The role of impulsivity and financial satisfaction in a moderated mediation model of financial resilience and life satisfaction

Muhammad S. Tahir [1]

Ahmad Usman Shahid [2]

Daniel W. Richards [3]

[1] Dr Muhammad S. Tahir, School of Accounting, Information Systems, and Supply Chain, College of Business and Law, RMIT University, Melbourne, Australia 3000.

Lahore Business School, The University of Lahore, Lahore, Punjab, Pakistan.

https://orcid.org/0000-0002-0207-1895

Telephone: +61 3 9925 1694; Email: muhammad.tahir@rmit.edu.au

[2] Corresponding author; Dr Ahmad Usman Shahid, Department of Accounting and Corporate Governance, Macquarie Business School, Macquarie University, Australia.

https://orcid.org/0000-0002-0412-0793

Telephone: +61 432 749 755; Email: ahmad-usman.shahid@mq.edu.au

[3] Dr Daniel W. Richards, School of Administrative Studies, York University, Toronto, Canada.

https://orcid.org/0000-0001-7451-0060

Telephone: +61 404 556 710; Email: danwrich@yorku.ca

Data acknowledgement:

'This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Project was initiated and is funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs

(FaHCSIA) and is managed by the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute). The findings and views reported in this paper, however, are those of the author and should not be attributed to either FaHCSIA or the Melbourne Institute.'

Acknowledgement:

The authors would like to thank the editor(s), the associate editor(s), and three anonymous reviewers for their comments on this paper. The authors believe that the comments received have improved the readability and quality of the paper.

Journal and publisher acknowledgement:

International Journal of Bank Marketing has accepted this paper to publish with the doi https://doi.org/10.1108/IJBM-09-2020-0490. The volume and issue numbers have not yet been assigned to the paper. The authors have signed copyright agreement with the Emerald and transferred the publishing rights to them. Emerald will publish the paper as soon as the journal requests them to do so.

Abstract

Purpose – This paper explores the direct and indirect associations between financial resilience and life satisfaction, using the moderation of non-impulsive behavior and mediation of financial satisfaction.

Design/methodology/approach – We analyze the Australian household dataset, named the Household, Income and Labour Dynamics in Australia (HILDA) Survey, to meet the objectives of this paper. Furthermore, we use the PROCESS Models 4 and 7 to test the mediation and the combined moderated mediation relationships, respectively.

Findings – We find the complete mediation of the relationship between financial resilience and life satisfaction by financial satisfaction. Also, we find that both financial resilience and non-impulsive behavior positively contribute to financial satisfaction, which is positively associated with life satisfaction.

Practical implications – Our research supports the need for consumers to build emergency funds as financial resilience is related to consumer well-being. Our research also recommends that impulsive behavior should be addressed by the personal finance curriculum and financial advisors.

Originality/value – Our research contributes by showing that financial satisfaction is a significant facet of consumer well-being. The ability to access financial resources, which increases for non-impulsive consumers, is associated with increased life satisfaction but only via financial satisfaction.

Keywords

HILDA; financial resilience; financial satisfaction; life satisfaction; well-being; impulsivity

Paper type

Research paper

1. Introduction

Overall or general well-being is a growing research domain across the globe (Nakamura *et al.*, 2021; Netemeyer *et al.*, 2018). Life satisfaction is considered a key indicator of general well-being (Erdogan *et al.*, 2012), which is defined and measured as a personal assessment of one's life (Jayasinghe *et al.*, 2020; Xiao *et al.*, 2009). There has been an increased interest amongst policymakers, financial analysts, and economists in examining consumers' life satisfaction (Jayasinghe *et al.*, 2020; Diener *et al.*, 2013; Veenhoven, 2012). Life satisfaction is a multidimensional concept that can be evaluated by multiple facets such as, emotional expression, memory, momentary mood reports, and judgement (Diener *et al.*, 1999). Prior studies suggest that one's life satisfaction involves satisfaction in the central life domains of work, family, finance, health, and leisure (Jayasinghe *et al.*, 2020; Veenhoven, 2012; Pavot and Diener, 2008).

Literature connecting consumers' financial situation to life satisfaction provides mixed findings. One strand of research finds that income has great importance in bringing life satisfaction (West *et al.*, 2021; Richards, 2016). Another strand of literature argues that income alone may not be enough to achieve higher levels of life satisfaction (Manning *et al.*, 2016; Jayasinghe *et al.*, 2020) because income represents an objective measure of wealth. Instead, research contends that subjective measures can provide a more holistic approach to determining life satisfaction (Jayasinghe *et al.*, 2020). These subjective measures may include one's ability to save for emergencies (Chen *et al.*, 2021), ability to raise funds when facing a

financial crisis (referred to as ‘financial resilience’ Salignac *et al.* (2020); Salignac *et al.* (2019); Jayasinghe *et al.* (2020)), and one’s levels of satisfaction with their financial situation (referred to as ‘financial satisfaction’ Xiao *et al.* (2009); Netemeyer *et al.* (2018)).

While financial resilience recently gained prominence (Salignac *et al.*, 2019; Lusardi *et al.*, 2021; Salignac *et al.*, 2016), research has not agreed on a single definition and measurement of financial resilience. In this paper, we contend that financial resilience is one’s ability to raise funds in an emergency. Having a financial ability to bounce back in times of financial crisis will help shield against adverse life events and, in turn, will positively contribute to consumer well-being. Recent research on the indigenous population finds that financial resilience has a positive association with overall life satisfaction (Jayasinghe *et al.*, 2020). Given that the nexus between Australian consumers’ financial resilience and their life satisfaction remains largely unexplored, this study extends this strand of research by examining the mediation of financial satisfaction in the relationship between consumers’ financial resilience and their life satisfaction.

Some prior studies contend that access to financial resources is one of the facets of financial satisfaction because financially resilient consumers are more likely to be financially satisfied (Salignac *et al.*, 2019). Other studies focus on cognitive-based factors that influence financial satisfaction, with findings showing that being future-orientated is positively associated with financial satisfaction (Xiao and O'Neill, 2018; Lee *et al.*, 2020). Additionally, impulsive behavior has a negative impact on financial decisions (Ottaviani and Vandone, 2011; 2018), which deteriorates consumers’ financial well-being (Tahir *et al.*, 2021). Financial resilience and impulsivity are related to each other under the life-cycle hypothesis (LCH). The LCH contends that consumers’ inconsistent preferences may affect their savings and consumption pattern (Modigliani and Brumberg, 1954), triggering impulsive behavior and weakening their ability to manage their finances (Frigerio *et al.*, 2020; Tahir *et al.*, 2021). In contrast, if

consumers are financially resilient and exert non-impulsive behavior, it may help them to achieve higher financial satisfaction levels. Recent research finds that non-impulsive behavior strengthens (moderates) the positive association between financial literacy and financial well-being (Tahir *et al.*, 2021). However, no prior research has determined a link between financial resilience, non-impulsive behavior, and financial satisfaction.

We contribute to the existing knowledge with a threefold purpose. First, we explore if financial resilience is associated with life satisfaction. Second, we examine if financial satisfaction mediates the association between financial resilience and life satisfaction. Finally, we investigate if non-impulsive behavior moderates the association between financial resilience and financial satisfaction. We use the Australian dataset, named the "Household, Income and Labour Dynamics in Australia (HILDA)" survey, to achieve the aforementioned purposes of this research.

Our findings show that financial satisfaction completely mediates the positive association between financial resilience and life satisfaction, conveying the dominant role of financial satisfaction. Our analysis of the Australian dataset further reports the positive associations between financial resilience, non-impulsive behavior, and financial satisfaction. The results demonstrate that non-impulsive behavior significantly strengthens the positive association between financial resilience and financial satisfaction. Financial satisfaction is, in turn, positively associated with life satisfaction. Our findings have implications for academics and policymakers as we show that individuals' non-impulsive behavior and financial resilience positively contribute to financial satisfaction, which is a significant predictor of life satisfaction. A key aspect of many personal finance courses is to develop an understanding of maintaining a finance pool for emergency purposes. Consistently, our research supports this argument with empirical evidence that financial resilience is important for both financial satisfaction and indirectly for general well-being. Our results also imply that the curriculum

should specifically include components discouraging impulsive behavior to improve the consumers' well-being.

We review relevant prior studies in the next section and posit the research hypotheses. This section is followed by the section describing the dataset and methods of data analysis. Then, we present, interpret, discuss, and conclude our results. Finally, we describe the implications of our research and show a direction for future research.

2. Literature review and hypotheses formation

2.1 Financial resilience

The term 'resilience' has its origin in the field of ecology, where it is defined as the systems' ability to absorb change and persistently maintain a relationship among the state variables (Holling, 1973). Later on, several other disciplines adopted this concept, such as economics, psychology, and behavioral science (Salignac *et al.*, 2019). The term financial resilience in the fields of personal finance and consumer finance came to prominence in the second decade of the twenty-first century (Jayasinghe *et al.*, 2020; Klapper and Lusardi, 2020; Lowe, 2017; Lusardi *et al.*, 2021; Salignac *et al.*, 2019; Kunicki and Harlow, 2020). As the research on financial literacy, financial capability, and financial well-being increased at the start of the twenty-first century (Tahir *et al.*, 2021), financial resilience took its place as an emerging concept. Financial resilience secures a significant position in consumer finance because it shows consumers' ability to cope with financial adversities and enables them to bounce back (Salignac *et al.*, 2019).

Recently, Salignac *et al.* (2019) conceptualized financial resilience using a multidimensional concept of four components: economic resources, financial products and services, financial knowledge and behavior, and social capital. We critique that financial resilience is a

multidimensional concept in two ways. First, the research of Salignac *et al.* (2019) does not provide theoretical support to their four components of financial resilience. Dividing financial resilience into four components requires a strong theoretical argument, which Salignac *et al.* (2019) did not provide. Second, while Salignac *et al.* (2019) present regression analysis by combining the scores of four components, we argue that combining four different measures into one concept required construct validity using factor analysis. There is no evidence to statistically demonstrate that combining these four components is an apt measure of financial resilience. Given the theoretical and statistical shortcomings of measuring financial resilience as a multidimensional concept, we define financial resilience as a consumer's perceived ability to access financial resources in an emergency. Our approach to defining and measuring financial resilience has been adopted in previous research (Demirguc-Kunt *et al.*, 2018; Lusardi *et al.*, 2021).

2.2 Financial resilience, life satisfaction, and the mediating role of financial satisfaction

A consumer's ability to bounce back in times of financial adversities can build their confidence in financial matters and positively improve their financial behavior, which is directly associated with financial well-being (Riitsalu and Murakas, 2019). One of the notions that resilience theory supports is that it improves consumers' well-being (Brassington and Lomas, 2021). Recent research directly associated financial resilience with life satisfaction (Jayasinghe *et al.*, 2020), which is an indicator of general well-being. However, research has overlooked the role of financial well-being in this context despite financial well-being being a core concept in the consumer finance field (Brüggen *et al.*, 2017). Although extant research has discussed a link between financial resilience and financial literacy (Klapper and Lusardi, 2020; Lusardi *et al.*, 2021), research on the association between financial resilience and

financial well-being remains scarce. Since financial well-being has been thoroughly researched in consumer finance and always argued to play an influential role in determining consumers' general well-being (Netemeyer *et al.*, 2018; Brüggen *et al.*, 2017; Nanda and Banerjee, 2021), we empirically test if financial satisfaction (an indicator of financial well-being) has a strong mediation effect on the association between financial resilience and life satisfaction (an indicator of general well-being).

Financial satisfaction is a state of being financially healthy and refers to individuals' subjective evaluation of their financial status (Xiao and O'Neill, 2018). Prior studies have examined the association of financial satisfaction with economic factors such as income expectations (Vera-Toscano *et al.*, 2006), financial circumstances, including levels of debts and assets (Hansen *et al.*, 2008), maintaining emergency savings (Xiao *et al.*, 2009), perceived income adequacy (Grable *et al.*, 2013), financial capability (Xiao *et al.*, 2014), financial literacy (Ali *et al.*, 2015), credit card debt and household debt (Tahir *et al.*, 2020; Tahir and Ahmed, 2021), and financial stress (Brzozowski and Spotton Visano, 2020). Importantly, studies suggest that financial satisfaction is a significant determinant of individuals' life satisfaction and general well-being (Xiao *et al.*, 2009; Netemeyer *et al.*, 2018; Fan and Babiarz, 2019). Diener and Biswas-Diener (2002) report that financial satisfaction plays an intervening role in the relationship between individuals' income levels and their subjective well-being. Netemeyer *et al.* (2018) investigated the predictors of general well-being by comparing financial well-being to relationship support satisfaction, health well-being, and job satisfaction. The empirical comparison revealed that financial well-being has a greater magnitude of association with general well-being than the other factors. Based on these assertions, we propose the following hypothesis:

H1. Financial satisfaction mediates the association between financial resilience and life satisfaction.

This hypothesis (H1) will meet a twofold objective. First, it will test if financial resilience is associated with financial satisfaction. Second, it will investigate if financial satisfaction plays an influential role in the association between financial resilience and life satisfaction.

2.3 Financial resilience, financial satisfaction, and the moderating role of non-impulsive behavior

Empirical research has shown impulsivity as a negative trait, causing consumers to spend excessive money on fruitless items (Ottaviani and Vandone, 2011). Impulsive behavior means performing actions without prior planning and not considering the possible negative repercussions of these actions (Frigerio *et al.*, 2020). Consumers with impulsive behavior are inclined to choose low rewarding products, which exhibits their sub-optimal decision-making power (Franken *et al.*, 2008). Impulsive consumers have a greater tendency to spend excessively, which can cause them to increase their debt (Frigerio *et al.*, 2020). Additionally, impulsive behavior is related to weak money-management skills (Franken *et al.*, 2008) and leads to over-indebtedness (Frigerio *et al.*, 2020). In contrast, consumers with non-impulsive behavior are more likely to efficiently manage their finances, which leads to an improvement in their well-being (Tahir *et al.*, 2021).

Impulsivity and financial resilience are related to each other because consumers with impulsive tendencies will be less likely to build financial resources for the future when these financial resources are needed. It implies that the short-term orientation of impulsive consumers prompts them to make non-rational and sub-optimal financial decisions, affecting their financial well-being (Tahir *et al.*, 2021). In contrast, financially resilient consumers are more likely to improve their well-being (Jayasinghe *et al.*, 2020).

There is a need to investigate a combined effect of financial resilience and non-impulsive behavior as these concepts are related. Specifically, those consumers who are impulsive will be less likely to save money for a time when it is required and thereby reducing their financial resilience. Other relevant concepts that have been studied and associated with financial well-being are the locus of control and a propensity to plan (Mahdzan *et al.*, 2019; Xiao and O'Neill, 2018; Lee *et al.*, 2020). Locus of control means a consumer's control over their actions (Mahdzan *et al.*, 2019), and a propensity to plan refers to a consumer's ability to make future financial plans (Xiao and O'Neill, 2018). If consumers have little control over their actions and do not plan for the future, their financial well-being is more likely to deteriorate (Mahdzan *et al.*, 2019; Xiao and O'Neill, 2018; Lee *et al.*, 2020). The traditional LCH also supports the notion that consistency in financial behavior is needed to achieve desired financial outcomes (Modigliani and Brumberg, 1954; Frigerio *et al.*, 2020; Tahir *et al.*, 2021). Recent research finds that impulsive behavior causes adverse financial outcomes (Fenton-O'Creevy *et al.*, 2018). Other research shows that non-impulsive behavior strengthens the association of financial literacy with financial capability and financial well-being (Tahir *et al.*, 2021). We extend prior research and posit that consumers with the combined traits of financial resilience and non-impulsive behavior are more likely to perceive that their financial condition is better than others. Hence, we propose the following hypothesis:

> *H2. Non-impulsive behavior positively moderates the association between financial resilience and financial satisfaction.*

Figure 1 demonstrates the proposed research model of this paper.

[Figure 1 about here]

3. Data

Our data come from the 2016 wave (known as wave 16) of the HILDA survey. This wave contains our key variables: financial resilience, non-impulsive behavior, financial satisfaction, and life satisfaction. The other latest waves (waves 17, 18, and 19) do not contain our key variables. HILDA is the Australian national household panel survey, collecting data on social, demographic, and socio-economic aspects (Summerfield *et al.*, 2019). Since 2001, HILDA has been able to produce hundreds of research outputs. The initial details of the HILDA survey have been documented by Wooden *et al.* (2002), whereas Wooden and Watson (2007) have described the early contributions of HILDA to the literature.

3.1 Variables and their items

Wave 16 of HILDA contains items measuring each key variable of this research. Since we have defined financial resilience as the consumers' ability to access funds in a time of financial hardships, we find the following item in the HILDA survey that aligns with our definition (Lusardi *et al.*, 2021; Demirguc-Kunt *et al.*, 2018). The item measuring financial resilience is[1]: "*Suppose you had only one week to raise $3000 for an emergency. Which of the following best describes how hard it would be for you to get that money?*" The respondents were given the following four choices: "*(1) could easily raise emergency funds,*

[1] In HILDA, we found another two items related to financial resilience: (1) Since January 2016, did you ask for financial help from friends or family? (2) Since January 2016, did you ask for financial help from welfare/community organizations? We checked the correlation of our financial resilience item with these two items, and found positive correlation coefficients of 0.88 and 0.89, respectively. Given these high correlation coefficients, we argue that our financial resilience item in this paper is robust.

(2) could raise emergency funds, but it would involve some sacrifices, (3) would have to do something drastic to raise emergency funds, or (4) couldn't raise emergency funds." We reversed the coding of these four options.

To measure non-impulsive behavior, wave 16 of HILDA contains the following three items: "*I do things without giving them much thought*, *I am impulsive*, and *I say things before I have thought them through."* These items were measured on a seven-point Likert-scale, '1' for *strongly disagree* and '7' for *strongly agree*. We reversed the scale ('1' for *strongly agree* and '7' for *strongly disagree*) to make these items consistent with the other key variables. Furthermore, these items align with the definition of non-impulsive behavior, as stated in section 2.3 of this paper (Tahir *et al.*, 2021; Frigerio *et al.*, 2020).

Next, since we have defined financial and life satisfaction as consumers' personal assessment of their financial status and overall life condition, the following two items measure financial satisfaction and life satisfaction of respondents, respectively (Brown and Gray, 2016): "S*how your satisfaction level with your current financial situation?*" and "*All things considered, how satisfied are you with your life?*" The respondents were given 11 options from '0' for *totally dissatisfied* to '10' for *totally satisfied*.

3.2 Control variables

As our research relates to the subject of consumer finance, we include some relevant control variables in our empirical analysis. Specifically, we control the effects of financial literacy, financial capability, and future orientation in addition to the traditional socio-demographic factors (age, gender, education status, marital status, employment status, and income). Financial literacy is measured using the popular five objective questions (van Rooij *et al.*, 2011; Pahlevan Sharif *et al.*, 2020). Financial capability is measured using the categories

described by Atkinson *et al.* (2007). Future orientation is measured using three items. The items of financial literacy, financial capability, and future orientation are listed in Tables A1, A2, and A3 in the Appendix section of this paper, respectively.

3.3 Respondents' characteristics in the filtered dataset

As our key variables contain missing responses, we need to omit those missing responses and check the coding sequence of the respondents to clean and filter the dataset. Following the cleaning process, we identified that 14,904 out of 17,694 respondents responded to all the key variables. The cleaned dataset comprises 52 percent females, 48 percent married, 68 percent employed, 27 percent postgraduate, and 73 percent undergraduate respondents. Furthermore, our respondents' minimum age is 15, and the maximum age is 99, with an average of 45. Finally, the average income of our respondents is 48,108 in Australian dollars.

3.4 Data analysis method

Since our hypotheses posit to test a moderated mediation model, we identify that the PROCESS macro by Hayes (2017) is a suitable data analysis technique instead of the traditional mediation analysis approach of Baron and Kenny (1986) and the structural equation modeling (SEM) approach. The reason behind choosing this method over the SEM is that the PROCESS method gives a graphical representation of moderated relationships. In addition, this method gives an overall moderated mediation result, which suggests the acceptance or rejection of the overall research model (Hayes, 2017; Hayes *et al.*, 2017).

4. Results

Firstly, this section shows the summary statistics and correlation analysis of the key variables. Afterwards, the empirical results are presented, followed by their interpretation and testing of the proposed hypotheses.

4.1 Preliminary analysis

Table I provides details about descriptive statistics and the correlation among the key variables. As Table I presents, our sample indicates above-average financial resilience, positive non-impulsive behavior, and higher levels of financial and life satisfaction. Moreover, the correlation analysis conveys that all the key variables have a significant positive association with each other.

[Table I about here]

4.2 Empirical findings, results analysis, and hypotheses testing

Table II demonstrates the results of the PROCESS Model 4, which examines the mediating role of financial satisfaction in three steps, and controls the effects of financial literacy, financial capability, future orientation, age, gender, education status, marital status, employment status, and income. In the first step, financial resilience is regressed on life satisfaction. Next, financial resilience is regressed on financial satisfaction. Finally, financial resilience is regressed on life satisfaction, after controlling for the effects of financial satisfaction. Table II indicates that financial resilience is statistically significant and positive in the first two steps. However, financial resilience is insignificant in the third step, where financial satisfaction is included as a control variable. The results imply the complete

mediation of financial resilience in relation to life satisfaction by financial satisfaction, supporting our hypothesis H1.

[Table II about here]

Next, we use the PROCESS Model 7 to assess the moderated mediation associations of the key variables. In Model 7, we specify financial resilience as an independent variable, life satisfaction as a dependent variable, financial satisfaction as a mediator variable, non-impulsive behavior as a moderator variable, and financial literacy, financial capability, future orientation, age, gender, education status, marital status, employment status, and income as control factors. We perform a non-parametric distribution-free bootstrapping technique with 10,000 resamples to obtain the 95% confidence intervals (CIs). This baseline is supported as it addresses the concerns regarding the type 1 error (Hayes, 2017).

Table III shows the results of the PROCESS Model 7. The first regression estimates in Table III convey the moderating role of non-impulsive behavior in the association between financial resilience and financial satisfaction. As the interaction term (FR × NB)[2] is statistically significant, it indicates that non-impulsive behavior strengthens the association between financial resilience and financial satisfaction. This finding supports our hypothesis H2. Furthermore, the results show that at -1 standard deviation, at the mean value, and at +1 standard deviation on non-impulsive behavior, financial resilience is statistically significantly associated with financial satisfaction. Figure 2 also depicts the same results. Figure 2 indicates that a positive increase in non-impulsive behavior strengthens the positive association between financial resilience and financial satisfaction. Figure 2 also shows that financial satisfaction increases in a relatively greater proportion for those consumers who are non-impulsive and financially resilient as compared to others. In addition, the slope of the

[2] FR and NB denote financial resilience and non-impulsive behavior, respectively.

lines in Figure 2 illustrates that financial resilience is more important than non-impulsive behavior to achieve higher levels of financial satisfaction.

[Table III about here]

[Figure 2 about here]

Next, Table IV presents the direct and indirect effects of financial resilience on life satisfaction via financial satisfaction, after considering the moderating role of non-impulsive behavior. The findings indicate that only an indirect association between financial resilience and life satisfaction via financial satisfaction is supported. Finally, the results approve our overall research model presented in Figure 1, as the coefficient value of the overall moderated mediation index (B = 0.019) is statistically significant in Table IV.

[Table IV about here]

4.3 Robustness checks

We run several robustness checks to confirm our findings. First, we use the traditional Baron-Kenny approach to find the mediating role of financial satisfaction in the association between financial resilience and life satisfaction. In this analysis, we only control for the traditional socio-demographic factors. Table A4 presents the results, which are similar to those presented in Table II. Second, we run a moderated mediation model (PROCESS Model 7) without including financial literacy, financial capability, and future orientation as control factors. The results are presented in Table A5. This output is also similar to that presented in Table III. Next, we run another analysis by splitting our data in half and using only age, gender, and income as control factors. The new dataset contains 7,700 randomly chosen respondents. Tables A6 and A7 display the output. We found new results similar to the main

empirical results of this paper. In summary, all the results presented in the appendix section of this paper imply that our main empirical findings are robust and consistent, ensuring their generalizability.

5. Discussion

Financially resilient consumers are more likely to experience higher levels of life satisfaction (Jayasinghe *et al.*, 2020). We identify a gap in the literature to research the mediating and moderating mechanisms underlying this relationship. Our research adds to the existing knowledge that financial satisfaction completely mediates this association, whereas non-impulsive behavior strengthens the association between financial resilience and financial satisfaction. We discuss these findings in the next sub-sections.

5.1 The mediating role of financial satisfaction

Life satisfaction is perceived as an indicator of happiness and an important goal of human life (Erdogan *et al.*, 2012; Hagmaier *et al.*, 2018). Prior consumer finance based research has shown that financial resilience leads to an increase in life satisfaction (Jayasinghe *et al.*, 2020). Jayasinghe *et al.* (2020) investigated the link between financial resilience and life satisfaction for indigenous Australians. Therefore, their findings cannot be generalized to other populations in Australia. In contrast, we examined a nationally representative dataset of Australia, and our robustness analysis also confirms our findings. Hence, our findings hold the feature of generalization and add value to the existing knowledge.

The link between financial resilience and life satisfaction seems logical because the ability to access resources in a time of need would create a feeling of safety and, in turn, life

satisfaction. Our research explores this link in more depth by utilizing the concept of financial satisfaction. Financial satisfaction includes consumers' perception of their financial situation, and we posited that the impact of financial resilience on life satisfaction would be attributed to the relationship of financial resilience with financial satisfaction. Our analysis shows that financial satisfaction completely mediates the association between financial resilience and life satisfaction. We found the results consistent when we ran several robustness checks and sensitivity analyses on our data. Thus, where prior research has found that financial resilience is linked to life satisfaction (Jayasinghe *et al.*, 2020), we show this is an indirect link because it is financial resilience's relationship with financial satisfaction which is driving the result.

Our findings have two major implications. Firstly, our research stresses the importance of financial satisfaction when understanding life satisfaction. It may be likely that other concepts in the personal finance domain, such as perceived income adequacy (Grable *et al.*, 2013), income (West *et al.*, 2021), financial literacy, or financial capability, may relate to life satisfaction but only or predominantly via the financial satisfaction as we have shown. Future research should assess the direct and indirect influences of these concepts on life satisfaction to uncover the mechanisms which are important for living a more enjoyable life. Our findings align with the prior research, which suggests that financial satisfaction is not only a key predictor of life satisfaction but also plays an influential role when compared with other factors (Netemeyer *et al.*, 2018; Brüggen *et al.*, 2017).

A second implication is that financial satisfaction incorporates consumers' perception of their financial situation. Financial satisfaction is recognized as a comprehensive assessment of financial status that is closely associated with consumers' overall life satisfaction (Vera-Toscano *et al.*, 2006). This subjective nature of financial satisfaction is vitally important as it shows that both the perception of finances and the objective aspect of finances need to be

considered when investigating life satisfaction. Research that focuses solely on objective finance measures, such as income, debt-to-income ratios, or net wealth, neglects that it is a consumer's perception of these which our research shows is important to their overall well-being. It could be that a person identified as having excellent financial wealth using objective measures may have a poor subjective evaluation of their wealth and thus have lower life satisfaction.

5.2 The moderating role of non-impulsive behavior

Given the agreement of extant research that impulsive behavior and an inability to fulfill financial responsibilities negatively affect consumer well-being (Frigerio *et al.*, 2020; Ottaviani and Vandone, 2011; Tahir *et al.*, 2021), this study is the first to explore the moderating role of non-impulsive behavior in the association between financial resilience and financial satisfaction. Our findings conveyed that interaction between financial resilience and non-impulsive behavior is positively associated with financial satisfaction. Our results align with the prior studies, reporting a positive association of a propensity to plan, non-impulsive behavior, and financial capability with financial satisfaction (Xiao and O'Neill, 2018; Lee *et al.*, 2020; Tahir *et al.*, 2021; Xiao and Porto, 2017).

Furthermore, the results uncovered the moderated mediation mechanism underlying the association between financial resilience and life satisfaction. The significant coefficient of the interaction term (FR × NB) highlights the importance of access to financial resources, rationally performing financial tasks, and avoiding impulsive tendencies. Our results contend that those who are highly financially resilient and have non-impulsive tendencies are more likely to achieve higher satisfaction levels, which has a positive association with life

satisfaction. This implies that life satisfaction is a function of the combination of three factors, named financial resilience, non-impulsive behavior, and financial satisfaction.

Moreover, our findings contend that consumers may feel dissatisfaction with their financial condition if they have impulsive tendencies and show a lack of financial planning skills. The results are in line with the viewpoint of the LCH and reveal that consumers' well-being is more likely to deteriorate when their preferences are time-inconsistent, they have impulsive propensities, and they show the inability to bounce back in times of financial adversities (Frigerio *et al.*, 2020).

6. Conclusion and implications

The current literature conveys an association between financial resilience and life satisfaction (Jayasinghe *et al.*, 2020). However, there is little work to explore the factors that might modify (strengthen or weaken) this relationship. Given that life satisfaction is perceived as an important objective of humans (Erdogan *et al.*, 2012; Hagmaier *et al.*, 2018; Goyal *et al.*, 2021), our research is the first to find that non-impulsive behavior strengthens the association between financial resilience and financial satisfaction, which, in turn, is positively associated with life satisfaction.

The findings of this study provide multiple implications for financial institutions, financial advisors, policymakers, and academics. Our research investigates whether consumers' access to resources (financial resilience) is connected with overall well-being. We find that financial satisfaction has a direct relationship with overall well-being and that access to financial resources has an indirect influence on overall well-being via financial satisfaction. It shows the importance of building an emergency fund of money that a person can access in times of need. Financial institutions could create products, which are called emergency funds, for

consumers to be aware of the need to build up savings for this purpose. Additionally, policymakers could create a tax incentive or financial incentive for consumers to create emergency savings accounts, such as having tax free interest or government co-contributions when consumers accumulate emergency accounts. The findings of this research are extremely important in the cases such as COVID-19, where insecurity of income due to lockdowns can happen quickly and without warning.

The second aspect focused on impulsiveness and showed that it is associated with higher financial resilience and directly with higher financial satisfaction. The personal finance curriculum often focuses on building financial resources but does not directly teach impulsivity. Schools can arrange practical workshops on impulsivity and identify personality traits or contexts that lead to impulsivity. Research has found that impulsively shopping or 'retail therapy' can be a dysfunctional form of emotion regulation, which leads to dire outcomes (Fenton-O'Creevy *et al.*, 2018)

As governments make policies, the government authorities can play a vital role in this context. Policies such as a cool-off period after a purchase can have strong influences on rash decisions. Also, the role of financial advisors is critical in enhancing consumer well-being. As our research conveys that non-impulsive behavior plays a crucial role in enhancing the financial satisfaction of financially resilient consumers, financial advisors should assess the client's impulsive behavior before suggesting financial plans. Clients with impulsive tendencies should be provided with tools or resources to override or manage impulsiveness and be given a complete understanding of these concepts when giving them financial advice. This will help to make the financial planning sector more useful and beneficial for consumers.

7. Limitations and future research

Despite the unique contributions, this research is subject to some limitations. As we employed secondary data in our research, we could only use one item to measure financial resilience (Lusardi *et al.*, 2021; Demirguc-Kunt *et al.*, 2018). We acknowledge that other studies on financial resilience (Jayasinghe *et al.*, 2020; Salignac *et al.*, 2019) have used extensive measures of financial resilience. Specifically, the other studies (Jayasinghe *et al.*, 2020; Salignac *et al.*, 2019) merged the items of financial literacy and financial capability into financial resilience. In contrast, we included financial literacy and financial capability as control factors in our analyses and argued that the financial resilience concept is different from financial literacy and financial capability. Given these contrasting views, we encourage future researchers to shed light on the theoretical and empirical similarities and differences between financial literacy, financial capability, and financial resilience.

Furthermore, we acknowledge that the data we used were collected before the start of the COVID-19 pandemic. Future research using the data collected during or after the pandemic can provide a useful insight into the relationships between the key variables of this study. Moreover, as we used data from a developed country, we encourage future researchers to study the difference between the life satisfaction of the residents of a developed and a developing country. A comparison between a developed and a developing nation will be an interesting contribution to the knowledge.

Moreover, our empirical analyses show that gender is an insignificant control variable, implying that women do not differ from men in financial and life satisfaction. However, the literature suggests that women are more vulnerable to financial crises than men and research on women's financial planning has received little attention (Kumar *et al.*, 2019). Therefore, we recommend future research to explore women's financial resilience in particular.

8. References

Ali, A., Rahman, M. S. A. and Bakar, A. (2015), "Financial satisfaction and the influence of financial literacy in Malaysia", *Social Indicators Research,* Vol. 120 No. 1, pp. 137-156.

Atkinson, A., McKay, S., Collard, S. and Kempson, E. (2007), "Levels of financial capability in the UK", *Public Money and Management,* Vol. 27 No. 1, pp. 29-36.

Baron, R. M. and Kenny, D. A. (1986), "The moderator–mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations", *Journal of Personality and Social Psychology,* Vol. 51 No. 6, pp. 1173-1182.

Brassington, K. and Lomas, T. (2021), "Can resilience training improve well-being for people in high-risk occupations? A systematic review through a multidimensional lens", *The Journal of Positive Psychology,* Vol. 16 No. 5, pp. 573-592.

Brown, S. and Gray, D. (2016), "Household finances and well-being in Australia: an empirical analysis of comparison effects", *Journal of Economic Psychology,* Vol. 53, pp. 17-36.

Brüggen, E. C., Hogreve, J., Holmlund, M., Kabadayi, S. and Löfgren, M. (2017), "Financial well-being: a conceptualization and research agenda", *Journal of Business Research,* Vol. 79, pp. 228-237.

Brzozowski, M. and Spotton Visano, B. (2020), "“Havin’ money’s not everything, not havin’ it is”: the importance of financial satisfaction for life satisfaction in financially stressed households", *Journal of Happiness Studies,* Vol. 21 No. 2, pp. 573-591.

Chen, F., Jiang, G. and Gu, M. (2021), "Household savings and subjective wellbeing: evidence from China", *Journal of Consumer Affairs,* Vol. 55 No. 4, pp. 1489-1504.

Demirguc-Kunt, A., Klapper, L., Singer, D., Ansar, S. and Hess, J. (2018), "The global findex database 2017: measuring financial inclusion and the fintech revolution", Washington, DC, World Bank.

Diener, E. and Biswas-Diener, R. (2002), "Will money increase subjective well-being?", *Social Indicators Research,* Vol. 57 No. 2, pp. 119-169.

Diener, E., Inglehart, R. and Tay, L. (2013), "Theory and validity of life satisfaction scales", *Social Indicators Research,* Vol. 112 No. 3, pp. 497-527.

Diener, E., Suh, E. M., Lucas, R. E. and Smith, H. L. (1999), "Subjective well-being: three decades of progress", *Psychological Bulletin,* Vol. 125 No. 2, p. 276.

Erdogan, B., Bauer, T. N., Truxillo, D. M. and Mansfield, L. R. (2012), "Whistle while you work: a review of the life satisfaction literature", *Journal of Management,* Vol. 38 No. 4, pp. 1038-1083.

Fan, L. and Babiarz, P. (2019), "The determinants of subjective financial satisfaction and the moderating roles of gender and marital status", *Family and Consumer Sciences Research Journal,* Vol. 47 No. 3, pp. 237-259.

Fenton-O'Creevy, M., Dibb, S. and Furnham, A. (2018), "Antecedents and consequences of chronic impulsive buying: can impulsive buying be understood as dysfunctional self-regulation?", *Psychology & Marketing,* Vol. 35 No. 3, pp. 175-188.

Franken, I. H. A., van Strien, J. W., Nijs, I. and Muris, P. (2008), "Impulsivity is associated with behavioral decision-making deficits", *Psychiatry Research,* Vol. 158 No. 2, pp. 155-163.

Frigerio, M., Ottaviani, C. and Vandone, D. (2020), "A meta-analytic investigation of consumer over-indebtedness: the role of impulsivity", *International Journal of Consumer Studies,* Vol. 44 No. 4, pp. 328-342.

Goyal, K., Kumar, S. and Xiao, J. J. (2021), "Antecedents and consequences of personal financial management behavior: a systematic literature review and future research agenda", *International Journal of Bank Marketing,* Vol. 39 No. 7, pp. 1166-1207.

Grable, J. E., Cupples, S., Fernatt, F. and Anderson, N. (2013), "Evaluating the link between perceived income adequacy and financial satisfaction: a resource deficit hypothesis approach", *Social indicators research,* Vol. 114 No. 3, pp. 1109-1124.

Hagmaier, T., Abele, A. E. and Goebel, K. (2018), "How do career satisfaction and life satisfaction associate?", *Journal of Managerial Psychology,* Vol. 33 No. 2, pp. 142-160.

Hansen, T., Slagsvold, B. and Moum, T. (2008), "Financial satisfaction in old age: a satisfaction paradox or a result of accumulated wealth?", *Social Indicators Research,* Vol. 89 No. 2, pp. 323-347.

Hayes, A. F. (2017), *Introduction to mediation, moderation, and conditional process analysis: a regression-based approach,* The Guilford Press, New York, NY.

Hayes, A. F., Montoya, A. K. and Rockwood, N. J. (2017), "The analysis of mechanisms and their contingencies: PROCESS versus structural equation modeling", *Australasian Marketing Journal,* Vol. 25 No. 1, pp. 76-81.

Holling, C. S. (1973), "Resilience and stability of ecological systems", *Annual review of ecology and systematics,* Vol. 4 No. 1, pp. 1-23.

Jayasinghe, M., Selvanathan, E. A. and Selvanathan, S. (2020), "The financial resilience and life satisfaction nexus of indigenous Australians*", *Economic Papers,* Vol. 39 No. 4, pp. 336-352.

Klapper, L. and Lusardi, A. (2020), "Financial literacy and financial resilience: evidence from around the world", *Financial Management,* Vol. 49 No. 3, pp. 589-614.

Kumar, S., Tomar, S. and Verma, D. (2019), "Women's financial planning for retirement: systematic literature review and future research agenda", *International Journal of Bank Marketing,* Vol. 37 No. 1, pp. 120-141.

Kunicki, Z. J. and Harlow, L. L. (2020), "Towards a higher-order model of resilience", *Social Indicators Research,* Vol. 151 No. 1, pp. 329-344.

Lee, J. M., Lee, J. and Kim, K. T. (2020), "Consumer financial well-being: knowledge is not enough", *Journal of Family and Economic Issues,* Vol. 41 No. 2, pp. 218-228.

Lowe, P. (2017), "Household debt, housing prices and resilience", *Economic Analysis and Policy,* Vol. 55, pp. 124-131.

Lusardi, A., Hasler, A. and Yakoboski, P. J. (2021), "Building up financial literacy and financial resilience", *Mind & Society,* Vol. 20, pp. 181-187.

Mahdzan, N. S., Zainudin, R., Sukor, M. E. A., Zainir, F. and Ahmad, W. M. W. (2019), "Determinants of subjective financial well-being across three different household income groups in Malaysia", *Social Indicators Research,* Vol. 146 No. 3, pp. 699-726.

Manning, M., Ambrey, C. L. and Fleming, C. M. (2016), "A longitudinal study of indigenous wellbeing in Australia", *Journal of Happiness Studies,* Vol. 17 No. 6, pp. 2503-2525.

Modigliani, F. and Brumberg, R. (1954), *Utility analysis and the consumption function: an interpretation of cross-section data,* Rutgers University Press, New Brunswick, NJ.

Nakamura, J. S., Delaney, S. W., Diener, E., VanderWeele, T. J. and Kim, E. S. (2021), "Are all domains of life satisfaction equal? Differential associations with health and well-being in older adults", *Quality of Life Research*.

Nanda, A. P. and Banerjee, R. (2021), "Consumer's subjective financial well-being: a systematic review and research agenda", *International Journal of Consumer Studies,* Vol. 45 No. 4, pp. 750-776.

Netemeyer, R. G., Warmath, D., Fernandes, D. and Lynch, J. G. J. (2018), "How am I doing? Perceived financial well-being, its potential antecedents, and its relation to overall well-being", *Journal of Consumer Research,* Vol. 45 No. 1, pp. 68-89.

Ottaviani, C. and Vandone, D. (2011), "Impulsivity and household indebtedness: evidence from real life", *Journal of Economic Psychology,* Vol. 32 No. 5, pp. 754-761.

Ottaviani, C. and Vandone, D. (2018), "Financial literacy, debt burden and impulsivity: a mediation analysis", *Economic Notes,* Vol. 47 No. 2-3, pp. 439-454.

Pahlevan Sharif, S., Naghavi, N., Sharif Nia, H. and Waheed, H. (2020), "Financial literacy and quality of life of consumers faced with cancer: moderated mediation approach", *International Journal of Bank Marketing,* Vol. 38 No. 5, pp. 1009-1031.

Pavot, W. and Diener, E. (2008), "The satisfaction with life scale and the emerging construct of life satisfaction", *The Journal of Positive Psychology,* Vol. 3 No. 2, pp. 137-152.

Richards, L. (2016), "For whom money matters less: social connectedness as a resilience resource in the UK", *Social Indicators Research,* Vol. 125 No. 2, pp. 509-535.

Riitsalu, L. and Murakas, R. (2019), "Subjective financial knowledge, prudent behaviour and income: the predictors of financial well-being in Estonia", *International Journal of Bank Marketing,* Vol. 37 No. 4, pp. 934-950.

Salignac, F., Hamilton, M., Noone, J., Marjolin, A. and Muir, K. (2020), "Conceptualizing financial wellbeing: an ecological life-course approach", *Journal of Happiness Studies,* Vol. 21 No. 5, pp. 1581-1602.

Salignac, F., Marjolin, A., Reeve, R. and Muir, K. (2019), "Conceptualizing and measuring financial resilience: a multidimensional framework", *Social Indicators Research,* Vol. 145 No. 1, pp. 17-38.

Salignac, F., Muir, K. and Wong, J. (2016), "Are you really financially excluded if you choose not to be included? Insights from social exclusion, resilience and ecological systems", *Journal of Social Policy,* Vol. 45 No. 2, pp. 269-286.

Summerfield, M., Bright, S., Hahn, M., La, N., Macalalad, N., Watson, N., Wilkins, R. and Wooden, M. (2019), "HILDA user manual - release 18", Melbourne, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Tahir, M. S. and Ahmed, A. D. (2021), "Australians' financial wellbeing and household debt: a panel analysis", *Journal of Risk and Financial Management,* Vol. 14 No. 11, p. 513.

Tahir, M. S., Ahmed, A. D. and Richards, D. W. (2021), "Financial literacy and financial well-being of Australian consumers: a moderated mediation model of impulsivity and financial capability", *International Journal of Bank Marketing,* Vol. 39 No. 7, pp. 1377-1394.

Tahir, M. S., Richards, D. W. and Ahmed, A. D. (2020), "Financial literacy, attitudes, and financial satisfaction: an assessment of credit card debt-taking behavior of Australians", *Financial Services Review,* Vol. 28 No. 4, pp. 273-301.

van Rooij, M. C. J., Lusardi, A. and Alessie, R. J. M. (2011), "Financial literacy and retirement planning in the Netherlands", *Journal of Economic Psychology,* Vol. 32 No. 4, pp. 593-608.

Veenhoven, R. (2012), "Happiness: also known as "life satisfaction" and "subjective well-being"", in Land, K. C., Michalos, A. C. and Sirgy, M. J. (Eds.) *Handbook of social indicators and quality of life research*, Springer, The Netherlands.

Vera-Toscano, E., Ateca-Amestoy, V. and Serrano-Del-Rosal, R. (2006), "Building financial satisfaction", *Social Indicators Research,* Vol. 77 No. 2, pp. 211-243.

West, T., Cull, M. and Johnson, D. (2021), "Income more important than financial literacy for improving wellbeing", *Financial Services Review,* Vol. 29 No. 3, pp. 187-207.

Wooden, M., Freidin, S. and Watson, N. (2002), "The household, income and labour dynamics in Australia (HILDA) survey: wave 1", *The Australian Economic Review,* Vol. 35 No. 3, pp. 339-348.

Wooden, M. and Watson, N. (2007), "The HILDA survey and its contribution to economic and social research (so far)*", *Economic Record,* Vol. 83 No. 261, pp. 208-231.

Xiao, J. J., Chen, C. and Chen, F. (2014), "Consumer financial capability and financial satisfaction", *Social Indicators Research,* Vol. 118 No. 1, pp. 415-432.

Xiao, J. J. and O'Neill, B. (2018), "Propensity to plan, financial capability, and financial satisfaction", *International Journal of Consumer Studies,* Vol. 42 No. 5, pp. 501-512.

Xiao, J. J. and Porto, N. (2017), "Financial education and financial satisfaction: financial literacy, behavior, and capability as mediators", *International Journal of Bank Marketing,* Vol. 35 No. 5, pp. 805-817.

Xiao, J. J., Tang, C. and Shim, S. (2009), "Acting for happiness: financial behavior and life satisfaction of college students", *Social Indicators Research,* Vol. 92 No. 1, pp. 53-68.

Table I. Means, standard deviations, and Pearson correlation analysis of key variables

Variable	*M*	*SD*	1	2	3
1. Financial resilience	3.247	1.064			
2. Non-impulsive behavior	4.909	1.262	0.209^{***}		
3. Financial satisfaction	6.666	2.095	0.442^{***}	0.165^{***}	
4. Life satisfaction	7.948	1.399	0.192^{***}	0.128^{***}	0.469^{***}

Notes: $^{***}p<0.001$. N=14,904. Means (M) and standard deviations (SD) are reported.

Table II. Result of the PROCESS Model 4 (mediation analysis)

Variable	Life satisfaction			Financial satisfaction			Life satisfaction		
	Coefficient	LB	UP	Coefficient	LB	UP	Coefficient	LB	UB
Financial resilience	0.146***	0.164	0.221	0.346***	0.644	0.720	-0.010	-0.039	0.013
	(0.014)			(0.019)			(0.013)		
Financial satisfaction							0.451***	0.287	0.316
							(0.007)		
Age	-0.086***	-0.008	-0.005	-0.047***	-0.007	-0.003	-0.064***	-0.006	-0.003
	(0.001)			(0.001)			(0.001)		
Female	-0.004	-0.055	0.034	0.008	-0.026	0.095	-0.008	-0.062	0.019
	(0.023)			(0.031)			(0.021)		
Education status	-0.026**	-0.132	-0.034	0.010**	0.023	0.158	-0.035***	-0.154	-0.066
	(0.025)			(0.034)			(0.022)		
Marital status	0.092***	0.211	0.304	0.061***	0.194	0.319	0.064***	0.137	0.224
	(0.024)			(0.032)			(0.022)		

Employment status	-0.058***	-0.215	-0.103	-0.022*	-0.165	-0.017	-0.048***	-0.183	-0.081
	(0.029)			(0.038)			(0.026)		
Income	-0.008	-0.001	0.000	0.064***	0.002	0.003	-0.036***	-0.001	0.000
	(0.000)			(0.000)			(0.000)		
Financial literacy	-0.079***	-0.119	-0.073	-0.055***	-0.130	-0.070	-0.054***	-0.087	-0.045
	(0.012)			(0.015)			(0.011)		
Financial capability index	0.208***	0.211	0.256	0.247***	0.384	0.444	0.097***	0.087	0.130
	(0.011)			(0.015)			(0.011)		
Future orientation	-0.005	-0.024	0.013	-0.012	-0.042	0.007	0.000	-0.017	0.017
	(0.009)			(0.012)			(0.009)		
N	14,904			14,904			14,904		
R-squared	0.087			0.254			0.239		
F-statistics	111.091***			407.766***			254.641***		

Notes: ***p<0.001 **p<0.01 *p<0.05. Coefficients are standardized. Robust standard errors in parentheses. LB denotes lower bound. UB denotes upper bound.

Table III. Results of the PROCESS Model 7 (moderated mediation analysis)

Variable	Financial satisfaction			Life satisfaction		
	Coefficient	LB	UP	Coefficient	LB	UB
Financial satisfaction				0.301***	0.287	0.316
				(0.007)		
Financial resilience (FR)	0.699***	0.661	0.738	-0.013	-0.039	0.013
	(0.020)			(0.013)		
Non-impulsive behavior (NB)	0.053***	0.024	0.081			
	(0.015)					
FR × NB	0.064***	0.038	0.089			
	(0.013)					
Age	-0.006***	-0.008	-0.004	-0.005***	-0.006	-0.003
	(0.001)			(0.001)		
Female	0.038	-0.023	0.098	-0.021	-0.062	0.019
	(0.031)			(0.021)		
Education status	0.073*	0.006	0.141	-0.110***	-0.154	-0.066

	(0.034)			(0.022)		
Marital status	0.251***	0.189	0.314	0.180***	0.137	0.224
	(0.032)			(0.022)		
Employment status	-0.086*	-0.159	-0.012	-0.132***	-0.183	-0.081
	(0.038)			(0.026)		
Income	0.002***	0.002	0.003	-0.001***	-0.001	0.000
	(0.000)			(0.000)		
Financial literacy	-0.101***	-0.131	-0.071	-0.066***	-0.087	-0.045
	(0.015)			(0.011)		
Financial capability index	0.406***	0.375	0.436	0.109***	0.087	0.130
	(0.015)			(0.011)		
Future orientation	-0.037**	-0.063	-0.010	0.000	-0.017	0.017
	(0.014)			(0.009)		
At -1 standard deviation on NB	0.619	0.573	0.664			
	(0.023)					
At the mean of NB	0.699	0.661	0.738			

	(1)	LB	UB	(2)
	(0.020)			
At +1 standard deviation on NB	0.780	0.725	0.835	
	(0.028)			
N	14,904			14,904
R-squared	0.256			0.239
F-statistics	349.189***			254.641***

Notes: ***p<0.001 **p<0.01 *p<0.05. Coefficients are unstandardized. Robust standard errors in parentheses. LB denotes lower bound. UB denotes upper bound.

Table IV. Conditional effects of financial resilience on life satisfaction (PROCESS Model 7)

	Life satisfaction		
	Coefficient	LB	UB
Direct effect of financial resilience on life satisfaction	-0.013	-0.039	0.013
	(0.013)		
Conditional indirect effect of financial resilience on life satisfaction			
At -1 standard deviation on Non-impulsive behavior (NB)	0.186	0.170	0.203
	(0.009)		
At the mean of NB	0.211	0.195	0.227
	(0.008)		
At +1 standard deviation on NB	0.235	0.215	0.255
	(0.010)		
Overall index of moderated mediation	0.019	0.012	0.027
	(0.004)		

Notes: Robust standard errors in parentheses. LB denotes lower bound. UB denotes upper bound. If there comes zero (0) between the values of LB and UB, it implies that the coefficient is insignificant. If zero (0) does not come between the values of LB and UB, the coefficient is significant.

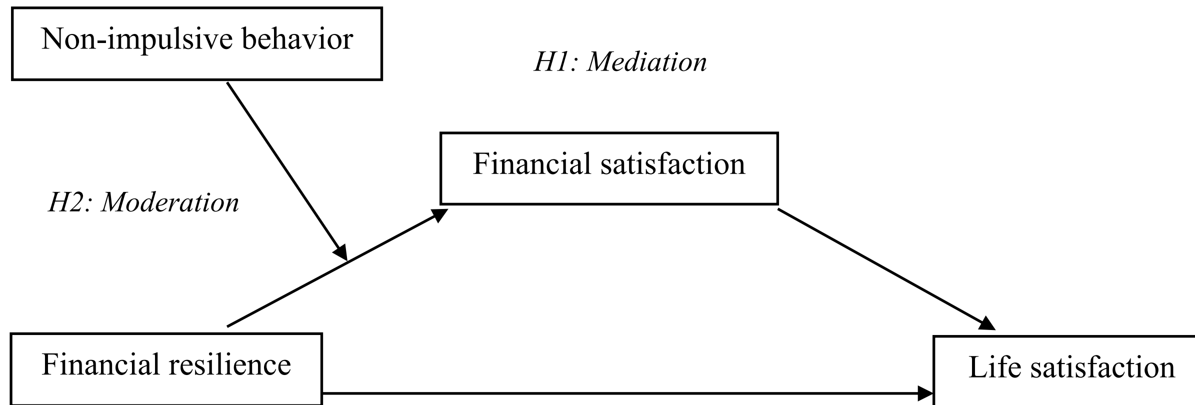

Figure 1. The proposed moderated mediation model of non-impulsive behavior and financial satisfaction

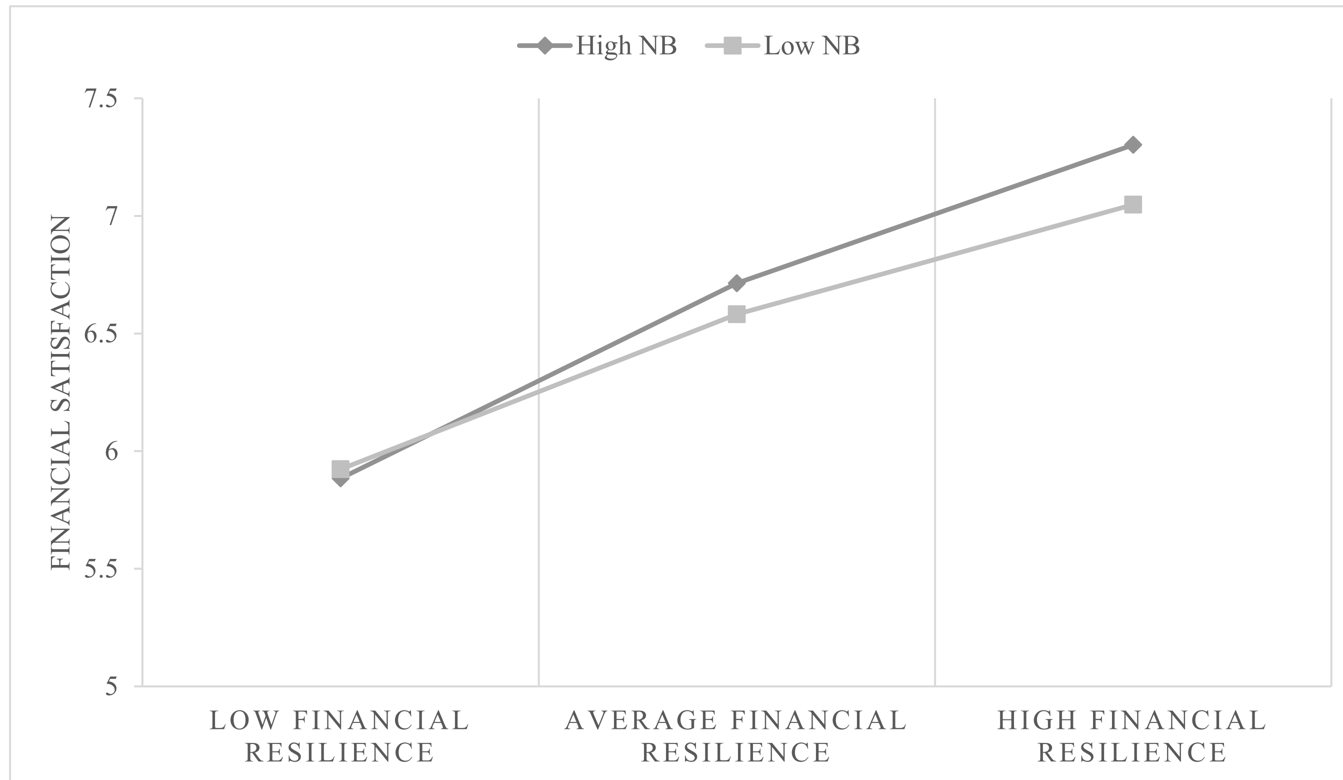

Figure 2. Plot of interaction between financial resilience and non-impulsive behavior (NB) on financial satisfaction

9. Appendix

A1. Items measuring financial literacy

Items	Possible responses (correct answer in bold)
"Suppose you put $100 into a no-fee savings account with a guaranteed interest rate of 2% per year. How much would be in the account at the end of the first year?"	Don't know / refused / **$102** / other value
"If the interest rate on your savings account was 1% per year and inflation was 2% per year. After one year, would you be able to buy more/the same/less than today?"	Don't know / refused / more / same / **less than today**
"An investment with a high return is likely to be high risk."	Don't know / refused / **true** / false
"Buying shares in a single company usually provides a safer return than buying shares in a number of different companies."	Don't know / refused / true / **false**
"If by the year 2020 your income has doubled, but the prices of all of purchases have also doubled. In 2020, will you be able to buy more/the same/less than today?"	Don't know / refused / more / **same** / less than today

A2. Items of the financial capability index

Items
1. I am very organized when it comes to managing my money daily
2. I keep a close personal watch on my financial affairs
3. I always make sure I have money saved up for emergency/unexpected expense
4. I do a good job of balancing my spending and saving
5. I am good at dealing with day-to-day financial matters
6. I feel confident about the financial decision I make
7. I make certain I understand the commitments I agree to in financial contracts
8. I feel comfortable dealing with banks and other financial institutions

Note: These items were measured on a seven-point Likert-scale (1 for strongly disagree - - - - - 7 for strongly agree).

A3. Items measuring future orientation

Items
1. I only focus on the short-term
2. I tend to live for today and let tomorrow take care of itself
3. The future will take care of itself

Note: These items were measured on a seven-point Likert-scale (1 for strongly disagree - - - - - 7 for strongly agree). We reverse the scale ('1' for strongly agree and '7' for strongly disagree) to make these items consistent with other variables of this study.

A4. Output of the mediation analysis using Baron-Kenny approach

Variable	Life satisfaction	Financial satisfaction	Life satisfaction
Financial resilience	0.198^{***}	0.414^{***}	0.001
	(0.012)	(0.016)	(0.011)
Financial satisfaction			0.478^{***}
			(0.005)
N	14,904	14,904	14,904
Adjusted R-squared	0.047	0.203	0.229
F-statistics	106.98^{***}	543.06^{***}	555.56^{***}

Notes: $^{***}p<0.001$. Coefficients are standardized. Standard errors in parentheses. The analyses reported in the table include age, gender, education status, marital status, employment status, and income as control variables.

A5. Robustness check of the moderated mediation analysis using demographic factors as control variables

Variable	Financial satisfaction			Life satisfaction		
	Coefficient	LB	UP	Coefficient	LB	UB
Financial satisfaction				0.319***	0.305	0.333
				(0.007)		
Financial resilience (FR)	0.814***	0.777	0.851	0.001	-0.026	0.026
	(0.019)			(0.013)		
Non-impulsive behavior (NB)	0.119***	0.093	0.145			
	(0.013)					
FR × NB	0.068***	0.041	0.094			
	(0.013)					
N	14,904			14,904		
R-squared	0.210			0.230		
F-statistics	345.366***			307.419***		

Notes: $^{***}p<0.001$. The mediation analysis was run using the PROCESS Model 7, after controlling for age, gender, education status, marital status, employment status, and income. Coefficients are unstandardized. Robust standard errors in parentheses. LB denotes lower bound. UB denotes upper bound.

A6. Robustness check of the mediation analysis by randomly including half respondents

Variable	Life satisfaction	Financial satisfaction	Life satisfaction
Financial resilience	0.192***	0.422***	-0.007
	(0.018)	(0.024)	(0.018)
Financial satisfaction			0.472***
			(0.010)
N	7,700	7,700	7,700

Notes: ***p<0.001. The mediation analysis was run using the PROCESS Model 4, after controlling for age, gender, and income. Coefficients are standardized. Robust standard errors in parentheses.

A7. Robustness check of the moderated mediation analysis by randomly including half respondents

Variable	Financial satisfaction	Life satisfaction
Financial resilience (FR)	0.819***	-0.009
	(0.025)	(0.018)
Non-impulsive behavior (NB)	0.137***	
	(0.018)	
FR × NB	0.082***	
	(0.018)	
Financial satisfaction		0.317***
		(0.010)
N	7,700	7,700

Notes: ***p<0.001. The moderated mediation analysis was run using the PROCESS Model 7 after controlling for age, gender, and income. Coefficients are unstandardized. Robust standard errors in parentheses.