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# Internal locus of control and financial well-being among university students

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ABSTRACT

This study delves into the factors influencing financial well-being among Malaysian university students, addressing the rising debt concerns among young adults under 30. This study is grounded in the Social Cognitive Theory (SCT). Data were gathered from 299 university students through a self-administered survey, which was subsequently analyzed with Partial Least Square – Structural Equation Modelling. The findings indicate that an internal locus of control significantly influences financial attitude, financial behavior, and financial confidence. Notably, financial behavior and financial confidence are crucial predictors of financial well-being, while financial attitude was found to be insignificant. Additionally, financial behavior and financial confidence mediate the relationship between internal locus of control and financial well-being, whereas financial attitude does not serve as a mediator. The results suggest that individuals with a strong internal locus of control are more likely to exhibit positive financial behaviors and greater financial confidence, ultimately enhancing their financial well-being. This study strengthens the SCT model and contributes new dimensions to the literature by examining financial attitude, financial behavior, and financial confidence as mediating factors influencing university students' financial well-being. The results also provide policymakers and relevant agencies with useful information on how to further improve university curricula and foster sound financial practices to raise the financial well-being of university students.

## 1. Introduction

Financial well-being is a topic that has gained attention over the past three decades. Historically, the concept of financial well-being grown prominence in the early 2000s, originating from studies on personal finance, financial literacy, and economic psychology. Research on financial well-being has increased dramatically in the twenty-first century as a result of the global financial crisis of 2008 and the growing understanding of the role that financial stability plays in overall well-being. According to Ghazali et al.

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(2020), early research concentrated on financial wellness, financial satisfaction, economic well-being, financial efficacy, and financial health. However, over time, research on financial well-being has evolved into a comprehensive understanding, with various indicators have been studied. Despite the large amount of research being done on financial well-being, this field of study is still in its infancy (Kaur et al., 2021), indicating potential for further exploration. Thus, it is important to look into financial well-being, particularly among young generations such as university students, as Riitsalu et al. (2024) assert that there is a lack of knowledge about how financial well-being varies with age.

University students are in a critical transition stage, with unique financial situations and well-being compared to more mature individuals. Studying their financial well-being is crucial as they need to adjust to social norms of financial independence, especially post-university, and deal with social role changes. Examining university students' financial habits, financial knowledge, and financial attitudes can help predict their financial trajectories as they age, contributing to a comprehensive understanding of financial well-being and supporting young adults' financial development.

In the perspective of university students' financial well-being involves managing emergencies, having sufficient funds for necessities and future needs, reducing debt, and having adequate savings (Leach et al., 1999). Furthermore, the notion of a person's financial well-being has changed over time to include both material and immaterial components of their financial circumstances (Delafrooz & Paim, 2011). University students may therefore find it more difficult to maintain financial stability in contemporary consumer society and dynamic lifestyle, where both material and immaterial factors matter (Chikezie & Sabri, 2017). This is especially true if they do not yet have income and must rely on education loans or pocket money from sponsors.

Besides, with university student debt continuing to rise globally, there is an urgent need to investigate financial well-being among students (Blake, 2024; Osborne, 2024), particularly in developing nations like Malaysia. In Malaysia, recent data on debt among Malaysian's youth under thirty years of age highlights concerning trends, with a total debt amounting to approximately RM1.9 billion (Agensi Kaunseling Dan Pengurusan Kredit, 2024). Additionally, the second-largest portion of debt among young adults in Malaysia is education loans, according to Khazanah Research Institute (2024). The National Higher Education Fund Corporation (PTPTN) reports that 430,000 borrowers are currently in default on their education debt payments, with an estimated outstanding amount of RM6 billion, having never made repayments since graduation (Khairi, 2024). Once thought to increase graduates' earning potential, student debt is now a source of hardship.

A study by Sabri et al. (2019) reveals that many Malaysians encounter challenges related to income adequacy, financial status, and saving-to-income ratios, resulting in significant debt burdens. These debt issues have far-reaching effects on individuals' lives, economic stability, social equity, and overall financial health, making it essential to address them for social justice, sustainable development, and community well-being. This challenge is particularly pronounced among university students, who are still learning to manage their finances. Accumulating debt during their studies can have a severe impact on their financial well-being, highlighting the urgent need for targeted interventions. Hence, investigating university students' financial well-being is vital as they will soon dominate the economy, and improving their financial situations can create economically responsible, resilient, and knowledgeable individuals who contribute to sustainable economic growth and stability.

Numerous factors affecting university students' financial well-being have been the subject of previous studies including internal locus of control (Iramani & Lutfi, 2021; Rafien et al., 2022; Sabri et al., 2023b; Strömbäck et al., 2017), financial attitude (Renaldo et al., 2020), financial behavior (Chikezie & Sabri, 2017; Sabri & Falahati, 2013), and financial confidence (Respati et al., 2023). For this reason, this study is conducted. This current study therefore focuses on the interplay between those antecedents and financial well-being. This study also explores whether financial attitude, financial behavior, and financial confidence play mediating roles between internal locus of control and financial well-being.

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In terms of contribution, this study aims to enrich the literature on financial well-being among university students in Malaysia, an emerging country. The findings can provide valuable insights for policymakers, academic scholars, and practitioners in their collaborative efforts to develop appropriate curricula that equip university students with essential skills for responsible financial management, which may not be adequately addressed in current curricular.

## 2. Literature review

### *2.1 Social cognitive theory*

Social Cognitive Theory (SCT), founded by Bandura (1986), is a robust psychological framework that emphasizes the role of the interaction between personal beliefs, behavior through observational learning, and environmental factors in shaping how individuals learn, act, and retain behaviors within their social contexts. SCT posits that learning occurs in a dynamic social environment that encompasses both internal and external factors, where these elements interact constructively and fluidly to shape behaviors. Additionally, it provides a framework for enhancing well-being through emotional regulation, cognitive skills, and adjustments to living environments. Consequently, belief in one's abilities significantly influences various aspects of life, including goals, choices, perseverance, and thought patterns. The versatility of SCT makes it an invaluable tool across numerous domains, including consumer behavior.

In the context of studying financial well-being, Obenza et al. (2024) suggest that SCT highlights how cognitive processes within an individuals' mind shape their financial actions, behaviors, motivations, and outcomes. Accordingly, beliefs regarding one's capabilities, including attitudes, behaviors, and confidence, are essential for transforming financial actions into personal financial well-being. Thus, university students are particularly affected by the need to develop self-awareness and critical thinking skills in their financial management as they transition to independence upon entering higher education.

Building on this theory, the present study aims to explore how individual's cognitive and psychological factors influence financial outcomes by investigating the relationships among internal locus of control, financial attitudes, financial confidence, financial behaviors, and their collective impact on the financial well-being of university students. Numerous studies have examined the connections among these variables, highlighting that individuals with a strong internal locus of control, positive financial attitudes, proactive behaviors, and high financial confidence are more likely to engage in actions that enhance their overall financial health (Furrebøe et al., 2023; She et al., 2024; Surwanti et al., 2024). Therefore, exploring these behavioral and personal characteristics is essential for the objectives of this study. This holistic approach helps identify areas for intervention in financial education and personal finance management for university students, thus providing valuable insights into individual beliefs and behaviours.

### *2.2 Financial well-being*

The Consumer Financial Protection Bureau (2015) explains financial well-being as a sense of security and freedom in one's present and future financial situation, indicating that individuals feel their financial situation aligns with their values and allows them to enjoy life. Prendergast et al. (2021) describe a person who is financially well-off is able to handle both immediate and long-term demands, feel secure, enjoy life, and meet needs both now and in the future. To put it another way, achieving financial goals, managing finances, handling financial distresses, and making decisions that allow for enjoyment of life are all included in financial well-being, which in turn improves overall well-being. That is to say that a person's contentment, happiness, and mental tranquility are all impacted by their financial situation (Omar et al., 2024). Therefore, teaching young adults the importance of financial well-being is essential, especially for university students, as it will prepare them to manage money before they take on greater financial responsibility.

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Although, scholars contend that there are several facets to financial well-being, however, based on prior research and the necessity of the study, this study identifies and examines internal locus of control, financial attitude, financial behavior, and financial confidence that affect Malaysian university students' financial well-being.

### *2.3 Internal locus of control*

The concept of locus of control is defined by Rotter (1966) and Britt et al. (2013) as a belief that one has control over the events and outcomes in their surroundings. Locus of control can be categorized into internal and external dimensions, with internal locus of control individuals demonstrating self-control through tenacity and perseverance, and those with an external locus of control believing external factors like luck, chance, fate, opportunity, and destiny influence their lives (Jorgensen et al., 2017; Rotter, 1966). Internal locus of control has been studied in various contexts and among diverse subjects, demonstrating its influence on certain behaviors. For instance, a study by Othman et al. (2015) revealed that students with a high internal locus of control have a stronger entrepreneurial spirit, despite lower involvement in entrepreneurial activities, emphasizing the essential of internal locus of control in influencing behavior and motivation. The current study emphasizes the significance of understanding university students' financial well-being through their internal locus of control, as it reveals that those with an internal locus of control manage their finances better than those with external locus of control (Arifin, 2017).

The internal locus of control significantly influences financial attitudes, financial behavior, and financial confidence. Individuals who perceive control over their financial outcomes are more likely to take responsibility for their financial decisions, maintain a positive outlook on financial management (Radianto et al., 2021). Apart from that they also exhibit responsible financial behavior, including budgeting, saving, and investing, and are more likely to engage in financial planning and avoid risky behaviors, believing their actions significantly impact their financial success (Mutlu & Özer, 2022). In addition, high internal locus of control individuals often has greater financial confidence, as they believe in their ability to manage finances effectively, leading to higher self-efficacy in financial decision-making (Chandra & Pamungkas, 2023; Kusumawati et al., 2024). Also, those with high internal locus of control motivates individuals to improve their financial well-being, aiming for a future free from external influences (Iramani & Lutfi, 2021). This self-control increases motivation, responsibility, and reduces financial worry, resulting in increased financial well-being (Strömbäck et al., 2017).

As a whole, those who believe they can control their financial outcomes are more likely to adopt positive financial attitudes, engage in responsible financial behaviors, feel confident in their financial decisions, and consequently achieve higher financial well-being. In light of the aforementioned reasoning, the following hypotheses are put forth:

*H1: Internal locus of control significantly influences financial attitude.*
*H2: Internal locus of control significantly influences financial behavior.*
*H3: Internal locus of control significantly influences financial confidence.*

### *2.4 Financial attitude*

Attitude is an individual's perception of a positive situation, their opinion, and their assessment of their experiences (Pankow, 2003). Financial attitude then refers to a person's attitude toward money, which includes emergency savings, long-term financial planning, and future savings (Amagir et al., 2020). Shim et al. (2009) assert that financial attitudes significantly impact financial well-being, as they influence a person's ability to manage their finances. A positive attitude towards finance leads to punctual bill payments, personal budgeting, and future savings, thus promoting financial well-being in students.

 

Previous studies have demonstrated that a person's financial attitude has a significant bearing on their financial well-being. According to Utkarsh et al. (2020), having a positive outlook on money and practicing financial prudence, tracking expenses, and saving are all important indicators of financial well-being. The relationship between financial well-being and financial attitude was also verified by Chikezie and Sabri (2017). These literature leads to the following hypothesis:

*H4: Financial attitude significantly influences financial well-being.*

### *2.5 Financial behavior*

Xiao (2008) identifies financial behavior as any human behavior and activities pertaining to money management, including cash, credit, and saving behaviors. While Tezel (2015) defines financial behavior as understanding the impact of financial decisions on one's circumstances, making informed decisions about cash management, budget planning, and considering potential risks and opportunities. In view of this, financial behavior refers to managing one's finances includes organizing, allocating, and regulating financial resources in order to meet one's financial objectives (Owusu et al., 2022).

Past studies documented that financial behavior is a crucial aspect of financial well-being, as it directly influences one's financial health and stability. Xiao et al. (2009) study on college students revealed that positive financial behaviors such as budgeting, saving, avoiding risky decisions, controlling expenses, and avoiding compulsive buying lead to high financial well-being. A recent study by Acharya and Poudel (2023) supported the idea that healthy and positive financial behavior significantly impacts the financial well-being of young adults. This study consequently hypothesizes that:

*H5: Financial behavior significantly influences financial well-being.*

### *2.6 Financial confidence*

Financial confidence is the certainty needed to make prudent and sound financial decisions (Palameta et al., 2016). Lown and Ju (2016) also assert that financial confidence is closely linked to one's belief of one's capacity and control over money, making it an essential component of financial well-being. Accordingly, confidence in financial matters leads to better financial habits and overall financial health (Ghazali et al., 2022), while lack of confidence can make it difficult to make ends meet (Younas et al., 2019). Financial confidence, to put it simply, is the faith that one's can rely on oneself to manage finances effectively, make wise decisions, and achieve financial objectives, which influences their financial and overall well-being.

Prior research studies have established the noteworthy impact of financial confidence and financial well-being. Financial confidence is linked to financial well-being, as demonstrated by Kempson et al. (2017). The notion was corroborated by Respati et al.'s (2023) study, which showed that students' financial well-being is greatly impacted by their financial confidence because they feel that their financial situation can change by practicing sound money management. Drawing from existing literature, the present study posits the following hypothesis:

*H6: Financial confidence significantly influences financial well-being.*

### *2.7 Mediating variables*

Research indicates that high internal locus of control is linked to positive financial attitudes (Radianto et al., 2021), responsible financial behavior (Mutlu & Özer, 2022), increased financial confidence (Chandra & Pamungkas, 2023; Kusumawati et al., 2024), and improved financial well-being (Iramani & Lutfi, 2021; Strömbäck et al., 2017). A number of studies have previously examined and established the role of financial attitude and financial behavior as mediators. Indana and Pambekti (2022) found that financial attitude effectively acts as a mediator between an individual's internal locus of control and their financial behavior.

 

Sabri et al. (2023a) and Sabri et al. (2023b) revealed that financial behavior mediates the relationship between internal locus of control and financial well-being. However, the mediating effects of financial attitude and financial confidence on internal locus of control and financial well-being remain uncertain and studies are limited.

Accordingly, this study aims to close the gap by investigating the mediation impact of financial attitude and financial confidence on internal locus of control and financial well-being, among university students, in addition to confirming the mediation impact of financial behavior between internal locus of control and financial well-being. Thus, this study hypothesizes the following:

*H7: Financial attitude mediates the relationship between internal locus of control and financial well-being.*

*H8: Financial behavior mediates the relationship between internal locus of control and financial well-being.*

*H9: Financial confidence mediates the relationship between internal locus of control and financial well-being.*

### *2.8 Research framework*

The study's conceptual framework and hypotheses, derived from the aforementioned literature, are depicted in Figure 1.

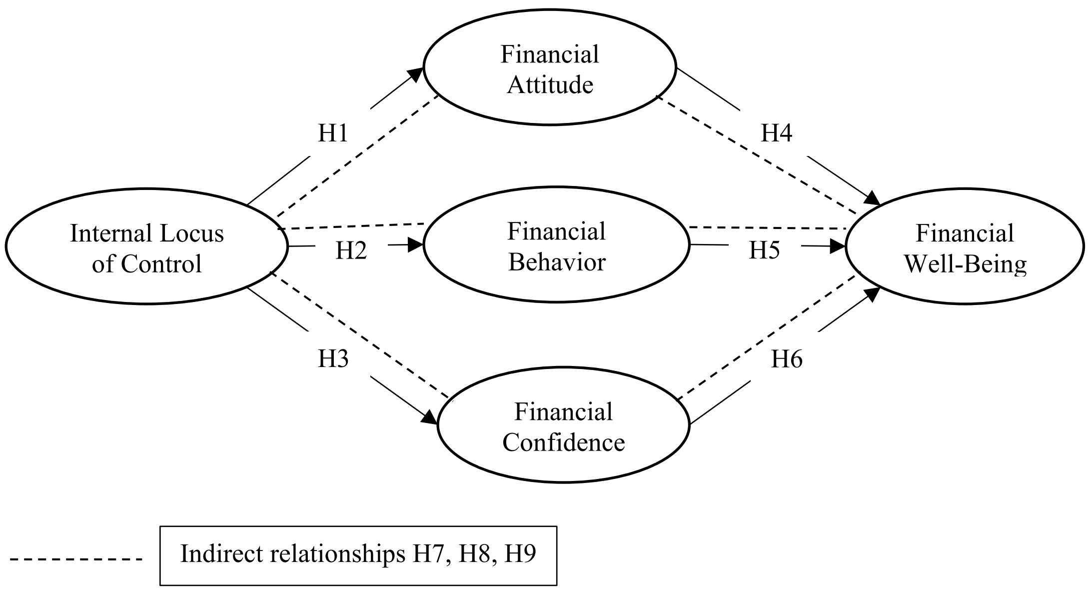


Fig. 1. Conceptual framework

## 3. Methodology

### *3.1 Measures*

The measurement items were adapted and adopted from previous studies. Internal locus of control and financial attitude were sourced from Loo et al. (2023), while financial behavior, financial confidence, and financial well-being were derived from Respati et al. (2023). Four items measuring internal locus of control included questions related to the ability to find solutions to personal financial issues, gain control over one's financial situation, feel secure in managing financial matters, and improve one's financial circumstances. Additionally, four items assessing financial attitude focused on knowledge of finances, as well as saving and spending habits. Six items measuring financial behavior centered on questions regarding spending habits, savings practices, and future financial planning. Three items evaluating financial confidence included questions about assurance in managing finances in the present to foster good financial health in the future. Finally, three items measuring financial well-being addressed overall satisfaction with savings, the current financial situation, and perceived financial adequacy. All items were assessed using a five-point Likert scale, with 1 indicating strongly disagree and 5 indicating strongly agree. The statements for each item are presented in Table A1 in the Appendix.

### *3.2 Data collection procedure*

This study utilizes a cross-sectional data collection methodology. The unit of analysis for this study was university students furthering tertiary education at both public and private universities in Malaysia. The respondents were chosen through convenience sampling for its convenience and large population size, allowing for a comprehensive examination. Participants in the survey were required to be Malaysian citizens currently enrolled in higher education. These criteria were included as filter questions, which respondents had to confirm by ticking the appropriate boxes to ensure their eligibility before proceeding with the survey. In addition, there was no preference for their states of residence. A total of 299 valid responses were obtained.

The questionnaire's validity and reliability were ensured through pre-test and pilot test prior to main data collection. Academic experts reviewed the questionnaires during a pre-test phase, and adjustments were made in response to the findings; however, no significant modifications were made to the questionnaire. The pilot test utilized thirty samples to evaluate the questionnaire's reliability using Cronbach's alpha. The validity of the questionnaire is established since all constructs achieved the threshold of 0.70 (Nunnally, 1978). Following that, the main data collection was carried out.

The main questionnaire survey was distributed online via web-based surveys on various social media platforms, principally WhatsApp and LinkedIn, using Google forms. The survey consists of two sections: Section A asks questions about demographics, and Section B gauges the level of agreement or disagreement related internal locus of control, financial attitude, financial behavior, financial confidence, and financial well-being. The data was analyzed using partial least square – structural equation modelling (PLS-SEM) via SmartPLS 4.0 to test the hypotheses generated in this study. Given that PLS-SEM regression analysis was performed, Hair et al. (2014) and Cohen (1988) determine that 299 respondents is a suitable sample size.

## 4. Results

### *4.1 Respondents' profile*

Table 1 displays the demographic profile of the respondents. Female represented 55.9% and male was 44.1%. In terms of ethnicity, Malays made up the largest percentage of respondents (71.2%), followed by Chinese (17.1%) and Indians (11.7%). Age wise, an overwhelming 87.3% of respondents fell within the 19 to 25 age range. Additionally, a notable 87.6% are currently pursuing their studies at public universities. Finally, regarding the level of study, 80.6% of participants are presently working toward a bachelor's degree.

Table 1. Respondents' Profile

| **Description** | | **Frequency** | **Percentage** |
|---|---|---|---|
| Gender | Male | 132 | 44.1 |
| | Female | 167 | 55.9 |
| Age | 18 and below | 8 | 2.7 |
| | 19 – 25 | 261 | 87.3 |
| | 26 – 30 | 26 | 8.7 |
| | 31 and above | 4 | 1.3 |
| Ethnic | Malay | 213 | 71.2 |
| | Chinese | 51 | 17.1 |
| | Indian | 35 | 11.7 |
| University | Public | 262 | 87.6 |
| | Private | 37 | 12.4 |
| Level of Study | Pre-University | 6 | 2.0 |
| | Diploma | 45 | 15.1 |
| | Bachelor's degree | 241 | 80.6 |
| | Master/PhD | 7 | 2.3 |

### *4.2 Assessment of the measurement model*

The model's reliability and validity were evaluated first using factor loadings, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) (Hair et al., 2011). Every indicator, ranging from 0.813 to 0.9263, showed loadings greater than 0.70 (Hair et al., 2011), with Cronbach's alpha values above 0.70 (Nunnally, 1978). The CR for all constructs, ranging from 0.924 to 0.949, exceeded the recommended value of 0.70 (Hair et al., 2011), and the AVE for all constructs is above 0.50, ranging from 0.751 to 0.823 (Hair et al., 2011). The results in Table 2 show that all constructs passed the recommended reliability and validity threshold.

Next, the model's discriminant validity, which is the absence of correlation between two or more distinct concepts (Bougie & Sekaran, 2016), is assessed using the Fornell-Larcker criterion (Fornell & Larcker, 1981) and cross loading (Hair et al., 2014). The Fornell-Larcker criteria requires that the square root of the AVE should exceed the highest correlation between underlying constructs. Table 3 demonstrates the model's discriminant validity, surpassing correlation values, indicating its discriminant validity, meeting all requirements for measurement models.

 

Table 2. Measurement model assessment results

| Constructs | Items | Outer Loading | Cronbach's Alpha | CR | AVE |
|---|---|---|---|---|---|
| Financial attitude | | | 0.928 | 0.949 | 0.823 |
| | FA1 | 0.906 | | | |
| | FA2 | 0.904 | | | |
| | FA3 | 0.913 | | | |
| | FA4 | 0.907 | | | |
| Financial confidence | | | 0.883 | 0.927 | 0.810 |
| | FC1 | 0.896 | | | |
| | FC2 | 0.903 | | | |
| | FC3 | 0.901 | | | |
| Internal locus of control | | | 0.923 | 0.946 | 0.814 |
| | ILOC1 | 0.869 | | | |
| | ILOC2 | 0.904 | | | |
| | ILOC3 | 0.908 | | | |
| | ILOC4 | 0.926 | | | |
| Financial behavior | | | 0.933 | 0.948 | 0.751 |
| | FB1 | 0.841 | | | |
| | FB2 | 0.877 | | | |
| | FB3 | 0.880 | | | |
| | FB4 | 0.813 | | | |
| | FB5 | 0.910 | | | |
| | FB6 | 0.874 | | | |
| Financial well-being | | | 0.876 | 0.924 | 0.801 |
| | FWB1 | 0.873 | | | |
| | FWB2 | 0.918 | | | |
| | FWB3 | 0.894 | | | |

Table 3. Discriminant validity: Fornell-Larcker

| Construct | FA | FB | FC | FWB | ILOC |
|---|---|---|---|---|---|
| FA | *0.907* | | | | |
| FB | 0.866 | *0.867* | | | |
| FC | 0.726 | 0.755 | *0.900* | | |
| FWB | 0.644 | 0.711 | 0.732 | *0.895* | |
| ILOC | 0.801 | 0.832 | 0.792 | 0.732 | *0.902* |

Note: Values on the diagonal (italic) represent the square root of the AVE while the off diagonals are correlations.

To ensure discriminant validity in cross loading assessment, each indicator's loadings on its construct must exceed the cross-loadings of the indicators. Table 4 shows that the discriminant validity requirement was met with construct cross loadings greater than indicators cross-loadings. Overall, this discriminant validity of the model was supported by the Fornell-Larcker criterion and cross loadings assessments.

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### *4.3 Assessment of the structural model*

Following the model's successful assessment of the measurement test, the structural model is evaluated involving examining the relationships between the constructs and the model's predictive power. The evaluation is based on the path coefficient's significance, coefficient of determination ($R^2$), and effect size ($f^2$) values (Hair et al., 2014). The study used bootstrapping analysis to compute path estimates in the structural model, ensuring a larger bootstrap sample size than the total number of valid observations (Hair et al., 2010). With 5000 subsamples, the study generated path coefficients and t-values, demonstrating the statistical significance of these coefficients. Table 5 displays the direct and indirect relationships between independent variables, dependent variables, mediating variables, and establishing the statistical significance of path coefficients.

Table 4. Discriminant validity: Fornell-Larcker

| Construct | FA | FB | FC | FWB | ILOC |
|---|---|---|---|---|---|
| FA1 | **0.906** | 0.793 | 0.653 | 0.615 | 0.713 |
| FA2 | **0.904** | 0.774 | 0.645 | 0.543 | 0.699 |
| FA3 | **0.913** | 0.791 | 0.672 | 0.592 | 0.743 |
| FA4 | **0.907** | 0.785 | 0.665 | 0.586 | 0.753 |
| FB1 | 0.676 | **0.841** | 0.678 | 0.684 | 0.657 |
| FB2 | 0.774 | **0.877** | 0.590 | 0.563 | 0.734 |
| FB3 | 0.807 | **0.880** | 0.641 | 0.555 | 0.759 |
| FB4 | 0.662 | **0.813** | 0.685 | 0.670 | 0.655 |
| FB5 | 0.830 | **0.910** | 0.676 | 0.625 | 0.777 |
| FB6 | 0.750 | **0.874** | 0.651 | 0.599 | 0.74 |
| FC1 | 0.606 | 0.622 | **0.896** | 0.699 | 0.679 |
| FC2 | 0.618 | 0.656 | **0.903** | 0.640 | 0.711 |
| FC3 | 0.735 | 0.759 | **0.901** | 0.638 | 0.749 |
| FWB1 | 0.519 | 0.576 | 0.601 | **0.873** | 0.598 |
| FWB2 | 0.569 | 0.643 | 0.663 | **0.918** | 0.671 |
| FWB3 | 0.634 | 0.684 | 0.696 | **0.894** | 0.690 |
| ILOC1 | 0.667 | 0.687 | 0.723 | 0.642 | **0.869** |
| ILOC2 | 0.775 | 0.777 | 0.699 | 0.617 | **0.904** |
| ILOC3 | 0.713 | 0.752 | 0.719 | 0.715 | **0.908** |
| ILOC4 | 0.733 | 0.783 | 0.720 | 0.669 | **0.926** |

Note: Bold values indicate construct loadings above the recommended 0.70 value, with an item's loadings on its own variable being higher than all cross-loadings with other variables.

The analysis found that eight out of nine hypotheses were supported, with five direct relationships showing a significant positive relationship and two indirect relationships showing a significant positive relationship. In summary, the significant relationships are H1 (β=0.801, t=26.753, p=0.00), H2 (β=0.832, t=32.525, p=0.00), H3 (β=0.792, t=23.300, p=0.00), H5 (β=0.383, t=4.912, p=0.00), and H6 (β=0.458, t=7.764, p=0.00), H7 (β=0.363, t=7.253, p=0.00), and H8 (β=0.318, t=4.675, p=0.00).

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Table 5. Results of hypothesis tests

| Effect | | Hypothesis and Path | Coefficient | Std. Error | t-value | p-value | $f^2$ | Decision |
|---|---|---|---|---|---|---|---|---|
| Direct | H1 | ILOC → FA | 0.801 | 0.030 | 26.753 | 0.000 | 1.794 | Supported |
| | H2 | ILOC→ FB | 0.832 | 0.026 | 32.525 | 0.000 | 2.250 | Supported |
| | H3 | ILOC → FC | 0.792 | 0.034 | 23.300 | 0.000 | 1.688 | Supported |
| | H4 | FA → FWB | -0.020 | 0.074 | 0.267 | 0.395 | 0.000 | Not Supported |
| | H5 | FB → FWB | 0.383 | 0.078 | 4.912 | 0.000 | 0.078 | Supported |
| | H6 | FC → FWB | 0.458 | 0.059 | 7.764 | 0.000 | 0.212 | Supported |
| Indirect | H7 | ILOC → FC → FWB | 0.363 | 0.050 | 7.253 | 0.000 | | Supported |
| | H8 | ILOC → FB → FWB | 0.318 | 0.068 | 4.675 | 0.000 | | Supported |
| | H9 | ILOC → FA → FWB | -0.016 | 0.060 | 0.266 | 0.395 | | Not Supported |

Finally, the model's predictive accuracy and practical significance are evaluated using the $R^2$ and $f^2$ values (Hair et al., 2014). The $R^2$ value, ranging from 0 to 1, measures a model's predictive accuracy, indicating the variance explained by endogenous constructs. Higher values indicate better accuracy, with values of 0.75, 0.50, and 0.25 are considered substantial, moderate, and weak, respectively (Henseler et al., 2015). The $R^2$ values of financial attitude (0.642), financial behavior (0.692), financial confidence (0.628), and financial well-being (0.595) were all considered moderate, as shown in Figure 2. This indicates that locus of control can account for 64.2% of the variation in financial attitude, 69.2% of the variation in financial behavior, and 62.8% of the variation in financial confidence. Also 59.5% of the difference in financial well-being can be explained by locus of control, financial attitude, financial behavior, and financial confidence. Considering all $R^2$ values are greater than 0.1, they are all considered acceptable (Falk & Miller, 1992).

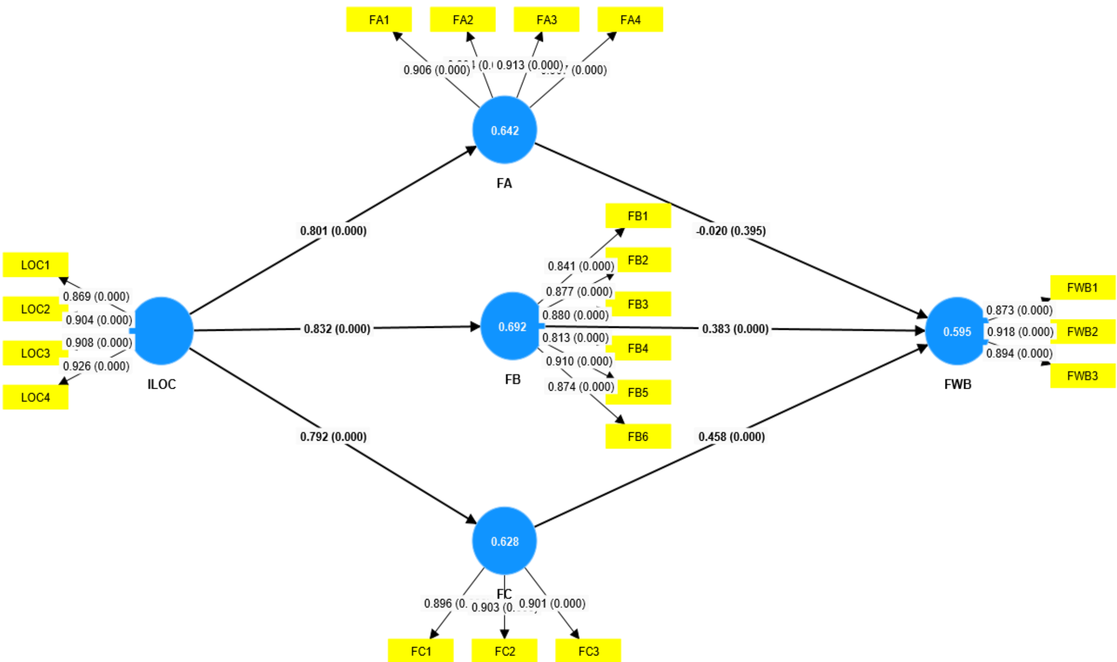


Fig. 2. Structural model

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Henseler et al. (2009) suggest Cohen's (1988) $f^2$ value as a tool for evaluating how a predictor construct affects an endogenous construct, allowing the contribution of an exogenous construct to the $R^2$ value of an endogenous latent variable to be assessed. Cohen (1988) describes that small, medium, and large effects are indicated by $f^2$ values of 0.02, 0.15, and 0.35, respectively. The $f^2$ range in this study as shown in Table 5, which is 0.000 to 2.250, denotes small to large effects. In consideration of this, it can be said that every relationship affects the $R^2$ for financial well-being, albeit in varying degrees.

## 5. Discussion and conclusion

The study investigates the link between financial well-being among Malaysian university students, examining the influence of internal locus of control, financial attitude, financial behavior, financial confidence, and the mediating roles of these factors, thereby enhancing their overall financial well-being. Eight out of nine hypotheses formulated were confirmed with five direct relationships and two indirect relationships showing significant positive relationships. Two hypotheses, however, were not supported in both direct and indirect relationships.

The results of this study revealed that internal locus of control positively impacts financial attitude, financial behavior, financial confidence, and financial well-being, suggesting that fostering this trait can improve university students' overall financial management. Specifically, university students with a high internal locus of control believe they have significant influence over their financial outcomes. The findings from this study align with and reinforce the conclusions of Radianto et al. (2021) findings that suggest an internal locus of control positively influences financial attitude. University students who believe they can influence their financial situations are more likely to adopt an anticipatory approach to managing their finances, leading to increased optimism, motivation to follow sound financial practices, and a more resilient approach to financial challenges.

Alongside this, this study found that university students with high internal locus of control also drives proactive financial behaviors, such as diligent budgeting, saving, expense management, engage in financial planning, and avoiding risky behaviors. The proactive approach is driven by the belief that university students can significantly impact their financial outcomes through their actions and behaviors. The findings of this study strengthen and expand upon the earlier research conducted by Mutlu and Özer (2022).

In addition to that, the study confirmed that financial confidence is influenced by an individual's internal locus of control, which increases their assurance in their actions and decisions, leading to better financial outcomes. This finding corroborates studies by Chandra and Pamungkas (2023) and Kusumawati et al. (2024). University students who perceive their financial decisions and actions as directly influencing their financial results develop a stronger sense of self-efficacy in managing their finances, enhancing assurance in financial decision-making, trusting their judgment, taking initiative, and making informed financial decisions.

Besides that, the study substantiated that financial well-being is influenced by an individual's internal locus of control, bolstering previous research by Strömbäck et al. (2017). University students with a high internal locus of control learn from financial experiences and apply these lessons to improve their financial management practices, resulting in less stress and higher satisfaction. Their strong self-efficacy in financial decision-making enhances their belief in making informed decisions and navigating financial obstacles and setbacks.

Further, the study revealed that financial behavior and financial confidence significantly impact the financial well-being of university students, which resonates with previous studies (Acharya & Poudel, 2023; Kempson et al., 2017; Lown & Ju, 2016; Respati et al., 2023). Financial well-being is achieved through sound financial practices like saving and budgeting, and financial confidence, which enhances resilience, decision-making, and satisfaction with money management. University students who demonstrate prudent financial behavior and possess strong financial confidence are better equipped to achieve financial well-being, as effective financial management practices and confidence lead to greater stability, resilience, and satisfaction.

Paradoxically, the study's findings indicate that financial attitude does not significantly impact financial well-being, nor does it moderate the relationship between internal locus of control and financial well-being. While a positive financial attitude is important, it may not be sufficient to directly influence financial well-being without accompanying practical financial behaviors and support systems. Therefore, university students need to have the necessary financial knowledge and skills to effectively manage their finances, going beyond just a positive attitude. Future research on financial attitude could be crucial, as it could potentially reveal how and when financial attitude contributes to financial well-being, if it does at all.

### *5.1 Theoretical contributions*

Theoretically, this study enhances the SCT model by incorporating variables that highlight the mediating roles of financial behavior and financial confidence in the relationship between internal locus of control and financial well-being. It suggests that an internal locus of control positively influences financial outcomes through improved behavior and increased confidence, enhancing the understanding of how personal attributes and financial practices affect financial well-being among university students. Nonetheless, the lack of significant influence and mediation suggests a need to revisit and refine theoretical models linking internal locus of control, financial attitude, and financial well-being. Models may need to incorporate additional factors, such as financial literacy or specific financial behaviors, to fully explain the relationships.

### *5.2 Practical contributions*

The practical implications of this study include educators, policymakers, and financial institutions. It highlights the need for higher learning institutions specifically, to integrate comprehensive financial literacy programs into the core curriculum. The programs should go beyond imparting knowledge and emphasize on improving financial confidence and reassuring sound financial behavior. The content of the program should educate and empower students to take control of their finances, make informed decisions, and develop habits that lead to long-term financial well-being. On the other hand, the policymakers should provide valuable insights for designing initiatives aimed at reducing the financial burden on young adults. Efforts to strengthen financial literacy among university students should prioritize building confidence and fostering behavior change, rather than solely focusing on changing attitudes. This approach motivates and assists young adults plan and manage their finances effectively which may reflect to overcome the issue of rising debt levels. Meanwhile, in supporting young adults' financial health, banking institutions and other financial institutions can play a proactive role in focusing to improve financial behavior and confidence. They can also benefit from these findings via educational proposals target to young adults by offering financial tools and resources that help students monitor their spending and build confidence in financial decision-making. As a result, this could reflect to their lifelong and overall well-being.

### *5.3 Limitations and future research directions*

Despite its contributions, several limitations of this study that should be acknowledged. Perhaps the sample may not fully represent the broader population of Malaysian university students, as it only includes a specific group of students who were willing to participate in the study. This may introduce bias and limit the extent to which the results can be applied to all young adults in Malaysia. Other potential factors, for instance, socio-economic background, peer influence, or exposure to financial education, could be consider as variables that could provide more comprehensive understanding of the predictors of financial well-being. Expanding the scope of the research also would provide a more comprehensive view of the financial challenges faced by young adults across different regions and socio-economic backgrounds in Malaysia.

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Finally, future research could focus on intervention studies, testing the effectiveness of various financial education programs aimed at further enhancing financial behavior and confidence. By examining how specific programs influence financial outcomes, researchers can provide evidence-based recommendations for educational institutions and policymakers.

### *5.4 Conclusion*

The study investigates the financial well-being among 299 Malaysian university students, utilizing PLS-SEM analysis. The findings of this study emphasize the significance of internal locus of control and its impact on financial attitude, financial behavior, and financial confidence, which collectively contribute to financial well-being. The mediating roles of financial behavior and financial confidence indicate that interventions aimed at enhancing financial well-being should focus on these factors to maximize the benefits of a strong internal locus of control. This research is particularly relevant given the urgent need for effective financial education among university students in Malaysia, where financial literacy remains a critical challenge.

In summary, the findings suggest that the pathway to financial well-being is more complex than previously understood. While a positive financial attitude is crucial, it does not directly lead to improved financial outcomes without being supported by proactive financial behaviors and a robust sense of financial confidence. Although further research is needed, this study offers a valuable foundation for addressing the financial challenges faced by university students in Malaysia and informs future efforts in this area.

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## Conflict of interest statement

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare the absence of conflicting interests with the funders.

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## Authors' contribution statement

Wan Rasyidah Wan Nawang designed the research, conceptualized the central research idea, provided the theoretical framework, revised, and approved the article submission. Umie Maisarah Kamarudin, Intan Fatimah Anwar, and Nor Haziah Hashim distributed a survey questionnaire, collected the data, and analyzed the data.

 

## Appendix

Table A1. Statements for each of the items

| Constructs | Items | Statements |
|---|---|---|
| Financial Attitude | FA1 | I try to get more knowledgeable about finances. |
| | FA2 | I believe it is critical to set aside money for the things I desire. |
| | FA3 | I plan to reduce my spending to save money. |
| | FA4 | My spending on non-essentials is altered in response to changes in my financial situation. |
| Financial Confidence | FC1 | I feel very confident about my financial situation in the future. |
| | FC2 | I think I will lead a wealthy life in the future. |
| | FC3 | I believe that by living in the present, I can positively influence my future. |
| Internal Locus of Control | ILOC1 | I can find solutions to personal issues. |
| | ILOC2 | If I am determined, I can get my financial situation under control. |
| | ILOC3 | I feel secure in my ability to handle my financial issues. |
| | ILOC4 | I am able to improve my financial circumstances. |
| Financial Behavior | FB1 | When I have money, I will save it no matter what. |
| | FB2 | When shopping, I do price comparisons. |
| | FB3 | Having a financial plan for the next 1-2 years will improve my spending in the future. |
| | FB4 | I have a financial plan for the next 1-2 months. |
| | FB5 | Saving money for the future is something I think about. |
| | FB6 | When I go shopping, I wait to buy items on sale. |
| Financial Well-Being | FWB1 | I have sufficient savings. |
| | FWB2 | My current financial life is going well. |
| | FWB3 | I have good ability in managing my finances. |