hindering effects of household savings and stock investments on entrepreneurship were more significant in rural regions than in urban regions, contributing significantly to support for FSUs in rural rather than in urban regions. Additionally, bank loans were significant in urban cities but not in rural regions.

Table 4 Heterogeneity Analysis Results for Rural and Urban Regions

Variables	*Rural*	*Urban*
Saving	-0.277***	-0.185**
	（0.001）	（0.016）
Stock	-0.467***	-0.293***
	（0.000）	（0.006）
CreditC	-0.018	0.081
	（0.840）	（0.292）
Asset	0.095***	0.113***
	（0.000）	（0.000）
Loan	0.198	0.119**
	（0.025）	（0.151）
Control variables	Yes	Yes
Observations	2603	3337
LR chi²	181.420***	308.430***
	（0.000）	（0.000）
PseudoR²	0.088	0.123

*Notes: *** p<0.01, ** p<0.05.*

In Table 5, the hindering effects gradually become more significant moving from East China to West China. The mediating effect of stock investments gradually weakens from eastern to central China and has no effect on the weak economy of western China. This can be attributed to entrepreneurs' higher financial literacy in East China, which is crucial to their participation in financial markets. The financial education literature suggests that individuals with higher financial literacy are more likely to invest in risky financial assets than their counterparts (Liao et al., 2018). Meanwhile, the non-significance of bank loans in western China indicates that the area is limited in terms of entrepreneurial financing.

Table 5 Heterogeneity Analysis Results by Regional Economic Competitiveness

Variables	*Start-ups in East China (Strong economy)*	*Start-ups in middle China (Comparative economy)*	*Start-ups in western China (Weak economy)*
Saving	-0.110***	-0.285***	-0.911***
	（0.186）	（0.001）	（0.005）
Stock	-0.449***	-0.327***	0.117
	（0.000）	（0.003）	（0.560）
CreditC	0.048	0.009	0.190
	（0.574）	（0.914）	（0.406）
Asset	0.091***	0.118***	0.123*
	（0.000）	（0.000）	（0.053）
Loan	0.183**	0.165*	0.004
	（0.042）	（0.057）	（0.990）
Control variables	Yes	Yes	Yes
Observations	2713	2814	413
LR chi²	242.830***	239.530***	44.920***
	（0.000）	（0.000）	（0.000）
PseudoR²	0.117	0.110	0.149

Notes: *** p<0.01, ** p<0.05, * p<0.1.

Figure 4 illustrates the geographically heterogeneous contributions of four financing resources (assets, bank loans, savings, and stock participation). Figure 4 (A) indicates that small family businesses in the northeastern region (including Heilongjiang, Jilin, and Liaoning provinces) rely more on household assets than those in the eastern region, followed by those in the middle and western regions. In contrast, this situation is completely reversed for bank loans, as shown in Figure 4 (B). Bank loans play the most significant role in entrepreneurial financing in Qinghai, western China, but gradually change from the west to the northwest. Similarly, the contribution of household savings gradually decreased, as shown in Figure 4 (C). Figure 4 (D) indicates that the mediating effect of stock participation gradually weakens from the southeast (Zhejiang, Fujian, and Guangdong Provinces) to the northwest.

Figure 4 (A) The Geographically Heterogeneous Contributions of Family Assets To Start-Ups

Figure 4 (B) The Geographically Heterogeneous Contributions of Bank Loans to Start-Ups

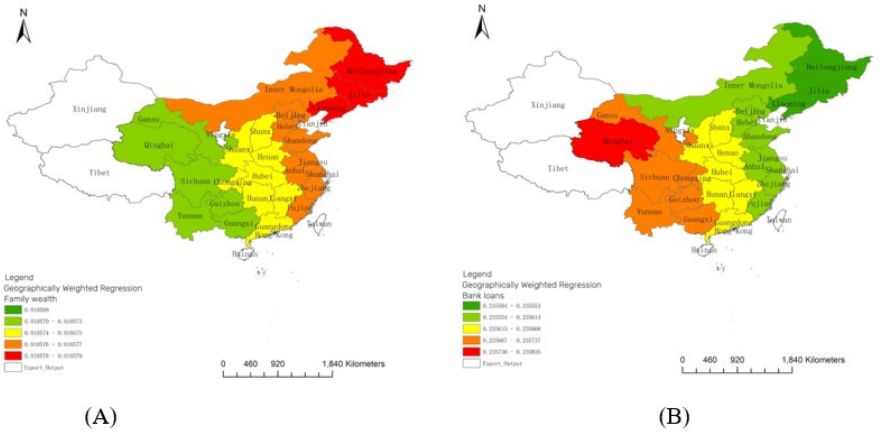


Figure 4 (C) The Geographically Heterogeneous Contributions of Savings to Start-Ups

Figure 4 (D) The Geographically Heterogeneous Contributions of Stock Participation to Start-Ups

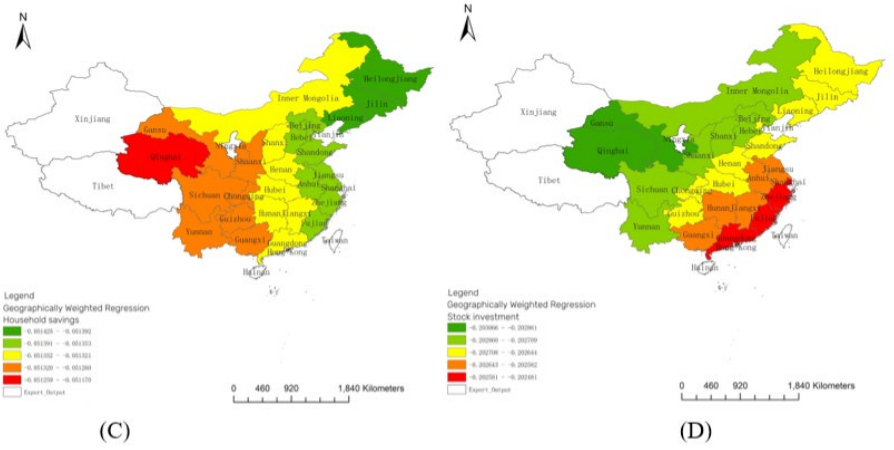


Table 6 reports the results of examining the mediating effect of stock participation. The more significant relationship with bank loans suggests that

entrepreneurs with more stock investments may receive more collateralised bank loans. Meanwhile, credit cards are confirmed to have a moderating effect on stock investments. Thus, entrepreneurs prefer to have short-term credit card debt for investing in the stock market to obtain higher returns in the short run.

Table 6 Comparison of Entrepreneurial Families with/without Stock Investments

Variables	***Entrepreneurial families without stock investments***	***Entrepreneurial families with stock investments***
Saving	-0.215***	-0.277*
CreditC	-0.006	0.329**
Asset	0.106***	0.086
Loan	0.131**	0.291*
Control variables	Yes	Yes
Observations	5355	585
LR chi²	432.960***	60.820***
PseudoR²	0.106	0.139

Notes: *** p<0.01, ** p<0.05, * p<0.1.

Table 7 uses four levels of household income to examine heterogeneity based on income. Interestingly, the negative effect of savings is only significant among high-income families that have no entrepreneurial motivation. Additionally, credit cards are preferred by the lowest-income families. The stock investments' contribution is much more significant among families with the lowest incomes than among families with higher incomes. By contrast, bank loans are significant for middle-income families but not those with the lowest and highest incomes. Low-income families do not have sufficient collateral to support their loan applications, while high-income families have less demand for bank loans. Meanwhile, all entrepreneurs have similar attitudes towards using family assets as financial support.

Table 7 Heterogeneity Analysis Results by Household Income

Variables	*Entrepreneurship by household income groups*			
	between 0-25%	*between 25-50%*	*between 50-75%*	*between 75-100%*
Saving	-0.129	-0.060	-0.179	-0.321***
Stock	-0.608**	-0.229	-0.310*	-0.369***
CreditC	0.399**	-0.016	0.151	-0.007
Asset	0.106***	0.108***	0.108***	0.136***
Loan	-0.023	0.358***	0.275**	0.052
Control variables	Yes	Yes	Yes	Yes
Observations	1480	1475	1485	1500
LR chi²	201.420***	96.450***	81.630***	133.840***
PseudoR²	0.202	0.088	0.080	0.096

Notes: *** p<0.01, ** p<0.05, * p<0.1.

Table 8 presents the results of heterogeneity analysis using wealth clusters. The hindering effect of household savings on family entrepreneurship is significant only in family clusters ranked between 50%-75%. Comparing this result with those in Table 7, we concluded that families with high household income and wealth do not prefer transferring their savings to FSUs. Well-educated individuals in these families have higher levels of financial literacy than others and prefer to hold stocks instead of launching start-ups in China. Furthermore, bank loans are accessible to wealthy families ranking between 50-100% because of the existing positive relationship between increasing family wealth and the probability of entrepreneurship (Fairlie & Krashinsky, 2012). Moreover, wealthy families have more collateral lending channels to support their businesses, which is consistent with the results in Table 7.

Table 8 Heterogeneity Analysis Results by Wealth Clusters

Variables	*Family wealth clusters*			
	between 0-25%	*between 25-50%*	*between 50-75%*	*between 75-100%*
Saving	-0.141	-0.089	-0.414***	-0.100
Stock	-0.214	-0.245	-0.379***	-0.383***
CreditC	-0.396	-0.011	0.136	0.080
Loan	-0.069	0.006	0.189*	0.331***
Control variables	Yes	Yes	Yes	Yes
Observations	1480	1475	1485	1500
LR chi²	65.140***	84.020***	100.650***	176.870***
PseudoR²	0.096	0.077	0.075	0.132

Notes: *** p<0.01, * p<0.1.

Due to the heterogeneity of these factors, entrepreneurs have different levels of access to financing resources. Table 9 provides evidence to supplement the general results shown in Table 2. The results showed that necessity-motivated start-ups have no significant association with savings or family assets. This finding suggests that they lack access to these two resources. Thus, their only form of financial support for family businesses is bank loans. The literature suggests that most entrepreneurship in rural regions consists of necessity-based, low-tech, and labour-intensive small businesses (Démurger & Xu, 2011). Opportunity-motivated entrepreneurs with new business models and competitiveness are overwhelmingly found in urban areas (Bosma & Sternberg, 2014) and have more household savings and assets. By contrast, the positive relationship suggests that opportunity entrepreneurs have greater family wealth to support their businesses. However, savings and stock investments may constrain this type of entrepreneurship, whereas bank loans are insignificant for family entrepreneurship.

Table 9 Heterogeneity Analysis Results of Necessity Versus Opportunity Start-Ups

Variables	*Entrepreneurial features*	
	Necessity entrepreneurship	*Opportunity entrepreneurship*
Saving	-0.001	-0.251***
Stock	-0.292**	-0.360***
CreditC	-0.050	0.089
Asset	0.004	0.129***
Loan	0.161*	0.091
Control variables	Yes	Yes
LR chi²	47.180***	419.070***
PseudoR²	0.034	0.117

Notes: *** p<0.01, ** p<0.05, * p<0.1.

Although the Chinese government prohibits the transfer of bank loans into stock markets, most borrowers violate these rules, misappropriating money to trade stocks in the hope of gaining windfalls. Table 10 empirically confirms the hypotheses. The significantly positive relationship with necessity entrepreneurship indicates that such entrepreneurs intend to do so, expecting high returns to reduce cash shortages in the short run. However, opportunity entrepreneurs refuse to do so because they have more options for dealing with cash shortages. In summary, the heterogeneity analysis results support Hypothesis 4.

Table 10 Relationship between Bank Loans and Stock Investments

Variables	*Stock investments*	
	Necessity entrepreneurs	*Opportunity entrepreneurs*
Loan	2.350*	-0.096
Control variables	Yes	Yes
LR chi²	37.660	106.120***
PseudoR²	0.622	0.280

*Notes: *** p<0.01, * p<0.1.*

From a mental accounting perspective, it is supposed that some entrepreneurs regard overinvestment in entrepreneurial fixed assets as risky. They intend to put some money into a safe account to improve their quality of life, even if some money is invested in stocks to earn more profit, and ultimately go into a safe account rather than their family business. Table 11 shows the types of capital flows in the safe account. Apparently, entrepreneurs have no safe account to separate the entrepreneurial fund to improve their quality of life, while opportunity entrepreneurs have. The positive relationship between stock and safe accounts reflects the fact that opportunity entrepreneurs transfer their stock returns to safe accounts. Additionally, some family assets are significantly associated with safety accounts. However, bank loans do not usually support family businesses.

Table 11 Relationship between the Financing Resources and the Safe Account

Variables	*Safe account*	
	Opportunity entrepreneurs	*Necessity entrepreneurs*
Stock	0.140**	0.260
CreditC	0.041	0.015
Asset	0.218***	0.181
Loan	-0.111*	0.242
Control variables	Yes	Yes
LR chi²	546.710***	357.101***
PseudoR²	0.089	0.192

Notes: *** p<0.01, ** p<0.05, * p<0.1.

5. Discussion

Although family entrepreneurs have access to several financing resources, our results suggest that these resources are not used properly to fund FSUs. Most cash-specific resources (savings and credit cards) are used for medical insurance and stock investments for high short-term returns. These resources are placed in safe accounts

for a high quality of life. Bank loans are the only resource available to finance businesses to earn potential long-term profits, while some family assets are mortgaged to banks to address operating cash shortages. Family asset mortgage money is placed into an opportunity (speculative) account.

This study expands our understanding of the bootstrap financing practices of family entrepreneurship in emerging economies. Li and Qian (2021) revealed that entrepreneurial families are generally unfamiliar with diversified strategies for asset allocation. Using the mental accounting theory to account for this issue, this study contributes to the existing knowledge base and provides insights into the unique financing challenges in this context. We specified a framework of financial bootstrapping in Figure 1. From the perspective of mental accounting, Figure 5 clearly illustrates a mind map of financial resource allocation in bootstrap financing, where symbols with '+' and '-' indicate positive and negative relationships, respectively. We discussed these results from two perspectives (necessity and opportunity entrepreneurship) to seek insights based on these findings.

Although the general regression results indicate significant relationships between entrepreneurship and family assets, bank loans, savings, and medical insurance, the heterogeneity analyses suggest that necessity entrepreneurs hold only two of these (family assets and bank loans). As family assets primarily consist of mortgage-based real estate, necessity entrepreneurs have no significant currency assets, such as family savings and public medical insurance. These entrepreneurs were unemployed before starting their own businesses and needed to start a family business to make a living. This finding is consistent with Cai's (2018) view of low household savings in China. These entrepreneurs use some of their family assets to participate in stock markets for expected returns. However, more stock investments result in less entrepreneurial financing because their family assets are limited. Additionally, qualified FSUs may apply for credit-based and policy-oriented bank loans in China; however, the amount varies by region and city. However, some entrepreneurial funds are misappropriated for stock investments rather than for FSUs, even though the government prohibits them from doing so. Therefore, these entrepreneurs improperly allocate their limited financial resources, worsening the cash shortages of their FSUs.

Opportunity entrepreneurs have more financing resources than their counterparts do. As these entrepreneurs predominantly come from high-income families in urban zones with strong economies, they have sufficient family assets to support their start-ups, a strategy that facilitates cashing out fewer liquid assets. This result is consistent with that of Fairlie and Krashinsky (2012); they suggest that a positive relationship exists between increasing family assets and the probability of family entrepreneurship. Consequently, they are unlikely to be entitled to the necessary

amount of policy-oriented bank loans.

Interestingly, such entrepreneurs use mental accounting to keep track of their financial activities and use money differently. They regard family savings as highly liquid assets used to secure a better life and to be put into a safe account that is separate from their opportunity account; thus, savings are unlikely to be used to support FSUs. We argued that these entrepreneurs are at risk of transforming highly liquid household assets into fixed assets. In addition to credit card funds, savings are invested in bull stock markets for higher returns. These returns are all put into a safe account, implying that the purpose of investing in stocks is to earn more profit from putting them into safe accounts rather than taking risks. Well-educated opportunity entrepreneurs in China have higher levels of financial literacy than their counterparts and prefer to hold stocks rather than launch start-ups. This finding differs from that of Heaton and Lucas (2000); they documented that American novice entrepreneurs tend to allocate less to risky assets such as stock.

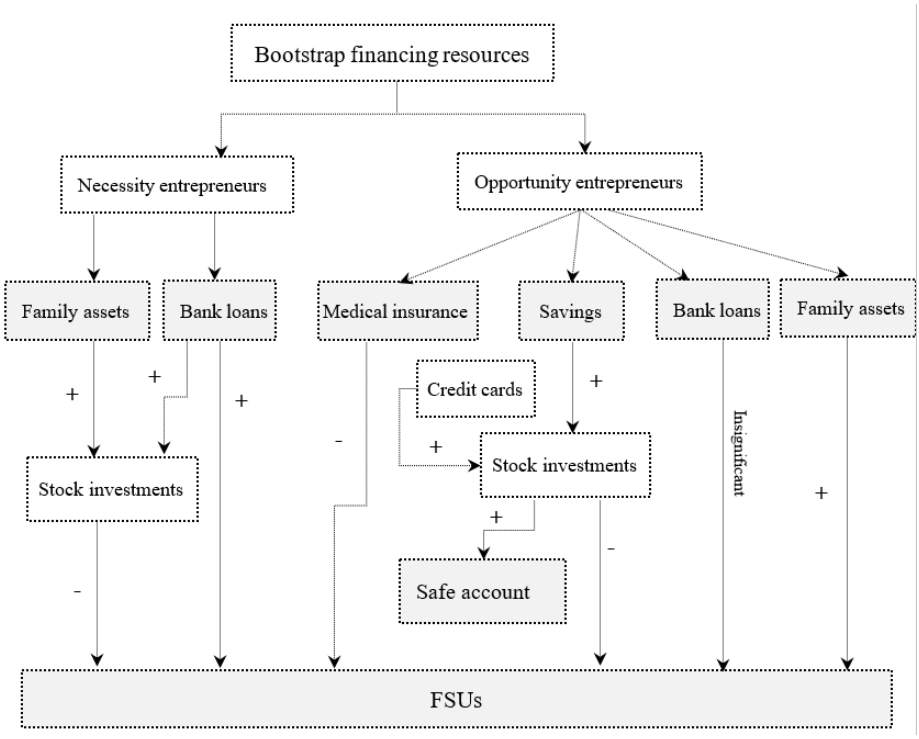
Although entrepreneurs' attitudes towards stock participation differ between developed and developing economies, the real purpose of both strategies is to reduce financial risk. The negative relationship with medical insurance also supports this point of view. Medical insurance may secure a better life; therefore, this type of asset is put into safe account, consequently restricting the financing available for businesses. These findings can be regarded as further evidence supporting Pratt and Zeckhauser's (1987) concept of 'proper risk aversion', suggesting that entrepreneurs are reluctant to cope with other types of risk and restrict their total risk exposure as much as possible.

This discussion has several policy implications. As a risk-substitution effect exists in FSUs (Li et al., 2021), most Chinese entrepreneurs are risk-averse, constraining entrepreneurial financing decisions to some extent. To address this issue, our findings suggest implementing a diversification strategy for household financing resource allocation with sufficient capital inputs, where all money is mutually exchangeable and individuals treat all money the same, regardless of its intended use or origin. However, the fungibility concept is often violated. To deal with financing constraints, entrepreneurs should treat all money as the same and avoid mental accounting bias.

Addressing such financing constraints for sustainable entrepreneurship, governors should enhance entrepreneurs' financial cognition education through financial literacy programs and regulations to mitigate financing bias, which may bridge the gap between financial resources and the financial knowledge entrepreneurs need to grow their businesses. For instance, financial institutions are suggested to offer free financial education to entrepreneurs when a loan or investment is made for win-win purposes. Such education helps them make savvy financial decisions and cultivate

healthy financial cognition, and is expected to create a transformative ecosystem through which entrepreneurs have funding access as well as awareness and practical skills to leverage it for sustainable business growth.

Figure 5 A Framework about the Allocation Philosophy of Family Financing Resources



6. Conclusions

This study explored the role of mental accounting in the bootstrap financing practices of FSUs in an emerging economy. By examining how entrepreneurs allocate their financing resources, we gained a deeper understanding of the unique challenges and strategies involved in bootstrap financing by FSUs. This study reveals a significantly positive relationship between family entrepreneurship and family assets, including bank loans, and a negative relationship with family savings. Stock investments are negatively associated with start-ups, indicating a mediating effect on family entrepreneurship. Credit card usage increases stock investments; however, greater stock participation leads to fewer FSUs because of its mediating effect on family entrepreneurship. The heterogeneity analysis argues that these results vary depending on various factors.

This study concludes that liquidity constraints in family entrepreneurship result from the inappropriate allocation of limited bootstrap financing resources. Entrepreneurs need to cash out family assets to invest in the stock markets and anticipate high returns. Contrary to these rules, they misappropriated part of their bank loans to invest in stocks, demonstrating that greater investment in stocks results in greater constraints on entrepreneurial financing. Such entrepreneurs do not have sufficient family savings to support their start-ups. In contrast, opportunity entrepreneurs prefer to use their family wealth to fund their start-ups to gain greater wealth opportunities; however, they are reluctant to use bank loans to support their businesses. Another difference is that opportunity entrepreneurs have safe accounts for depositing their currency assets to secure better lives; these accounts are isolated from their FSUs. These biased financial strategies worsen their FSUs' financing hardships; thus, financing diversification is suggested to enrich the financing resources available for household entrepreneurship.

This study brings a new perspective to mental accounting as a means of understanding FSUs' bootstrap financing in emerging economies. By examining mental accounting in the context of bootstrap financing for FSUs, this study provides valuable insights into the decision-making process, resource allocation strategies, and challenges faced by entrepreneurs in these contexts. These findings suggest that entrepreneurs are more likely to behave impulsively with unexpected money, such as stock returns, and should use their bootstrap financing resources in small family businesses. To address the self-financing constraints faced by FSUs, this study suggests diversifying bootstrap financing resources by adding digital finance and avoiding mental accounting bias.

The findings have some practical implications in that FSUs' financing constraints are a financial cognition topic, more about money allocation rather than money-supply specific issues; how efficiently money is utilised is more important than how much money is raised. To address these constraints and pursue sustainable business, related stakeholders (including entrepreneurs, investors, and governors) should have no mental accounting bias and pay more attention to the money allocation point to maximise the effectiveness of financing resources. Meanwhile, education on financial cognition is urgent for family business owners in emerging countries; they are advised to treat all money the same and avoid mental accounting bias.

One of the limitations of this study is the statistical measurement of mental accounting. As behavioural and psychological survey data are limited, it is measured by the term deposit for a safe account to demonstrate the mental accounting effect. Although we did not directly test mental accounting because of mental accounting-related data limitations, our findings are consistent with the presence of mental

accounting biases, particularly regarding how entrepreneurs allocate household funds.

Further studies should include testable mental labelling or cognitive variables to enhance the theoretical underpinnings. Possible directions are (i) including a proxy variable for mental accounting (e.g. a survey item about labelling or earmarking funds), (ii) running a mediation analysis with perceived fungibility or budgeting rigidity as mediators, (iii) discussing alternative explanations (such as standard financial constraints) more thoroughly to show that mental accounting adds unique explanatory value, and (iv) considering an experimental component (e.g. a vignette-based study or survey experiment).

APPENDIX

Table A1 Correlation Analysis and Multicollinearity Test

Variables	*Asset*	*Loan*	*Saving*	*Stock*	*CreditC*	*Internet*	*HousingD*	*Interaction*	*Medical*	*Risk*	*Trust*	*Health*	*Education*	*Marriage*	*Region*
Asset	1														
Loan	0.044***	1													
Saving	0.261***	-0.011	1												
Stock	0.264***	0.032	0.122***	1											
CreditC	0.256***	0.097***	0.098***	0.294***	1										
Internet	0.306***	0.023	0.153***	0.263***	0.371***	1									
HousingD	0.127***	-0.021	0.046***	0.016***	-0.004	-0.032	1								
Interaction	0.351***	0.067***	0.095***	0.168***	0.280***	0.404***	0.004	1							
Medical	0.167***	0.012	0.125***	0.061***	0.014	-0.031	0.089***	0.012	1						
Risk	0.197***	0.054	0.067***	0.241***	0.289***	0.375***	-0.040**	0.261***	-0.050	1					
Trust	0.129***	0.008***	0.069***	0.114***	0.159***	0.197***	-0.008	0.128***	-0.001	0.169***	1				
Health	-0.001	0.010	0.009	-0.016	-0.013	-0.019	-0.005	-0.008	0.008***	-0.003	0.008	1			
Education	-0.014	-0.001	0.013	-0.012	0.015	-0.005	-0.004	-0.003	0.004	-0.001	-0.004	0.319	1		
Marriage	-0.010	-0.020	0.007	-0.009	-0.011	-0.005	0.007	0.014	-0.003	0.006	-0.033**	-0.009***	-0.162***	1	
Region	0.010	0.007	-0.003	0.022	0.001	-0.001	0.004	0.013	-0.002	0.014	-0.007	0.006***	0.006	0.005	1
VIF	1.350	1.010	1.090	1.180	1.290	1.470	1.030	1.320	1.060	1.250	1.060	1.120	1.140	1.030	1.000

Note: *** p<0.01, ** p<0.05, * p<0.1.

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