



Impact of financial behaviour on financial well-being: evidence among young adults in Malaysia

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Abstract

The high cost of living and prolonged lockdowns due to the COVID-19 pandemic made the financial well-being of individuals vulnerable, especially young adults. This paper examines the impact of financial behaviour on financial well-being (FWB) among young Malaysians during the COVID-19 pandemic. The study collected variable data on financial literacy, financial behaviour, financial socialisation, self-control, financial technology and FWB. To collect a representative sample of Malaysian young adults, a multi-stage random sampling method was used, and 360 young adults aged 18–29 years old completed the questionnaires. Structural equation modelling was adopted to investigate the factors influencing young adults' FWB. The empirical findings revealed a significant mediating effect of financial behaviour in the relationships between financial literacy, financial socialisation, self-control, financial technology, and FWB. The research concluded that the mediation analysis yields a clear and firm conclusion that financial behaviour is important in empowering young adults' FWB. Thus, the present study adds value to the existing literature on the relationship between financial behaviour and FWB. Furthermore, the paper's findings will assist government agencies and non-governmental organisations in developing outreach programmes for young adults per the strategies outlined in the Twelfth Malaysia Plan and the aspirations pledged in the Malaysian Youth Policy 2015–2035.

Keywords Financial well-being · Financial behaviour · Financial literacy · Financial socialisation

Introduction

Recently, the financial well-being of Malaysian young adults has been affected due to the COVID-19 pandemic, where their savings and income opportunities have declined. As a result, underemployment has become common among young people not only in Malaysia, but also around the globe. Ideally, individuals in Malaysia are expected to have a job by the time they reach the age of 24. This study focuses on young adults aged between 18–29 years old because the

benchmark of “young adults” is based on this classification. The Malaysian Department of Statistics (2019) revealed that young adults constitute a reasonable proportion of the country's 32.6 million population. From the official estimates, youths in Malaysia constitute 45.8% of the total population (Department of Statistics Malaysia 2020), a clear indication that the financial well-being of young adults is still ambiguous, and if correctly addressed, will have a significant impact on the country's economic outlook in the years ahead.

Young adults' financial well-being has been significantly impacted and they have encountered a number of problems after the COVID-19 pandemic in Malaysia, including job loss, housing and rental issues, and credit card debt. First, young adults are one of the most rapidly declining groups in terms of income. Due to the pandemic, some young adults have lost their jobs or had their working hours curtailed. Thus, it has been challenging to pay for bills, rent, and other living expenditures. Second, young adults also face an even greater financial strain as they attempt to pay off their student loan debt, which is already a major financial burden

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for many. Third, many young individuals are finding it difficult to meet their monthly payments due to job loss and decreased income. Fourth, many young adults are finding it difficult to make ends meet or afford housing. Finding affordable accommodation has proven to be a challenge for young adults due to the high cost of housing. Fifth, many young individuals have turned to credit cards to pay their bills and make ends meet as a result of the economic downturn. Credit card debt has increased as a result, which can be challenging to pay off. In addition, the young adults' retirement funds have also been affected where the government allowed the contributors to withdraw their savings to pay for living expenses. The economic recession due to the pandemic has had a significant impact on young adults' finances, and it may take time for them to recover from these financial issues. Therefore, recent developments have led to a renewed interest in the financial well-being of young adults of Malaysia, whereby much of the research up to now has been descriptive in nature.

According to Kumar et al. (2022) and Vargas and Sanchez (2020), the COVID-19 crisis has made many young adults psychologically and financially vulnerable, and their financial well-being is worse, particularly for low-income young adults. Malaysia is not an exceptional case, where the gross domestic product (GDP) growth for the year 2021 has been revised downward to 4.0% from an earlier anticipation of 6.5–7.0%, which is bound to affect young adults' contributions to the GDP on a macro basis. Based on the historical data, this GDP growth is the lowest growth rate since the 1997–1998 Asian Financial Crisis that shackled the global financial markets. Correspondingly, the Malaysian economy posted its second-worst GDP growth in 2020 at –5.58% (World Bank 2021). Before this, Malaysia's real GDP growth was at an average rate of 6.1% per year from 1970 to 2018. In terms of debt, Malaysian households aggregated debt was 93.3% of the GDP as of December 2020 (Bank Negara Malaysia or the Central Bank of Malaysia 2021), which increased from the previous years.

Young adults start their careers and often depend on debt to fuel their consumption, particularly vehicle and home purchases. Therefore, they should learn to differentiate between needs and wants, prioritise their consumption within their budget, and save money not only for the transaction but also for precautionary purposes. Undeniably, young adults have been among the hardest hit by the economic consequences of the pandemic, such as youth employment dropping and the rising cost of living. Therefore, youths need to find new opportunities and keep pace with the current economic condition, which has a variety of sophisticated financial products. In addition, having good money management abilities, financial decisions and money management are crucial in order to deal with various financial difficulties and financial responsibilities.

This study examines the determinants of the financial well-being of young adults, considering financial behaviour as a mediator. The multi-disciplinary nature of well-being is often explored from many dimensions. According to Ryff and Keyes (1995), the absence of theory-based formulations of well-being is perplexing. In determining an individual's financial standing, subjective and objective indicators of financial well-being are used. A young adult's financial situation and subjective well-being are determined by three interconnected factors: life satisfaction, pleasant affect, and unpleasant affect (Diener 2009). Young adults with similar earning capabilities will differ in their assessment of their financial standings and other aspects of life, such as their health or relationship with a significant other, thus indicating their well-being differently. Van Praag et al. (2003) highlighted that financial well-being is one of the six major contributors to well-being. Brügggen et al. (2017) pointed out that in the analysis of well-being, researchers should go further than just relying on the financial standings of an individual, with most studies on the multidimensional concept of well-being focusing on financial well-being as this is the most important component of well-being.

The observed well-being values for Malaysia based on Malaysia's level of GDP per capita or income per capita from a cross-country dataset of 150 countries indicated that Malaysia is ranked in the middle (OECD 2021). However, the poverty rate is slightly below average compared to other countries. Gross national income (GNI) per capita, household income, and the Gini coefficient are clear indications of Malaysia's progress in terms of financial well-being (Ann 2020).

A young adult is considered to have good financial well-being when they can meet their current financial commitments and have sufficient buffers for the longer term. Individuals who can absorb a financial shock are also financially well-off. These people can deal with emergencies and unexpected life challenges. Those who are on track to meet their financial objectives benefit from a formal or informal financial plan. Consumer Financial Protection Bureau (CFPB) further demonstrated that the factors that influence financial well-being are social and economic environment, which interact with a person's personality and attitude, decision context, knowledge and skills, financial behaviours, and available opportunities to achieve personal financial well-being.

It is documented that to achieve financial well-being, an individual's personality and attitude (how they tend to think, feel, and act) play a key role (CFPB 2015a). It was reckoned that knowledge alone does not automatically equate to behaviour. Hence, determinants of a young adult's financial well-being include personality traits. As discussed in the following sub-sections below, financial literacy, financial socialisation, self-control, financial technology, and



financial well-being were thought to be mediated by financial behaviour.

Theoretical framework

This study identifies the mediating role of financial behaviour on the financial well-being of young adults. The conceptual framework is built using the four most commonly used theories. The research framework was founded on the Systems Theory, the Unified Theory of Acceptance and Use of Technology (UTAUT), the Social Learning Theory, and Self-Control Theory in explaining young adults' financial well-being. Deacon and Firebaugh (1988), using the underpinnings of systems theory, highlighted the link between factors (financial literacy, financial socialisation, self-control, and financial technology) and young adults' financial well-being.

To get an even better understanding of the underlying relationships of financial technology and its relationship to financial behaviour, the UTAUT theory is adopted, which is considered one of the unique contributions to literature. The researchers attempt to identify financial technology as the key driver of financial well-being among young adults. The theory of Social Learning is part of the model as the financial socialisation variable can best be explained through it. Owing to that explanation, this theory will explain the use of parental influence on a young adult's financial well-being based on what was learned as a child in their own families. As for the theory of self-control, the implications for young adults' financial well-being with the ability to control themselves are clear. The literature highlights that young adults with better self-control are more likely to have better financial well-being and that ability among young adults is investigated based on the young adults' financial behaviours.

This study contributes to the body of knowledge in terms of the role of technology adoption among young adults to attain financial well-being. From the framework presented,

the new relationship of financial behaviour through the use of financial technology (fintech) to attain financial well-being is explored by the UTAUT theory. Financial technology has impacted financial well-being (Frame et al. 2019) and as such, this would be a relevant theoretical contribution. Past studies in Malaysia which studied the financial well-being of young employees/youths/young adults/emerging adults have not dealt with the use of financial technology and how it could aid financial well-being. In all fairness, the availability of financial technology methods that could contribute to youths' financial well-being is relatively new in Malaysia, which is why it has not been explored by other researchers previously. This study would add to the literature which suggests that fintech plays a crucial role in young adults' financial well-being.

Furthermore, to measure the personality trait variable of self-control in the theoretical underpinnings, the theory of self-control is incorporated in this study. The self-control theory has not been used in any preceding studies on financial well-being of young adults in Malaysia. The inclined relationship with self-control and financial well-being delves away from the current state of literature of financial well-being of young adults in Malaysia. Additionally, as only a few studies on young adults have explored the mediating role of financial behaviour, this study potentially contributes by examining the mediating effect of financial behaviour in the relationship between financial literacy, financial socialisation, self-control and financial technology (Fig. 1).

Hypotheses formulation

Financial literacy

Financial literacy is the ability to manage everyday financial affairs and the ability to allocate money for the future (Muñoz-Murillo et al. 2020). A previous study by Sabri et al. (2020) acknowledges that financial capability is related to

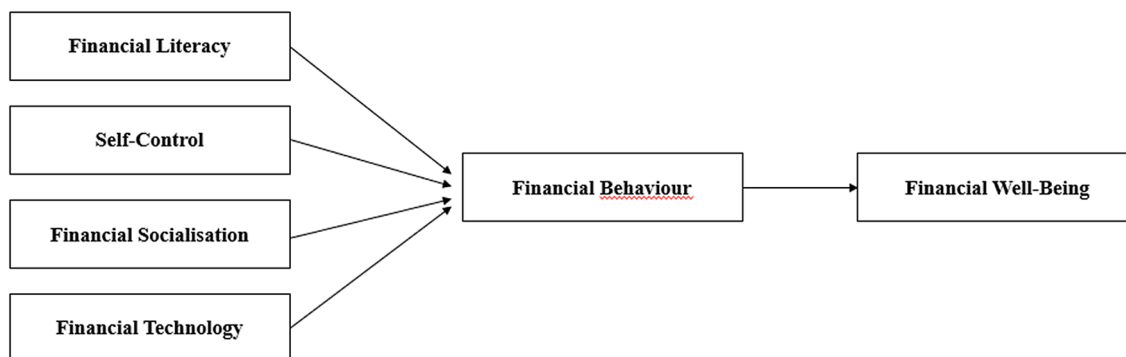


Fig. 1 Research model



financial well-being. Those with good financial management skills (i.e. having financial goals, savings, investments and insurance) tend to have higher levels of financial well-being. According to O'Neill et al. (2005), when people receive basic personal financial education, they manage their finances well and thus improve their financial well-being. As a result, this study proposes the following hypothesis:

H₁ The relationship between financial literacy and financial well-being is mediated by financial behaviour.

Financial socialisation

According to Albeurdy and Gharleghi (2015), financial socialisation is based on both internal and externally observed behaviours. Financial socialisation agents provide useful financial information about personal financial management to achieve personal financial well-being. Parents, it was found, are key socialisation agents (Drever et al. 2015a, b; Lanz et al. 2019). Parents tend to be as thrifty as possible, but as studies have shown (Grohmann et al. 2015; Pinto et al. 2005), children would have better financial well-being if their parents discussed everyday financial matters with them. The researchers consequently hypothesise that:

H₂ Financial behaviour acts as a mediator between financial socialisation and financial well-being.

Self-control

Self-control is the ability to control oneself and overcome immediate needs for better outcomes in the future (Baumeister 2002; Fujita et al. 2006). This idea is supported by previous research, which shows that people with higher self-control save more (Pirouz 2009) and have better financial behaviour in general (Strömbäck et al. 2017). Because self-control is defined as the ability or capacity to reshape one's response (Baumeister 2002), young adults who can change their behaviour in response to control stimuli will be more financially well-off. This study consequently hypothesise that:

H₃ The relationship between self-control and financial well-being is mediated by financial behaviour.

Financial technology

Financial technology, better known as "FinTech," refers to an innovative financial service that emerged in tandem with the new technologies' advancements to allow consumers to conduct financial activities through digital means (Micu and Micu 2016). Agarwal et al. (2019) found that when fintech is used, as reminders are sent, an individual is more alert

to make payments on time. Medina (2016) found that these reminders are stimuli for reducing credit card late payment fees. This finding further collaborated with Karlan et al. (2016), who showed that text message reminders helped consumers avoid penalties. One common finding in all of these studies is that financial technology provided some form of stimulus for individuals to change their behaviours. This study consequently hypothesises that:

H₄ Financial behaviour serves as a mediator between financial technology and financial well-being.

Financial behaviour and financial well-being

Financial behaviour is how an individual decides what to do with money, including everyday financial decisions that will make them feel satisfied with their actions (Kamakia et al. 2017; Bilal and Zulfqar 2016). This study uses financial behaviour as the mediating variable, as it defines how young adults behave financially, which is the cornerstone of financial well-being (Gudmunson and Danes 2011; Xiao et al. 2009). Positive financial behaviours have been found to be extremely beneficial to financial well-being (Sabri et al. 2021a, b; Shim et al. 2009a, b; Xiao et al. 2007).

According to the literature, subjective financial well-being is influenced by financial behaviour, which is a significant predictor of financial well-being. However, only a few studies have looked into financial behaviour as a mediator among Malaysian young adults. As a result, the current study intends to investigate the relationship between financial behaviour as a mediator to generate useful findings for future researchers. In short, financial behaviours have a positive relationship with financial well-being. This means that positive financial behaviour will improve young adults' financial well-being and vice versa.

Financial behaviour as a mediating variable

The literature available confirms the positive direct impact of financial behaviour on financial well-being. It illustrates that financial behaviour mediates the relationship between financial literacy, financial socialisation, self-control, financial technology, and financial well-being. As found in numerous studies, individuals' financial behaviour is the primary determinant of their financial satisfaction (Bashir et al. 2013; Falahati et al. 2012; Xiao et al. 2009). Furthermore, when desired financial behaviour is found in young adults, researchers (Gutter and Copur 2011; Shim et al. 2009a, b) concluded that it has a positive relationship with their financial well-being, including non-personal consequences, such as improved physical health, better mental health and life satisfaction (Xiao et al. 2011).



Coskuner (2016) demonstrated that financial literacy is a life skill that is needed among individuals of all age groups. Financial literacy is about applying financial knowledge to make effective financial decisions in optimising resources. Ultimately, financial literacy influences financial well-being in determining decisions (Sabri et al. 2021a, b; Zulfiqar and Bilal 2016). Further, Joo and Grable (2004) stated that financial knowledge mediates the effects on financial well-being. Better savings behaviour is observed in individuals with better financial knowledge (Henager and Mauldin 2015; Jappelli and Padula 2013). Having better retirement savings preparation (Lusardi and Mitchell 2007) and lower total amount of debts (Lusardi and Tufano 2015) are among positive financial behaviours that is a factor that contributes to a young adults' financial well-being. Financial well-being correlates with positive financial behaviour (Gutter and Copur 2011; Henager and Mauldin 2015; Shim et al. 2009a, b).

Financial behaviour is directly related to financial socialisation (Rea et al. 2019; Deenanath et al. 2019) and financial well-being. Parental financial socialisation was found to have lasting and profound financial outcomes throughout individuals' lifetimes. In addition, positive financial behaviour is achievable through parental financial socialisation among young adults (Drever et al. 2015a, b; Otto 2013). Parental financial socialisation impacts even financial behaviours (Kim and Chatterjee 2013; Sohn et al. 2012). Poor self-control causes excessive debt (Achtziger et al. 2015), unplanned spending (Gathergood 2012), and a lack of funds for retirement years (Kim et al. 2016). Because of this, self-control is an essential component and has a significant positive effect on financial behaviour. Self-control has been proven to impact financial well-being through better savings behaviour (Biljanovska and Palligkinis 2015) and credit management (Achtziger et al. 2015).

Limited literature exists on the influence of fintech and the observed influences among young adults. Nevertheless, Brown and Venkatesh (2005) found that positive attitude among users is attainable through the usage of technology. Fintech takes many forms in its ability to influence young adults or nudge them with behavioural traits. According to Anderson (2015), fintech is helpful as it provides a form of reminder mechanism for the end-users, allowing them to alter their behaviour and take action to avoid late financial payment fees. Thus, more significant financial technology usage among young adults is generally associated with healthy financial behaviours, hence increasing the likelihood of better financial well-being.

Research methodology

Population and sample size

Based on the data retrieved from the Department of Statistics Malaysia, the total population of Malaysia in 2020 was

32.6 million with an annual population growth rate of 0.6% (DOSM 2020). The number of Malaysians aged between 15–29 years is 9,187,200 (DOSM 2020). As this study focuses on young adults between the ages of 18–29, this constitutes an estimated number of 6,427,000 individuals.

The sampling techniques differ according to the research problem as one technique may not be appropriate for other research problems (Singh and Masuku 2014). According to Krejcie and Morgan (1970), a required sample size of 384 respondents is required for a population equal or more than 1,000,000, with confidence interval of 95% and margin of error of 2.5%. According to Hair et al. (2010), sample size must be sufficiently large to ensure precise statistically significant results. However, a sample size that is too large would lead to waste of resources which should ideally be avoided. In general, sample size is determined based on several criteria such as the model complexity, expected rate of missing data, and analytical procedures employed (Hair et al. 2010). According to Hair et al. (2021), a minimum of 200 respondents is needed for small to medium size models, with a least ten respondents per estimated path. This study also employed Westland's (2010) approach to determine the sample size that meets the minimum requirements for quantitative analysis such as Structural Equation Modelling (SEM). Accordingly, Westland's method (2010) suggests that the minimum sample size for model structure is $N = 123$ based on the anticipated effect size of 0.1 and statistical power of 0.80. This is calculated based on six (6) latent variables (constructs) and 22 observed variables (items) used in this study. The present study considered the sample size rule of thumb suggested by Krejcie and Morgan (1970), Hair et al. (2021) and Westland (2010). Thus, a total number of 400 respondents were decided.

Sampling technique

Multi-stage random sampling was used to sample a total of 400 respondents from five (5) regions in Malaysia (i.e. Northern, Southern, Eastern, Central and East Malaysia) that were randomly selected in the first stage. Firstly, Malaysia was divided into five (5) regions, namely Northern (Perlis, Kedah, Penang and Perak), Southern (Johor, Melaka and Negeri Sembilan), Eastern (Terengganu, Pahang and Kelantan), Central (Selangor and The Federal Territories of Kuala Lumpur and Putrajaya) and East Malaysia (Sabah and Sarawak). Secondly, one state was randomly selected from each region through a ballot. As a result, Penang (Northern), Johor (Southern), Terengganu (Eastern), Selangor (Central) and Sabah (East Malaysia) were determined to be the states for the study location.

The selected state in each region was targeted to obtain 80 respondents each. At the second stage, upon confirming the locations, a list of all youth organisations located in urban



areas in the selected states was attained from the Malaysian Youth Council (MYC), the official youth organisation recognised by the Ministry of Youth and Sports, Malaysia. Four youth organisations were randomly selected from the list, requiring 20 respondents from each youth organisation. The leaders of these youth organisations were briefed via an online meeting, and they were to distribute the questionnaires randomly to 20 youths within their youth association. The sample was among youth (i.e. student, self-employed, public and private sector) with the age range between 18–29 years old.

Table 1 presents the definitions of the five variables in this study. The variables were investigated based on the adaptation from De Sena Abrahão et al. (2016) for financial technology, instruments adopted from Sabri et al. (2010) for financial literacy, and young adult's financial socialisation measurement was assessed using Manfrè (2017). To assess financial socialisation, financial behaviour was measured using Kim (2004), Ismail et al. (2017), and Sumarwan and Hira's (1993) self-control instruments with internal and external items that determine belief in one's ability to control the situation that occurs, and well-being was measured with the Financial Well-Being Scale developed by CFPB (2015b), which was based on the adaptation of the scale development from the technical report.

Data analysis

Model fit

Prior to estimation, the exploratory factor analysis (EFA) was performed on all variables (financial literacy, financial socialisation, self-control, financial technology, financial behaviour) measuring the individual constructs, indicating that the Bartlett's Test of Sphericity is significant (p value 0.05). Furthermore, the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy for the individual variables is

adequate because it exceeds the required value of 0.6 (Rahlin et al. 2019; Bahkia et al. 2019). These two results (significant Bartlett's Test and $KMO > 0.6$) indicate that the data is sufficient to proceed with the data reduction procedure in EFA (Rahlin et al. 2019; Bahkia et al. 2019). The KMO test has a range of 0–1, with 0.6 being the recommended minimum value. Before conducting a factor analysis, the KMO measure of sampling adequacy and Bartlett's Test of Sphericity must be met.

Following the recommendations of Awang et al. (2018), the AMOS in SPSS was used to perform confirmatory factor analysis (CFA) on the items of each scale (financial literacy, financial socialisation, self-control, financial technology, and financial well-being). Absolute Fit, Incremental Fit, and Parsimonious Fit are the three model fit categories (Mahfouz et al. 2019, 2020; Sarwar et al. 2022). The index fit categories and fitness index thresholds indicate that the fit statistics were satisfactory.

Reliability

To ensure the precision and accuracy of the items in the questionnaire, a pilot test was run among 30 selected young adults. The reliability coefficients for the six (6) constructs in the pilot test are within the ranges of 0.823 (financial technology) to 0.955 (financial literacy) as shown in Table 2. The instrument was improved on the terms and instruction parts as the respondents had problems in understanding them. The result of the actual study is within the ranges of 0.77 (financial behaviour) to 0.906 (financial well-being).

Confirmatory factor analysis (CFA)

Like Awang et al. (2018), this paper used a two-step technique to model and analyse the structural model, namely confirmatory factor analysis (CFA) and structural equation modelling (SEM). As a result, before modelling the structural model and performing structural equation modelling

Table 1 Variables definition

Construct	Definition
Financial literacy	The level of knowledge in finance among young adults and the significant relationship with day-to-day personal financial management to attain financial well-being
Financial behaviour	Young adults' actions such as having a budget, cash flow management, make plans for spending, managing credit and planning finances for the longer term
Financial socialisation	When young adults look at their parents and family members as well as role models in the community to emulate
Self-control	Young adults' ability to control their current self for something that is to come in the future as well as to gauge their control over their finances
Financial technology	Young adults' adoption of financial technology platforms/services as part of the ecosystem of attaining financial well-being
Financial well-being	Young adults' assessment of their quality of life according to their own chosen criteria and individual perception. This is by understanding their sufficiency of money for everyday living as well as emergency savings for the future



Table 2 Reliability analysis of scales

Scale	Cronbach's alpha	
	Pilot test (<i>N</i> = 30)	Actual (<i>N</i> = 360)
Financial technology	0.823	0.812
Financial literacy	0.955	0.892
Financial socialisation	0.900	0.785
Financial behaviour	0.906	0.771
Self-control	0.901	0.784
Financial well being	0.930	0.906

(SEM), the study must test all measurement models of latent constructs for Unidimensionality, Validity, and Reliability (Sarwar et al. 2022). Confirmatory Factor Analysis (CFA) is the name given to this procedure.

According to Afthanorhan et al. (2020), the measuring model of latent constructs must satisfy three types of validity: construct validity, convergent validity, and discriminant validity. The Fitness Indexes of the Measurement Model are used to assess construct validity, the average variance extracted (AVE) to assess convergent validity, and the Discriminant Validity Index Summary to assess discriminant validity. In terms of dependability, the composite reliability (CR) technique, which replaced the previous method of calculating Cronbach Alpha for analysis using structural equation modelling (SEM), is adequate for the study (Asnawi et al. 2019). A latent construct's fitness indices are considered valid if they fall into one of three Model Fit categories: Absolute Fit, Incremental Fit, or Parsimonious Fit (Afthanorhan et al. 2020).

Measurement model

Figure 2 depicts the pooled constructs. The five constructs, namely financial literacy, financial behaviour, financial socialisation, self-control and financial technology in the model are second-order constructs with a certain number of sub-constructs and every sub-construct is measured using a certain number of measuring items in the questionnaire. The details of the items' statements are in Supplementary 1. An interval scale which ranges from 1 (strongly disagree) to 5 (strongly agree) is used to measure every item in the given statements (Awang et al. 2018). Thus, the measurement model for all constructs is complicated in terms of the number of components and their respective measuring items. For the complicated model, the researcher could elect to assess the CFA for each measurement model of the construct separately and combine them together at the final stage to perform the Pooled-CFA when all individual constructs have achieved the respective thresholds of validity and reliability (Nawal et al. 2020; Sarwar et al. 2022).

This study decided to conduct the CFA procedure separately for every second-order construct. Once the individual CFA assessment for second-order construct is completed, the study would perform the item-parceling process to simplify the second-order construct into first order by taking the mean score of items in every component to represent that particular component in measuring the respective construct. At the end of the process, all second order constructs would become first order.

The pooled CFA would combine all first order constructs to assess the discriminant validity among these constructs. Prior to modelling the structural model and executing SEM, the researcher needs to prove that all constructs involved in the model are discriminant of each other or they are not highly correlated, especially between the exogenous constructs (Kashif et al. 2015, 2016; Mahfouz et al. 2019, 2020). If the two exogenous constructs are highly correlated (correlation greater than 0.85), then there exists a serious problem called multi-collinearity, and the study needs to utilise their respective remedial measures.

The assessment for convergent validity and composite reliability

To establish convergent validity, the study computes Average Variance Extracted (AVE). The construct is said to be convergent valid if its AVE exceeds the threshold value of 0.5. (Awang et al. 2018; Mahfouz et al. 2019, 2020). To analyse composite reliability (CR), the study computes convergent validity, and its value must be greater than 0.6 for this reliability to be achieved (Mahfouz et al. 2019, 2020). Table 3 shows that all the average variance extracted (AVE) and composite reliability (CR) values are greater than their respective threshold values of 0.5 and 0.6 (Sarwar et al. 2022). As a result, the study concludes that all the model's latent constructs have Convergent Validity and Composite Reliability.

The assessment of discriminant validity among constructs

The study also evaluates discriminant validity, which is a sort of model validity. The purpose of the discriminant validity assessment is to guarantee that the model does not contain any redundant constructs. A redundant construct occurs when any two constructs in a model are closely related. To measure discriminant validity, the discriminant validity index summary, as shown in Table 4, must be developed. The diagonal line in bold represents the square root of AVE, and the other figures show the correlation coefficient between the two constructs. To determine whether the respective constructs achieved Discriminant Validity, the square root of their AVE must be greater than their



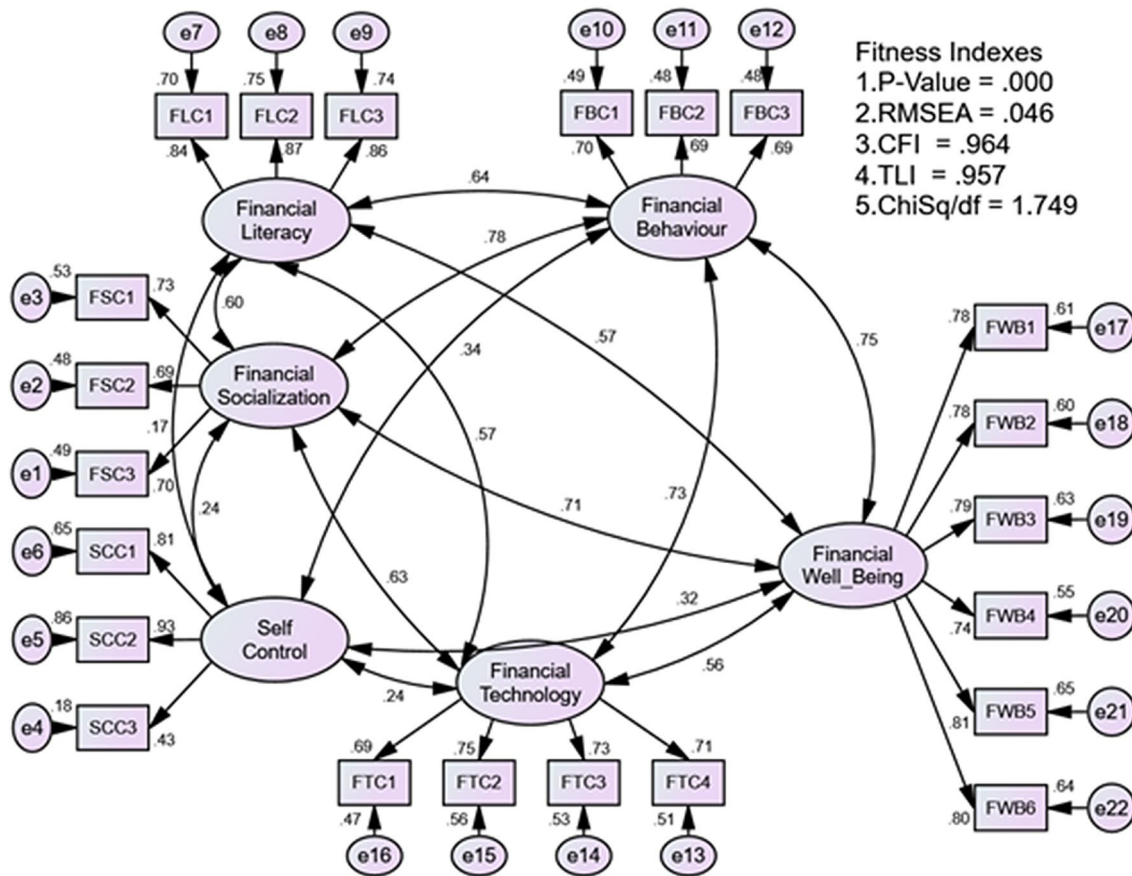


Fig. 2 The results of pooled-CFA for all constructs in the study

correlation value with other constructs in the model (Awang et al. 2018). Discriminant Validity is achieved if the diagonal values (in bold) are greater than any other values in its row and column, as shown in Table 4, and thus Discriminant Validity for the six constructs listed is achieved.

The assessment of normality for all constructs

SEM is a parametric statistical approach to modelling, thus the normality distribution of all items measuring their respective constructs must be assessed. According to Awang et al. (2018), the skewness values for all items should not deviate from normalcy. As a result, skewness levels between -1.5 and 1.5 are acceptable. Table 5 reports the normality distribution assessment results for all elements. The model's components all have skewness values between -1.5 and 1.5, indicating that their distribution is normal (Awang et al. 2018). As a result, the data distribution meets the criteria for normality distribution when using parametric statistical analysis. The completion of the CFA indicates that the validity criterion has been met. After the study has satisfied the requirements for reliability

and normality distribution, it can move on to modelling the structural model.

The structural model and structural equation modelling (SEM)

Once the CFA report is completed and all results meet the required thresholds for validity and reliability, it can be concluded that the measurement models for all latent constructs in the model have been validated (Sarwar et al. 2022). Table 6 shows the statistical analysis employed for each hypothesis statement. To run Structural Equation Modelling (SEM), the constructs should be arranged from left to right, beginning with the exogenous constructs on the far left, followed by the mediator constructs in the middle, and the endogenous construct on the far right (Awang et al. 2018). Based on the hypothesis direction, this study uses the single headed arrow to connect the exogenous construct to its associated endogenous construct.

Finally, as shown in Fig. 3, the double-headed arrow connects all exogenous constructs. The single headed arrow represents the causal effects of an external construct on the respective endogenous construct being



Table 3 The average variance extracted (AVE) and composite reliability (CR)

Construct	Items	Factor loading	CR (above 0.6)	AVE (above 0.5)
Financial literacy	FLC1	0.84	0.892	0.734
	FLC2	0.87		
	FLC3	0.86		
Financial behaviour	FBC1	0.70	0.771	0.630
	FBC2	0.79		
	FBC3	0.69		
Financial socialisation	FSC1	0.73	0.785	0.589
	FSC2	0.79		
	FSC3	0.80		
Self-control	SCC1	0.81	0.784	0.569
	SCC2	0.93		
	SCC3	0.43		
Financial technology	FTC1	0.69	0.812	0.557
	FTC2	0.75		
	FTC3	0.73		
	FTC4	0.71		
Financial well-being	FWB1	0.79	0.906	0.617
	FWB2	0.78		
	FWB3	0.79		
	FWB4	0.74		
	FWB5	0.81		
	FWB6	0.80		

evaluated. If the structural model contains more than one exogenous construct, the double headed arrow should be used to quantify the correlational effects between all exogenous constructs. The study must examine the strength of correlation between the exogenous constructs to analyse and prevent the multi-collinearity problem in the model where the two exogenous constructs are highly linked. When the correlation between two exogenous constructs exceeds 0.85, the constructs are highly correlated, and the multi-collinearity problem exists (Sarwar et al. 2022).

Table 4 The discriminant validity index summary for all constructs

Construct	FL	FS	FB	SC	FT	FWB
FL	0.87					
FS	0.60	0.79				
FB	0.64	0.78	0.80			
SC	0.17	0.24	0.34	0.75		
FT	0.57	0.63	0.73	0.24	0.75	
FWB	0.57	0.71	0.75	0.32	0.56	0.78

The assessment for construct validity

The Absolute Fit category, RMSEA, is 0.046 (less than 0.08), the Incremental Fit category, CFI, is 0.964 (greater than 0.90), and the Parsimonious Fit category, Chi-square/df ratio, is 1.749 (achieved the threshold of less than 3.0). As a result, the Construct Validity criteria were met by the measurement model for all latent constructs (Afthanorhan et al. 2020).

Results and discussion

Profile of respondents

The study was conducted on a total of 400 subjects. Three hundred sixty questionnaires were completed (response rate: 90.0%), and as there were no missing data, all completed questionnaires were included in the analysis. Table 7 summarises the demographic profile of the survey respondents. The respondents profile includes gender, age, educational level, employment status, ethnicity, marital status, monthly income, number of family members and if the COVID-19 pandemic has impacted their income.

The majority of the participants were females (59.4%), Malay (79.7%) and over 80% of the respondents were between the ages of 20–25. The vast majority of respondents were either enrolled in or had completed college tertiary education. Education has been shown to improve personal financial management and improve financial well-being (Anderloni et al. 2012). Only 15.3% of the respondents have SPM/STPM or no formal education. The majority of respondents are single (91.7%), and this is because the respondents are young adults.

Most of the respondents have a monthly income lesser than RM1,500 (75.0%), and the remaining 25% of them have a monthly income greater than RM1,500. However, despite this, it is noted that the young adults have had their allowances reduced with 42.5% of the respondents indicating a drop of income in view of the COVID-19 pandemic. A whopping 64.2% of respondents also indicated that the number of family members in their household is between 5–8, which is significantly higher than



Table 5 The assessment of normality for all components of the constructs

Variable	Min	Max	Skew	c.r	Kurtosis	c.r
FWB6	2.000	5.000	-0.353	-2.737	0.201	0.779
FWB5	2.000	5.000	-0.390	-3.022	-0.052	-0.202
FWB4	2.000	5.000	-0.069	-0.532	-0.422	-1.637
FWB3	2.000	5.000	-0.143	-1.113	-0.288	-1.115
FWB2	2.000	5.000	-0.080	-0.622	-0.252	-0.977
FWB1	2.000	5.000	-0.375	-2.907	0.280	1.085
FTC1	1.000	5.000	-0.247	-1.914	-0.009	-0.036
FTC2	2.000	5.000	-0.066	-0.513	-0.420	-1.628
FTC3	1.000	5.000	0.024	0.188	-0.144	-0.560
FTC4	1.000	5.000	-0.381	-2.958	0.106	0.412
FBC3	2.000	5.000	-0.057	-0.443	-0.213	-0.825
FBC2	2.000	5.000	-0.287	-2.229	-0.260	-1.009
FBC1	2.000	5.000	-0.581	-4.510	0.447	1.733
FLC3	1.000	5.000	-0.809	-6.276	1.309	5.076
FLC2	1.000	5.000	-0.616	-4.774	1.022	3.964
FLC1	1.000	5.000	-0.759	-5.886	1.261	4.892
SCC1	1.000	5.000	-0.995	-7.721	0.639	2.477
SCC2	1.000	5.000	-0.829	-6.431	0.470	1.824
SCC3	2.000	5.000	-0.497	-3.856	0.119	0.463
FSC1	1.000	5.000	-0.483	-3.744	0.690	2.676
FSC2	1.000	5.000	-0.131	-1.012	-0.220	-0.852
FSC3	2.000	5.000	-0.076	-0.586	-0.420	-1.628
Multivariate					46.203	13.507

Table 6 The hypothesis statement for mediator effect for this paper

	Hypothesis statement	Statistical analysis to employ	Criterion	Threshold
H_1	Financial Behaviour mediates the relationship between Financial Literacy and Financial Well-Being	Path Analysis in SEM and Bootstrapping	Path coefficient estimates and their significance level	Significant at 5% significance level, i.e. p value < 5%
H_2	Financial Behaviour mediates the relationship between Financial Socialisation and Financial Well-Being	Path Analysis in SEM and Bootstrapping	Path coefficient estimates and their significance level	Significant at 5% significance level, i.e. p value < 5%
H_3	Financial Behaviour mediates the relationship between Self-Control and Financial Well-Being	Path Analysis in SEM and Bootstrapping	Path coefficient estimates and their significance level	Significant at 5% significance level, i.e. p value < 5%
H_4	Financial Behaviour mediates the relationship between Financial Technology and Financial Well-Being	Path Analysis in SEM and Bootstrapping	Path coefficient estimates and their significance level	Significant at 5% significance level, i.e. p value < 5%

the average national household size. The average household size in Malaysia stands at four persons as of 2019 (Department of Statistics Malaysia 2019). This may indicate that many young adults are living with an extended family member.

The relationships between variables

Table 8 displays the relationships between variables of the non-mediation model. The details of the findings are discussed in the following sections.



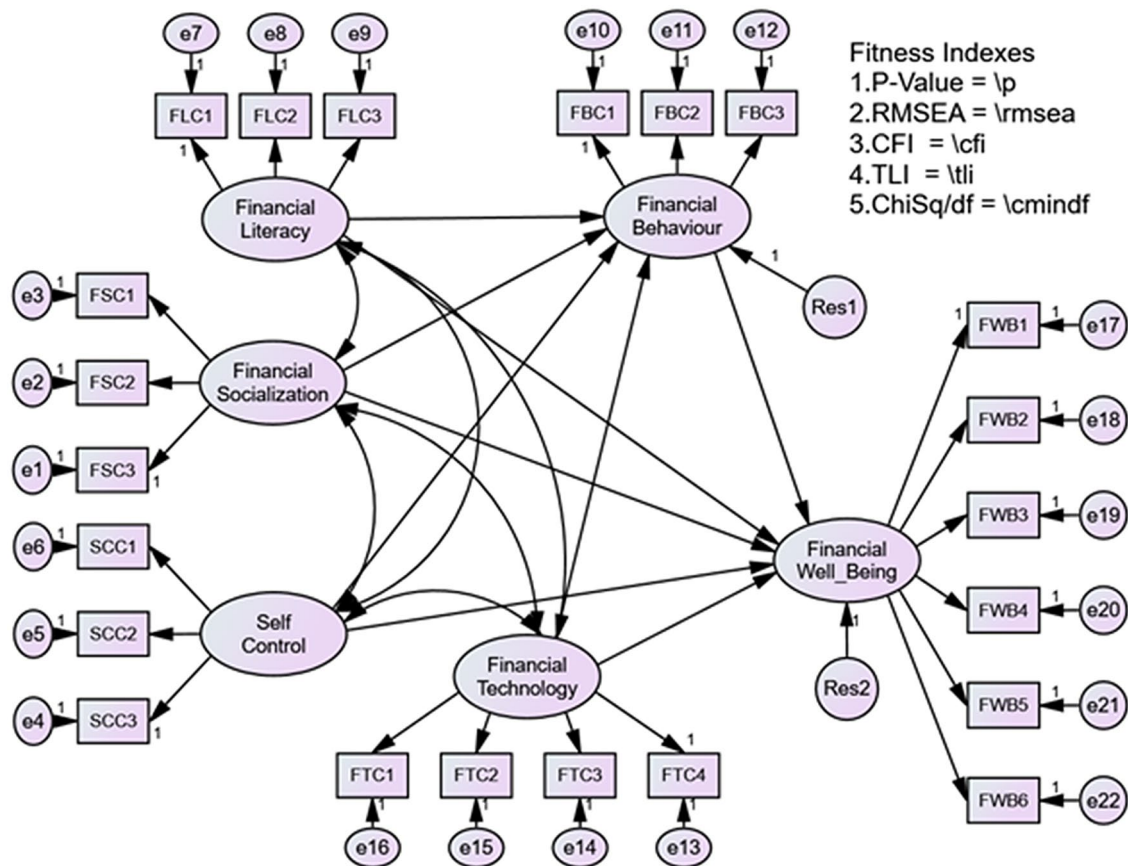


Fig. 3 The structural model for the study

The relationship between financial literacy and financial well-being

This study discovered that financial behaviour has a significant positive influence on financial well-being ($\beta = 0.48$, $t = 3.10$, $p < 0.05$) in the non-mediation model. This finding is consistent with recent local studies (Mahdzan et al. 2019; Sabri et al. 2022), which discovered that being financially healthy and happy necessitates positive financial behaviour, such as regular savings and proper credit management. Interestingly, the researchers discovered that financial literacy has no significant influence on financial well-being ($\beta = 0.09$, $t = 1.82$, $p > 0.05$), contrary to previous research that found financial literacy to be important in determining financial well-being (Koposko 2013; Rahman et al. 2021; Taft et al. 2013). Taft et al. (2013), however, proved a positive impact of financial literacy on financial well-being among Iranians, while Rahman et al. (2021) confirmed a significant influence of financial literacy on financial well-being among B40 households in Malaysia. These studies sampled the general population and low income households as opposed to the young adults population.

The relationship between financial socialisation and financial well-being

Financial socialisation was found to have a significant influence on financial well-being ($\beta = 0.31$, $t = 2.93$, $p < 0.05$). This is consistent with the findings of Jorgensen and Savla (2010), who discovered that youths acquire their financial learning experiences through positive or negative reinforcement, observations, participation and practise, or family instructions. Young adults' intermediate outcomes, such as their attitude towards money, are primarily influenced by their family members and are strongly related to their financial behaviours and well-being. Prior research has found a causal significant relationship between parental financial socialisation and the well-being of young adults, which supports the findings of this study. Children whose parents who have set a good financial example and educated them well in childhood will be able to manage personal finances well in adulthood (Friedline et al. 2013; Sirsch et al. 2019). This research also discovered that the majority of young adults' financial socialisation was heavily influenced by their parents. Furthermore, because of proper financial socialisation agents during childhood, respondents strongly believe



Table 7 Sociodemographic characteristics of respondents ($N=360$)

Characteristics	Frequency	Percentage (%)
<i>Gender</i>		
Male	146	40.6
Female	214	59.4
<i>Ethnicity</i>		
Malay	287	79.7
Chinese	43	11.9
Indian	12	3.3
Others	18	5.0
<i>Age</i>		
18–19 years old	14	3.9
20–25 years old	300	83.3
26–29 years old	46	12.7
<i>Education level</i>		
No formal education	2	0.6
Secondary (SPM/STPM)	53	14.7
Diploma/certificate	40	11.1
Bachelor's degree	239	66.4
Master's degree	14	3.9
Others	12	3.3
<i>Marital status</i>		
Single	330	91.7
Married	28	7.8
Divorced	2	0.6
<i>Monthly income</i>		
Less than RM1,500	270	75.0
Greater than RM1,500	90	25.0
<i>Income affected in view of COVID-19 pandemic</i>		
Increased	30	8.3
No changes	177	49.2
Reduced	153	42.5
<i>Number of family members</i>		
1–4	94	26.1
5–8	231	64.2
9–12	33	9.2
More than 12	2	0.6

that they can effectively manage numerous difficulties and achieve successful outcomes.

The relationship between self-control and financial well-being

This study found that self-control is insignificantly related to financial well-being ($\beta=0.15$, $t=1.81$, $p>0.05$). Self-control alone cannot guarantee financial well-being. Young adults who exercise self-control but take no action to improve their financial circumstances would not be able to attain financial well-being. Nonetheless, to a certain extent, some practice of self-control will help young adults to have

more savings, but this does not guarantee in ensuring that upon exercising such a personality trait, their financial well-being will improve. This disparity arose because young adults are feeling troubled by the global outlook caused by the pandemic and as a result, believe that despite exerting self-control, they may be unable to achieve financial well-being. However, as illustrated by other highlighted studies, there is a strong relationship between self-control and financial well-being.

The relationship between financial technology and financial well-being

The study found that financial technology (fintech) is insignificantly related to financial well-being ($\beta=0.03$, $t=4.21$, $p>0.05$). As there are many applications that prey on young adults to spend their money, this research found that there is no causal positive relationship between fintech and young adults' financial well-being. Applications such as Buy Now Pay Later (BNPL) do not aid in wealth preservation or debt reduction (Wolla 2017). Garg and Singh (2018) discovered that young adults nowadays face greater difficulty managing their money due to the variety of options available in the market. Furthermore, young adults are thought to be more technologically savvy, highly educated, and more talented and motivated to enjoy life through instant gratification (Mahalingam 2017; Nga et al. 2010). As a result, because young adults do not prioritise personal finance, certain fintech platforms may cause more harm than good (Mahalingam 2017).

Using bootstrapping to confirm the results of the mediation test

According to Yusof et al. (2017), the researcher must use the bootstrapping resampling procedure to confirm the test results once the hypothesis test for mediation has been completed and the mediation effect has occurred in either partial or full mediation. Table 9 reports the findings of the bootstrapping method for examining the financial behaviour as a mediator in the relationships between financial literacy, financial socialisation, self-control and financial technology with financial well-being. The study utilised the maximum likelihood (ML) Bootstrapping using 1000 bootstrap samples, with PC (Percentile) 95% confidence interval and BC (Bias-corrected) 95% confidence interval.

The combined impact of exogenous factors on endogenous variables is explained by the model's R^2 (coefficient of multiple determination) performance (Hair et al. 2021). Out of the five path values, only two path coefficients were found to be statistically significant. Based on the findings, financial behaviour had an R^2 of 0.74 and financial well-being had an R^2 of 0.61. With an R^2 of 0.74, it was clear



that financial technology, self-control, financial socialisation, and financial literacy together accounted for 74% of the variation in explaining financial behaviour. Similarly, R^2 of 0.61 indicated that 61% of the variation in describing financial well-being was explained by financial literacy, financial socialisation, self-control, financial technology, and financial behaviour.

The results of this study looked into the mediation effect of financial behaviour in the relationships between financial literacy and financial well-being ($\beta=0.071$, $p<0.05$), between financial socialisation and financial well-being ($\beta=0.19$, $p<0.05$), between financial self-control and financial well-being ($\beta=0.05$, $p<0.05$), between financial technology and financial well-being ($\beta=0.01$, $p<0.05$), as well as between financial behaviour and financial well-being ($\beta=0.13$, $p<0.05$). The findings demonstrate that every mediation relationship showed a strong mediation relationship. Based on the empirical results, H1, H2, H3, and H4 were therefore supported. Financial behaviour is crucial in empowering young adults' financial well-being, based on the mediation analysis' unmistakable and conclusive conclusion. The study used the approach recommended by Awang et al. (2018) and Kashif et al. (2016) for examining the mediation effects in the model.

The mediation effects of financial behaviour in the relationships of the factors on financial well-being are further discussed. Financial literacy underlies the cause of one's financial well-being through their involvement in financial activities. The mediation effect of financial behaviour is in tandem with Xiao and Porto (2017), Atkinson and Messy (2011), and Klapper et al. (2013). As Xiao and Porto (2017) pointed out, increased financial literacy is frequently associated with increased knowledge acquisition, confidence, and action-taking, all of which contribute to increased financial well-being. The actions taken in financial activities involving various financial matters and the application of financial literacy in financial behaviour would enhance financial well-being. Both past studies by Atkinson and Messy (2011) and Klapper et al. (2013) relate on the significant role of financial literacy in creating an enhanced ability to plan, save and react to financial shocks. These past studies are able to justify the mediating effect of financial behaviour in the relationship between financial literacy and financial well-being. The knowledge on finances alone without the action taken using the knowledge may not improve financial well-being significantly, thus the role of financial behaviour is important.

For the significant mediation effect of financial behaviour in the relationship between financial socialisation and financial well-being, it is about the role of financial socialisation, especially among parents with young adults. Parents play an important role in shaping the knowledge and skills related to financial matters of their children, which is required for a

sound financial behaviour. Financial socialisation, especially by parents, contributed to the increase of financial well-being through their involvement in financial activities. A proper saving and monetary arrangement opens for improvement of the financial behaviour of individuals through more family financial socialisation (Jorgensen et al. 2017). Similarly, contended by Firmansyah (2014), the conduct of saving is influenced by parents and guardians' eagerness. The financial behaviour of children resembles the financial behaviour posed by their parents. Either the positive or the negative financial behaviour of parents or the people around them would eventually show when they grow up, leading to a better or worse financial well-being.

In explaining the mediation effect of financial behaviour in the relationship between self-control and financial well-being, the ability of financial behaviour to mediate the relationship is by amplifying the self-control of young adults. Kiyosaki (2014) discovered that young adults with better self-control have better financial behaviour and can better manage their financial resources, which leads to financial well-being. In line with the findings of this paper, he discovered that they optimally allocate their resources. High self-control would guide their financial behaviour to a good extent. Furthermore, Kahnemann (2011) justified that people with cognitive abilities always manage their finances to achieve set goals and foreseeable expenses, emphasising the importance of self-control.

The use of fintech is mediated by financial behaviour in its relationship with financial well-being. Mastering fintech only may not contribute to elevating financial well-being of young adults. Fintech, as it was discovered, benefits young adults as an enabling ecosystem but does not significantly benefit them in terms of financial well-being if they fail to pay attention to their own financial behaviour. Therefore, to benefit from financial technology, young adults must practise responsible financial behaviour. Hence, the mediation result of financial behaviour in the relationship between fintech and financial well-being alleviates the function of fintech in improving financial well-being with the role of financial behaviour in the process.

Robustness checks

Robustness checks were carried out to evaluate the sensitivity of the empirical findings to alternative estimation using the Sobel-Goodman mediation test suggested by Sobel (1982). The variables were constructed using the aggregate (calculated by the combination of several separate elements) for each category. Those with more financial literacy, financial socialisation, self-control, and financial technology, tend to report better financial well-being. A possible mediation explanation is that higher financial behaviour is associated with financial well-being. The theoretical causal process is



Fig. 4 Theoretical causal process

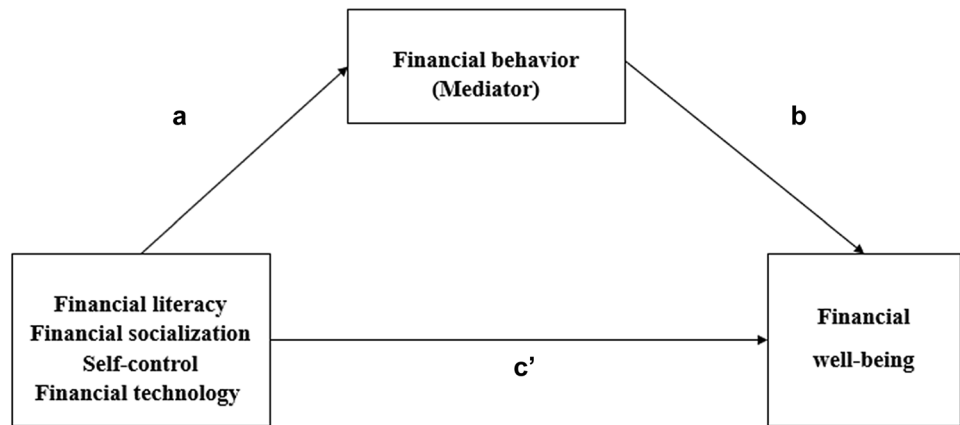


Table 8 Regression path coefficient and its significance

		β	Std error	C.R	p Value	Confidence interval		Result	
						LB	UB		
Financial behaviour	→	Financial wellbeing	0.480	0.155	3.103	0.002	0.136	0.956	Significant
Financial well-being	←	Financial technology	-0.035	0.084	-0.421	0.674	-0.220	0.147	Not significant
Financial well-being	←	Self-control	0.158	0.087	1.818	0.069	-0.174	0.369	Not significant
Financial well-being	←	Financial socialisation	0.310	0.106	2.938	0.003	0.050	0.553	Significant
Financial well-being	←	Financial literacy	0.096	0.052	1.825	0.068	-0.017	0.194	Not significant

shown in Fig. 4, where a and b are coefficients, $a \times b$ is indirect effect and c' is direct effect.

The empirical results are reported in Table 10. Based on the Sobel-Goodman mediation results, the findings are robust to the alternative estimation method, where the results are in line with Tables 8 and 9. As shown in Models 1–4, all the indirect effect tests ($a \times b$) revealed in the first Sobel-Goodman mediation tests table show very small p values ($p < 0.001$), providing support for the explanation that financial behaviour mediates the effects of financial literacy, financial socialisation, self-control, and financial technology on financial well-being. In addition, there is a direct effect from financial literacy on financial well-being as demonstrated by the c' coefficient. The last row of Table 10 implies that the effects of financial literacy are reduced by about 48.1% after accounting for financial behaviour as shown in Model 1.

Theoretically, this suggests that about 48.1% of the effects of financial literacy on financial well-being is explained by the indirect effects of financial literacy on financial behaviour. Financial technology accounts for the biggest percentage of these four explanatory factors at 58.8%. This suggests that the indirect impact of financial technology on financial behaviour accounts for around 58.8% of the influence of financial technology on financial well-being. Among the factors being mediated

Table 9 The bootstrapping result for testing financial behaviour as a mediator

Variables	Indirect effect (axb) Bootstrapping value	Direct (c) Bootstrapping value
Financial literacy	0.071 Significant	0.117 Not Significant
Financial socialisation	0.193 Significant	0.308 Significant
Self-control	0.053 Significant	0.089 Not Significant
Financial technology	0.138 Significant	0.033 Not Significant
Financial behaviour	0.138 Significant	0.035 Not Significant

Dependent variable: Financial well-being

by financial behaviour in these models, financial technology is revealed as the factor that required financial activities to be performed highly, thus the high involvement of financial behaviour for those financial technology savvy individuals would increase financial well-being more than the other factors. Financial literacy is the second factor being mediated highly by financial behaviour, followed by financial socialisation and self-control.



Table 10 Robustness checks using the Sobel Goodman mediation test

Variables	Model (1)	Model (2)	Model (3)	Model (4)
Financial behaviour	0.996*** (0.0996) [0.80,1.19]	0.849*** (0.102) [0.64,1.05]	1.210*** (0.0907) [1.03,1.38]	1.045*** (0.106) [0.83,1.25]
Financial literacy	0.443*** (0.0799) [0.28,0.59]	–	–	–
Financial socialisation	–	0.675*** (0.0929) [0.49,0.85]	–	–
Self-control	–	–	0.222*** (0.0722) [0.08,0.36]	–
Financial technology	–	–	–	0.286*** (0.0729) [0.14,0.42]
Constant	6.935*** (1.017)	6.325*** (0.990)	7.226*** (1.142)	7.683*** (1.024)
Observations	360	360	360	360
R-squared	0.417	0.448	0.383	0.393
<i>a</i> coefficient	0.412*** (0.036)	0.529*** (0.039)	0.199*** (0.041)	0.391*** (0.030)
<i>b</i> coefficient	0.996*** (0.100)	0.849*** (0.102)	1.210*** (0.091)	1.045*** (0.106)
<i>a</i> × <i>b</i>	0.411*** (0.055)	0.449*** (0.063)	0.241*** (0.053)	0.408*** (0.052)
<i>c</i> ' coefficient	0.443*** (0.080)	0.675*** (0.093)	0.222*** (0.072)	0.286*** (0.073)
Sobel-Goodman mediation test	0.411*** (0.055)	0.449*** (0.063)	0.241*** (0.053)	0.408*** (0.052)
Proportion of total effect that is mediated	48.1%	39.9%	52.0%	58.8%

Standard errors in parentheses (). 95% confident interval in brackets []

*, ** and *** denote significant at 1%, 5% and 10% levels, respectively

Dependent variable: Financial well-being

Conclusion and implications

This study examines the determinants of young adults' financial well-being, considering financial behaviour as a mediator, using the structural equation modelling multivariate approach. The empirical findings indicated that financial behaviour was the most important element in influencing young adults' financial well-being. In addition, the study found that financial literacy, financial socialisation, self-control, and financial technology were statistically significant determinants of financial behaviour. Moreover, financial behaviour plays an essential role in mediating the determinants that affect the financial well-being of young adults in Malaysia. Among the mediators, financial technology is ranked first, followed by financial literacy, financial socialisation and self-control. The robustness check using other estimation methods also demonstrated that the

mediating results of these four variables were robust and remain unaltered.

Theoretical implications

The study offers few theoretical implications. First, this study had deliberated on the results of the relationships between the independent variables (financial literacy, financial socialisation, self-control and financial technology) and the mediating variable (financial behaviour). The application of Systems Theory, Theory of Social learning, Theory of Self-Control, the Unified Theory of Acceptance and Use of Technology (UTAUT), had successfully explained the current research framework and contributed to the body of knowledge and understanding of financial well-being through the integration of these theories. The systems theory includes structural and process constructs (e.g. input,



throughput, and output). Danes and Yang (2014) explained that these are developmental sequences that are needed in order to achieve successful financial satisfaction or a sense of well-being derived from demands being met (Deacon and Firebaugh 1988).

This study also contributed by examining a personality trait variable—self-control, which has not been examined as a variable in preceding studies. The study offers evidence for self-control as an internalised measure that must be practiced by young adults in their pursuit of attaining positive financial behaviour. Moreover, the research findings expanded the existing understanding by integrating the mediating effect of financial behaviour on the relationship between financial literacy, financial socialisation, self-control and financial technology with financial well-being. In addition, this study explains the inconclusive evidences for the effectiveness of financial literacy on financial behaviour, arguing that personality traits such as self-control in determining sound financial behaviour is important.

Practical implications

Financial well-being is an important milestone in a young adults' life. What happens during these years has profound and long-lasting implications for young adults' future employment and career paths and for their economic security, health, and well-being. Financial missteps early in life of an individual, if not corrected, can have severe consequences in an individual's lifetime. This study offers important practical implications and offers inferences for young adults, policy makers and other stakeholders. This research has shown considerable evidence that young adults' financial well-being can only happen with positive financial behaviour. The results of the study could assist government and like-minded organisations to formulate policies for improvement and possible intervention programmes to assist young adults with their financial behaviour in order to achieve financial well-being.

This study reiterated the importance of financial socialisations. A certain level of family financial activities must take place for parents to have confidence and allow children the opportunity to gain hands-on experience in managing their money. Based on the results of the present study, there should be awareness programmes for the parents as well as children. These programmes should highlight the importance of sharing and practising positive financial practices at homes. Financial advisors and consultants may design training programmes which focus on certain skills such as self-control and financial technology.

Fintech and financial literacy may help young adults attain financial well-being. In this regard, policies should be drawn to help young adults attain financial well-being by the right framework of content. The findings could be

employed to develop financial education programmes that will help young adults to impart the knowledge and skills to manage their personal finances and thus, improve their overall financial well-being. Precisely, the intervention policies should be geared towards moulding the financial behaviours of young adults. Increasing financial resources of young adults could feasibly work to improve young adults' financial well-being as an alternative direct intervention. An extensive young adults' awareness campaign is possible by utilising various communication platforms, primarily platforms that are accessible to young adults. Awareness, coupled with changes in their financial behaviour, will yield actions such as preparing an emergency fund, a retirement plan or purchasing insurance coverage for themselves. One research finding that has been clear is that financial literacy is inadequate of helping young adults' financial well-being and as such, government agencies such as Credit Counselling and Debt Management (AKPK) or the Financial Education Network (FEN) must look at newer measures of moulding young adults' financial behaviours.

A move away from a specific programme approach (a one size fits all) may be necessary. The effort to identify the best practice and innovative delivery remains a struggle even for the regulators in Malaysia. Segmenting individuals according to a cohort will help to provide more customised programmes. The approach must be geared to target financial behaviours using appropriate means. In addition, the use of technology-driven educational platforms will ensure that financial well-being could be intensified through the development of more engaging content.

Limitations and directions for future research

There are certain limitations of the present study which deserve attention and could potentially become areas for future research. First, the survey sample is restricted to young adults between the ages of 18–29 only; thus, future researchers need to be cautious while generalising the results of this study. In order to increase the generalisability of the current theme, more coverage to the sample should be given beyond the ages of 18–29 by considering other adult population. Second, the sampling method applied for the current research study was multi-stage random sampling. Therefore, future studies may include responses from all states in Malaysia to yield a more accurate understanding on young adults' financial well-being. Further, this study used a subjective measure of financial well-being, which is well documented. Future studies may include subjective measures along with objective measures of financial well-being. In addition, this study did not analyse young adults from different backgrounds of education, compared to young adults who come from wealthy families. Therefore, to tackle, understand, and compare young adults' outcomes



from different perspectives, the inclusion of young adults from all socio-economic backgrounds must be examined thoroughly. Even though it is understandable that young adults from high-income families have many advantages, there have been many cases where they had turned out to be problematic to the society, and not all have become successful in the many aspects of their lives, especially their financial well-being. Finally, there are other factors affecting young adults' financial well-being that were not included in the study which provide opportunities for further analysis. Future studies may also examine the childhood experience and digital financial literacy aspects.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1057/s41264-023-00234-8>.

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Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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