# How Does Consumers' Self-Control Predict Financial Behavior and Financial Resilience?

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*This paper examines the association between self-control and consumer financial resilience. Applying Partial Least Square Structural Equation Modelling (PLS-SEM) on data sourced from the Consumer Financial Protection Bureau (CFPB), our study shows that along with the demonstrated direct relationship between self-control and consumer financial resilience, the benefit of financial practice through daily management plays a key mediating role, positively impacting consumer financial resilience. Leveraging the economic theory of the Behavioral Life-cycle (BLC) Hypothesis, our results suggest that the benefits of self-control on financial resilience largely depend on the cultivation of positive financial actions, which are reinforced through active financial management.*

*Keywords: self-control, financial resilience, financial management, Partial Least Squares-Structural Equation Modelling (PLS-SEM), mediation*

## INTRODUCTION

Many consumers find themselves teetering on the edge of a financial crisis, especially after the COVID-19 pandemic and the recent surge in inflation. Not surprisingly, significant attention has been given to understanding and improving financial resilience (e.g., Tahir et al. 2022). Financial resilience is the ability to withstand a financial event that impacts a consumer's income or assets, whether big or small. Such events often arise unexpectedly and encompass a range of circumstances, including car breakdowns, divorce, disability, job loss, or the passing of a loved one (DOL 2022). In conjunction with the economic fallout from the pandemic and subsequent recession, individuals may experience anxiety and uncertainty about the future. Being able to maintain financial resilience is the key to weathering such uncertain situations. Financial resilience measures how well people can absorb, respond to, and adjust to financial shocks and bounce back from life-altering setbacks (Collins & O'Rourke 2019; Seay & Woddley 2017).

It is important to understand and measure how psychological characteristics influence an individual's positive financial behavior and financial resilience. This study extends previous discussions of the Behavioral Life-Cycle Hypothesis (Shefrin & Thaler 1988) and introduces constructs for self-control, financial resilience, and consumers' positive financial behavior. We propose measurements for these three key constructs using data from the financial well-being survey (CFPB 2016). Our empirical test, utilizing a comprehensive PLS-SEM model, suggests that individuals with strong self-control tend to exhibit higher

financial resilience. Furthermore, this relationship is mediated through positive financial behaviors. The construct of finance management behavior includes survey questions covering multiple easy-to-do practices, such as paying bills on time and checking balances regularly. Such a checklist provides a guideline for improving financial resilience.

## LITERATURE REVIEW

### Self-control and Financial Behavior

Self-control has been studied in personal financial management literature (e.g., Robb & Sharpe 2009). Many behavioral studies concerning self-control have focused on the intrinsic motivation of individuals (Gollwitzer & Oettingen 2012). It refers to an individual's ability to regulate their thoughts and emotions to resist immediate temptations and impulses, enabling them to achieve long-term financial goals (Dholakia 2002; Gaurav & Prasad 2017; Romeu & Calderwood 2019). Financial self-control serves as a mediating factor in the relationship between financial socialization and financial behavior (Sheng et al. 2022). In the study by Lu and Park (2021), self-control, along with financial goals, is factored into the motivation construct. Furthermore, self-control is positively related to financial skills and financial management behavior (Feng & Reich 2021).

In order to establish a behavioral basis for our research, we draw upon the theoretical framework of the Behavioral Life-cycle (BLC) Hypothesis (Shefrin & Thaler 1988). The BLC Hypothesis extends the traditional Life-Cycle Hypothesis (LCH) by incorporating behavioral factors that influence individual consumption and saving decisions throughout their lifetime, with the aim of maintaining a consistent standard of living (Stromback et al. 2017). The BLC hypothesis suggests that individuals' financial behavior over their lifetime is influenced by their ability to exercise self-control and the costs associated with doing so. Our propensity to save for the future depends on how we mentally categorize money and the perceived costs associated with saving. In the context of the BLC Hypothesis, self-control plays a critical role in determining whether individuals can effectively curb impulse spending and accumulate savings over time. However, the BLC Hypothesis acknowledges that individuals may face challenges in exercising self-control due to various behavioral biases. Consumers may be tempted to immediate gratification rather than prioritizing long-term financial goals.

Studies, such as Ameriks, et al., (2007), have shown that psychological characteristics influence an individual's financial behavior and financial well-being. Self-control helps individuals make wise decisions and practice discipline in their daily financial activities. Those with strong self-control are more likely to refrain from impulse purchases of non-essentials, establish and maintain a consistent saving habit, adhere to their budgetary limits, and avoid unnecessary debt. They can resist the temptations of short-lived pleasure of impulse purchase especially when faced with advertisements, sales promotion, or social pressure. Consequently, they experience less financial anxiety and feel more secure in their current and future financial situation (Stromback et al. 2017, Romeu & Calderwood 2019). Moreover, self-control allows individuals to regulate their emotions and make rational decisions even under stressful situations.

### Financial Resilience

Financial resilience is highly related to the individual's financial behavior. The BLC Hypothesis suggests that individuals save during their earning years to prepare for future needs such as job loss or retirement. However, there exist behavioral factors that impede individuals' saving efforts, diminishing their financial resilience. Behaviors such as seeking immediate pleasure through consumption or not prioritizing saving for the unexpected can leave consumers vulnerable to financial shocks. The BLC Hypothesis acknowledges the crucial role of self-control in financial resilience. Moreover, loss aversion (Kahneman & Tversky 1979, 1992) can make individuals sensitive to financial losses and thus lead to irrational decisions. Consequently, those factors can intensify individuals' financial stress and reduce their overall financial resilience. The BLC Hypothesis highlights the influence of behavioral factors on individuals' financial decisions. Ultimately, self-control has impacts on consumer financial resilience.

Understanding the role of self-control is essential to improve financial resilience and long-term financial well-being.

## Analysis With PLS-SEM

Our study explores the relationships among latent constructs (structural model) in self-control, financial resilience, and financial behavior. Those constructs are measured by the responses to relevant survey questions. Partial Least Square Regression (PLS) is an appropriate technique in this research as "PLS is primarily intended for causal-predictive analysis in situations of high complexity but low theoretical information" (Joreskog 1982). The execution and application of the PLS-SEM follow recommendation procedures, leveraging the empirical analysis with R programming (Hair, et al. 2022).

## MODEL AND TEST

### Hypothesis and Conceptual Model

The detailed path diagram (Figure 1) illustrates the conceptual framework among three constructs: self-control (CONTROL), financial management behavior (MGMT), and financial resilience (RESILIENCE). CONTROL measures the psychological factor, while MGMT shows the factor of financial behavior. We anticipate that both CONTROL and MGMT will exhibit a positive association with RESILIENCE.

**FIGURE 1**
**CONCEPTUAL FRAMEWORK BETWEEN SELF-CONTROL (CONTROL), FINANCIAL MANAGEMENT (MGMT) AND FINANCIAL RESILIENCE (RESILIENCE)**
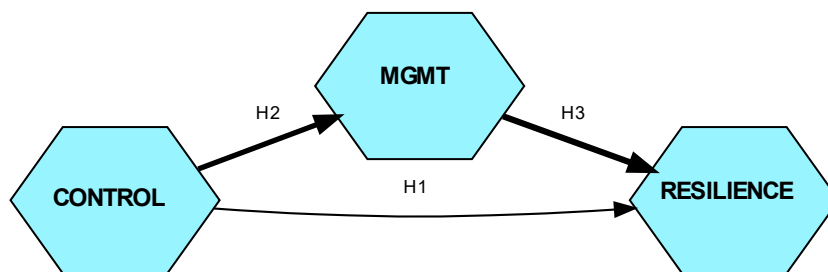


Figure 1 illustrates the conceptual relation between the constructs of CONTROL, MGMT, and RESILIENCE. The direct associations include H1: CONTROL → MGMT, H2: CONTROL → RESILIENCE, and H3: MGMT →RESILIENCE. The indirect association combines H2 and H3, or CONTROL → MGMT → RESILIENCE.

First, CONTROL and MGMT are proposed to be directly associated with RESILIENCE. Next, CONTROL is directly associated with MGMT. Hence, MGMT serves as a mediating factor between CONTROL and RESILIENCE. The hypotheses are summarized as follows.

*H1: Self-control is directly and positively associated with financial resiliency (CONTROL → RESILIENCE).*

The existing literature supports a positive association between self-control and financial well-being (Ameriks et al. 2007; Stromback et al. 2017). However, financial well-being encompasses a broader range of topics, including financial security and freedom of choice as measured for both the present and the future (CFPB 2016). Our study on financial resilience specifically focuses on the consumers' ability to absorb financial shocks, and furthermore, how self-control relates to financial resilience. We expect a direct positive association between self-control and financial resilience. This will set a baseline for further discussions.

***H2:*** *Self-control is directly and positively associated with positive financial management behaviors (CONTROL → MGMT).*

Prior studies have demonstrated a positive association between self-control and better financial behavior (e.g. Shefrin & Thaler 1988; Ameriks et al. 2007; Stromback et al. 2017). Our study specifically differentiates between the psychological factor of self-control and the behavioral factor of financial management. First, self-control is measured using subjective questions related to psychological aspects. Second, financial management is assessed through responses to an easy-to-do check list.

***H3:*** *Positive financial management behaviors improve financial resilience (MGMT → RESILIENCE).*

Good financial habits improve overall financial well-being (Stromback et al. 2017; Feng & Reich 2021). Similar to H1, we specify the measurements for financial resilience. H2 and H3 together form the indirect path from self-control to financial resilience.

***H4:*** *Self-control is indirectly associated with financial resiliency through the mediation of cultivating positive financial management behaviors (CONTROL → MGMT → RESILIENCE).*

H4 combines the H2 and H3 and addresses how self-control can improve financial resilience. The discussion stems from Behavioral Life-Cycle Hypothesis (Shefrin & Thaler 1988). While the BLC Hypotheses discusses how self-control affects long-term saving behavior, our focus is more in line with short-term financial management practices and the resilience to absorb financial shocks. We expect that people with good self-control are more likely to have better general financial behaviors which can improve financial resilience. Comparing the indirect effect from H4 and the direct effect of H1 further reveals the mediating role of financial management practices to explain how self-control is associated with financial resilience.

**Data and Measurements**

The data used for analysis is publicly available through the Consumer Financial Protection Bureau (CFPB). The Dodd-Frank Act of 2010 recognized that consumers of financial products and services need a safe, transparent marketplace, and more importantly, the financial capability to navigate that marketplace effectively. Numerous provisions of the Dodd-Frank Act charge the CFPB with working to improve the financial literacy of consumers in America. Building on the development and validation of the financial well-being scale, the CFPB conducted the National Financial Well-Being Survey. The 2016 National Financial Well-Being Survey is a representative survey of 6394 adults ages 18 and older in the United States. The survey questions covered a wide range of topics hypothesized to influence a person's level of financial well-being. These topics included financial knowledge, skills, attitudes, and behaviors; individual characteristics; household and family characteristics; income and employment characteristics; savings; safety nets; and financial experiences. (CFPB 2015, 2016, 2017).

The measurements of the constructs in this study are derived from the responses to survey questions, which are listed in Table 1. Specifically, the construct of CONTROL includes psychological questions such as (a) I often act without thinking through all the alternatives; (b) I am good at resisting temptation; (c) I am able to work diligently toward long-term goals. In Lu and Park's (2021) study, self-control is an observed variable measured by a single item of question (c). Single-item scales are subject to criticism for lacking reliability and validity and posing insufficient measurement precisions and response bias (Churchill 1979; Hair et al. 2019). It is generally recommended to use multi-item scales whenever possible (Nunnally & Bernstein 1994; Podsakoff et al. 2003; DeVellis 2017).

Because individuals tend to have different priorities, traditional measures such as income or net worth, while important, do not necessarily or fully capture this overall aspect of financial resilience. Instead, the Consumer Financial Protection Bureau (CFPB) suggests financial resilience in the following question

items: (a) I could handle a major unexpected expense; (b) I am just getting by financially; and (c) I am concerned that the money I have or will save won't last.

The MGMT factor covers actions that are easily identifiable, such as (a) putting money in savings is a habit for me; (b) paid all your bill on time; (c) stayed within your budget in full each month; (d) paid off credit card balance in full each month; (f) checked your statements, bills and receipts to make sure there were not errors. While financial resilience is a subjective factor, it does require concrete practices to achieve. Our questions for MGMT illustrate the specific areas where consumers can work on to ultimately improve financial resilience. Table 1 lists the constructs with their designated measurement questions.

**TABLE 1**
**CONSTRUCTS AND MEASUREMENT QUESTIONS**

| Construct | Indicator | Question Items | Reverse coded |
|---|---|---|---|
| MGMT | MGMT_1 | Putting money into savings is a habit for me. | |
| | MGMT_2 | Paid all your bills on time. | |
| | MGMT_3 | Stayed within your budget or spending plan. | |
| | MGMT_4 | Paid off the credit card balance in full each month. | |
| | MGMT_5 | Checked your statements, bills, and receipts to make sure there were no errors. | |
| | | | |
| CONTROL | CONTROL_1 | I often act without thinking through all the alternatives. | yes |
| | CONTROL_2 | I am good at resisting temptation. | |
| | CONTROL_3 | I am able to work diligently toward long-term goals | |
| | | | |
| RESILIENCE | RES_1 | I could handle a major unexpected expense. | |
| | RES_2 | I am just getting by financially. | yes |
| | RES_3 | I am concerned that the money I have or will save won't last. | yes |

**RESULTS AND DISCUSSIONS**

Table 2 shows the basic statistics and demographic information from the survey. To keep the consistency of analysis, the signs of some responses have been reversed to reflect better self-control, positive financial management practices, and better financial resilience.

**TABLE 2**
**SURVEY STATISTICS AND DEMOGRAPHICS**

| Nobs | 6372 | | | % by Income | |
|---|---|---|---|---|---|
| | | | | Less than $20,000 | 11.2% |
| Stats | avg | std | | $20,000 to 29,999 | 7.9% |
| CONTROL_1 | -1.92 | 0.837 | | $30,000 to 39,999 | 9.6% |
| CONTROL_2 | 2.87 | 0.753 | | $40,000 to 49,999 | 7.3% |
| CONTROL_3 | 3.02 | 0.742 | | 50,000 to 59,999 | 7.9% |
| MGMT_1 | 4.38 | 1.467 | | $60,000 to 74,999 | 10.2% |

| | | | | | |
|---|---|---|---|---|---|
| MGMT_2 | 4.54 | 0.894 | | $75,000 to 99,999 | 14.9% |
| MGMT_3 | 3.82 | 1.066 | | $100,000 to 149,999 | 17.5% |
| MGMT_4 | 3.54 | 1.574 | | $150,000 or more | 13.5% |
| MGMT_5 | 4.21 | 1.05 | | | |
| RES_1 | 3.06 | 1.223 | | % by Education | |
| RES_2 | -2.78 | 1.257 | | Less than high school | 6.7% |
| RES_3 | -3.08 | 1.166 | | High school degree/GED | 25.4% |

| % by Education | |
|---|---|
| Less than high school | 6.7% |
| High school degree/GED | 25.4% |
| Some college/Associate | 30.2% |
| Bachelor's degree | 20.6% |
| Graduate/professional degree | 17.2% |

| % by Generation | |
|---|---|
| 18 ~35 | 17.4% |
| 36~51 | 35.3% |
| 52~70 | 22.4% |
| >=71 | 24.9% |

The empirical test is conducted using the R programming language and the "seminr" package. We report the SEM analysis in Figure 2 and follow with further details.

**FIGURE 2**
**SUMMARY OF SEM ESTIMATION AND BOOTSTRAPPING TEST**
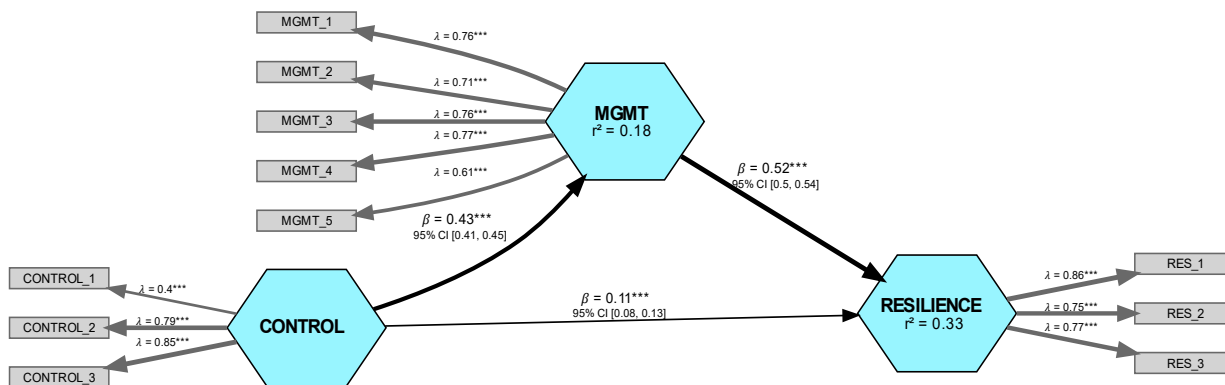


The following Table 3 summarizes the path analysis implied in the hypotheses (H1- H4) and Figure 2.

**TABLE 3**
**SUMMARY OF PATH ANALYSIS**

| From | To | Original Est. | Bootstrap means | Bootstrap SD | T stats | 2.50% CI | 97.5% CI |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| Single Path | | | | | | | |
| | | | | | | | |

| CONTROL | MGMT | 0.430 | 0.430 | 0.011 | 37.745 | 0.408 | 0.453 |
|---------|------|-------|-------|-------|--------|-------|-------|
| CONTROL | RESILIENCE | 0.106 | 0.106 | 0.012 | 8.655 | 0.082 | 0.130 |
| MGMT | RESILIENCE | 0.519 | 0.519 | 0.010 | 53.570 | 0.499 | 0.537 |
| | | | | | | | |
| Total Path | | | | | | | |
| | | | | | | | |
| CONTROL | MGMT | 0.430 | 0.430 | 0.011 | | 0.408 | 0.453 |
| CONTROL | RESILIENCE | 0.329 | 0.329 | 0.012 | | 0.305 | 0.352 |
| MGMT | RESILIENCE | 0.519 | 0.519 | 0.010 | | 0.499 | 0.537 |

The SEM path analysis and tests fail to reject the null hypotheses of H1, H2, H3, and H4. Thus, all the hypotheses are supported.

H1: CONTROL ($\beta$ = 0.106, p < 1%) has a direct and positive association with RESILIENCE.

H2: MGMT ($\beta$ = 0.519, p < 1%) has a direct and positive association with RESILIENCE.

H3: CONTROL ($\beta$ = 0.430, p < 1%) has a direct and positive association with MGMT.

H4: The total path between CONTROL and RESILIENCE shows a positive association ($\beta$ = 0.329, p = 0). Furthermore, the total path between CONTROL and RESILIENCE is three times the weight of the direct path, suggesting the mediating effect of MGMT between CONTROL and RESILIENCE.

We follow Hair et.al. (2022) and conduct further analysis on model reliability and validity. The reliability test shows alpha (except control) and composite reliability (rhoC) exceeds 0.7, indicating internal consistent reliability. The Average Variance Extracted (AVE) values greater than 0.5 confirm the convergent validity for the three constructs. Further tests using Fornell-Larcker criterion and Cross-loading demonstrate the discriminant validity. The test statistics are included in Table 4.

**TABLE 4**
**RELIABILITY AND VALIDITY ANALYSIS**

| Internal Consistency Reliability | CONTROL | MGMT | RESILIENCE |
|----------------------------------|---------|------|------------|
| alpha | 0.459 | 0.774 | 0.717 |
| rhoC | 0.736 | 0.845 | 0.837 |
| | | | |
| Convergent Validity | CONTROL | MGMT | RESILIENCE |
| AVE | 0.502 | 0.522 | 0.632 |
| | | | |
| Discriminant Validity | | | |
| | | | |
| FL_criteria | CONTROL | MGMT | RESILIENCE |
| CONTROL | 0.709 | . | . |
| MGMT | 0.43 | 0.723 | . |
| RESILIENCE | 0.329 | 0.564 | 0.795 |
| | | | |
| Cross loadings | CONTROL | MGMT | RESILIENCE |
| CONTROL_1 | 0.401 | 0.204 | 0.158 |

| | | | |
|---|---|---|---|
| CONTROL_2 | 0.788 | 0.297 | 0.202 |
| CONTROL_3 | 0.852 | 0.38 | 0.308 |
| MGMT_1 | 0.375 | 0.756 | 0.495 |
| MGMT_2 | 0.263 | 0.713 | 0.348 |
| MGMT_3 | 0.362 | 0.755 | 0.384 |
| MGMT_4 | 0.27 | 0.768 | 0.513 |
| MGMT_5 | 0.269 | 0.609 | 0.219 |
| RES_1 | 0.319 | 0.568 | 0.861 |
| RES_2 | 0.209 | 0.358 | 0.75 |
| RES_3 | 0.235 | 0.372 | 0.77 |

In summary, we have shown a significant positive direct association between financial resilience and the factors of self-control and financial management. Moreover, cultivating better financial management practices plays a key mediating role in how self-control improves financial resilience.

## CONCLUSION

This study contributes to the literature on financial resilience in several ways. Our contribution to the theory is twofold. First, by anchoring extant research into the established behavioral theory of the Behavioral Life-cycle Hypothesis, we have provided a stronger argument for the relationship between self-control correlation with financial resilience. Second, we have reinforced the notion that active financial management has a significant effect on financial resilience. The study also supports the argument that day-to-day financial management mediates the relationship between self-control and financial resilience, which is an important element of the future state of financial well-being. By understanding consumer behavior factors, policymakers and individuals can develop strategies to help promote better self-control, practice financial management, and improve consumer financial resilience.

To enhance financial resilience, it is important to consider these behavioral factors. Education and awareness programs can help individuals understand their biases and develop strategies to overcome them. Setting up automatic savings mechanisms, creating emergency funds, and using commitment devices can assist individuals in building financial resilience by counteracting behavioral biases and promoting long-term financial stability.

## LIMITATION AND FUTURE STUDIES

While the current study contributes to the financial literature, it's important to acknowledge several limitations and areas for potential expansion.

First, we rely on the 2016 CFPB survey data. The scale and questions, though widely used and accepted in the field, could be refined and expanded upon. It's worth noting that we have not observed any updates to this survey data by the CFPB, especially data collected after the post-pandemic period, which could add significant value to future studies. Second, in this study, we are not considering some other factors that might affect financial resilience which may include situational factors such as income and employment. Third, the extensive body of literature on financial resilience exists across different domains including business anthropology, economics, finance, psychology, and marketing. Future studies could explore cross-disciplinary and cross-cultural aspects of financial resilience by examining cultural comparisons of consumer financial attitudes, behaviors, and well-being.

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