Determinants of Financial Vulnerability Among Credit Counseling and Debt Management Agency Customers

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Abstract

A growing number of households are facing difficulties in making ends meet and are not resilient to cope with unexpected expenses during financial and economic instabilities. These households are deemed to be financially vulnerable, which might exert undesired impacts on economic growth and societal problems. In order to curb the financial vulnerability issue, this study aims to investigate the factors influencing financial vulnerability among Credit Counseling and Debt Management Agency Customers. Two theories, namely the family resource management model and self-efficacy theory were employed to serve as the basis of the research model. Four factors were proposed as relevant elements in the process of reducing financial vulnerability. This study proposes self-efficacy, financial literacy, and gender as input, financial behaviour as the throughput, and financial vulnerability as the output mechanism. Additionally, this study further examines the moderating effect of self-efficacy in the relationship between financial literacy and financial behaviour. A multi-stage random sampling technique was used to collect 640 usable responses from AKPK branches in Malaysia. After discarding unusable responses, the data were analysed using Partial Least Square Structural Equation Modeling (PLS-SEM). The analysis was conducted according to the highest standard of PLS-SEM guidelines by examining the measurement model before proceeding to the structural model. Resultantly, all the measurements were satisfactory in terms of reliability and validity. The model explained sufficient variance of financial vulnerability (R2 = 0.292). Financial behaviour was significantly influenced by gender (β = -0.07, $p< 0.05$) and self-efficacy (β = 0.44, $p < 0.05$), whereas financial vulnerability was negatively influenced by financial behaviour (β = -0.54, $p< 0.05$). Both mediating effect of financial behaviour in the relationship between self-efficacy and financial vulnerability (β = -0.24, $p < 0.05$), and the moderating effect of self-efficacy in the relationship between financial literacy and financial behaviour (β = 0.12, $p< 0.05$) were identified. Overall, the findings revealed that the relationship between financial literacy and financial behaviour is stronger when the self-efficacy of Malaysian households is high.

Keywords: financial vulnerability, financial literacy, financial behaviour, self-efficacy, Credit Counseling and Debt Management Agency (AKPK)

1.0 Introduction

In Malaysia, household debt to the country's gross domestic product (GDP) has been kept at a moderate level in the past few years, however, economists and analysts have cautioned that the phenomenon should not be neglected. Notably, Malaysia's household debt reached 82.2% of GDP in 2019, thereby topping the chart in Asia and surpassing a few high-income countries such as the United States (75.0%) and Japan (58.2%).

Poverty and financial vulnerability in developing countries are among the top topics of focus among the Millenium Development Goals (MDGs) of the United Nations due to their impacts on well-being (Mamun et al., 2018). According to the World Bank, the rising cost of living remains a primary concern for the Malaysian public and the government. The main underlying reasons include inadequate affordable housing, the worrying level of household debt, lagging salary in some sectors, and food price inflation (Loke, 2017b). Several agencies have been set up by the government to address the issue of poor personal finance management among Malaysian households. For instance, online portals, such as www.bankinginfo.com.my, www. insuranceinfo.com.my, and www.duitsaku.com were introduced by Bank Negara Malaysia (BNM) as personal financial information sources accessible to the Malaysian public. Besides, a credit counselling agency, known as Agensi Kaunseling dan Pengurusan Kredit (AKPK) was established in the year 2006 to offer financial information and debt rescheduling plan for the public, as well as individuals facing financial problems (Ali, Rahman, & Bakar, 2015).

Malaysia needs to curb the issue of financial vulnerability on the path of progress toward a high-income nation (Loke, 2017a). It has been reported that 76% of Malaysians are not able to raise immediate cash of RM1000 when facing an emergency (Financial Stability & Payment Systems Report, 2015), suggesting poor financial resiliency among Malaysian households. In many instances, Malaysians tend to rely on suboptimal practices such as reducing spending, borrowing from friends and family members, and depending on credit cards and instalment plans (Ruxyn, 2017). Malaysian households should possess an adequate financial buffer to cover living expenses for at least three to six months in case of income loss. A previous study also disclosed that these vulnerable groups are prone to financial fraud and scams due to unsound financial practices (Ruxyn, 2017). Similarly, Malaysian working households are reported to be finally vulnerable and needed immediate attention from pertinent authorities. A report by AKPK indicated that a considerable number of Malaysian working households are unable to make ends meet, stressed by financial matters, and lack financial resilience (AKPK Financial Behaviour Survey, 2018).

The respondents of this study are limited to people attending AKPK services, thereby restricting the ability to generalise the findings. However, the approach in selecting respondents was valid and aligned with the objective of this study given that respondents who attend AKPK services are likely to face financial related problems, which reflects the dependent variable of this study, financial vulnerability.

2.0 Literature Review

The literature review section in this study comprises a discussion on the determinant of financial vulnerability among Credit Counseling and Debt Management Agency customers in the aspect of financial literacy, financial behaviour, and self-efficacy. It then provides a theoretical understanding and theoretical framework.

Most of the studies in personal finance were conducted in developed countries (Patel, Balmer & Pleasence, 2012). Nevertheless, recent research suggests that there are significant differences in terms of demographic and socio-economics structure, such as gender, race, income, educational attainment, and financial behaviours, thus rendering the direct generalisation of these studies to developing countries infeasible (Christelis, Georgarakos & Haliassos, 2013; Haliassos, Jansson & Karabulut, 2016). To date, insufficient attention has been given to the coping strategy for financial vulnerability in developing countries. Therefore, coupling with the household financial related problem outlined in the introductory section, the present study intends to investigate financial vulnerability in Malaysia, a developing country. This is supported by Grohmann (2018) who upheld that a centric focus on developing countries could be theoretically and practically fruitful due to their distinct economic and social structure (Grohmann, 2018).

2.1 Financial Vulnerability

In general, financial vulnerability is measured either using the subjective or objective method. With regards to objective measurement, some studies posit that financial vulnerability is indicated by the liquidity or solvency of households' financial position (Leika & Marchettini, 2017). To further explain, liquidity reflects the ability of households to cover their financial responsibilities on time, whereas solvency refers to a longer-term concept, measuring households' possession of assets above liabilities (Abdullah Yusof, 2018). Another study by Dey, Djoudad and Terajima (2008) revealed the application of the debt-service ratio (DSR) as the measurement of financial vulnerability in which households who allocate more than 40% of their income to service their debt are considered financially vulnerable.

In a similar vein, Loke (2017b) employed the debt-to-income ratio and the level of emergency savings to cushion income shock. The general rule of thumb for the debt-to-income ratio ranges from 30% to 40%, and households who exhibit a debt-to-income ratio above these thresholds are considered financially vulnerable. Next, the author further outlined that financial vulnerability could be indicated by the level of emergency saving, of which the minimum adequacy of emergency saving should be equivalent to three months of living expenses, calculated based on the average unemployment period of a worker (Loke, 2017b).

Del Rio and Young (2008) found a positive relationship between financial stress and households who carry an unaffordable amount of debt, as indicated by an undesirable and unsecured debt to income ratio. These households were reported to be financially vulnerable, especially when exposed to potential shocks in income and increased interest rates. Similarly, households' financial vulnerability depends on their level of indebtedness and the stability of income sources in proportion to their obligations (Fuenzalida & Ruiz-Tagle, 2010). Debt incurred among older people is becoming a critical factor in determining elder financial vulnerability, which is reflected in bankruptcy, lifetime wealth sufficiency, and retirement security (Lusardi, Mitchell, & Oggero, 2019).

The operation of the financial literacy-financial vulnerability mechanism is yet to be uncovered. In the personal finance literature, researchers have pointed out that no relationship exists between financial literacy and related outcomes, such as financial well-being. Meanwhile, they are indirectly associated with potential intervening factors (Gutter & Copur, 2011; Limbu & Sato, 2019, Poh et al., 2021). Therefore, this study incorporates the aforementioned variables, investigating both direct and mediating relationships between the aforementioned variables. Specifically, the mediation effect of financial behaviour in the relationship between financial literacy and financial vulnerability, as well as self-efficacy and financial vulnerability, was investigated.

2.2 Financial Literacy

In the last decade, the concept of financial literacy has gained exceptional attention from policymakers, governments, and other relevant financial aid organisations. According to the definition of Redmund (2010), financial literacy refers to the degree to which a person understands personal finance, concerning the individual’s familiarity with economic concepts, and having the ability to manage personal finances. Financial education providers have exerted immense efforts to promote and enhance consumers’ financial literacy (Jariwala & Dziegielewski, 2017). Improving financial literacy is of utmost importance in providing consumers with relevant financial-related information, knowledge, and skills to assess their financial behaviour, such as savings and investment which ultimately enhance consumers’ financial decisions (Jariwala & Dziegielewski, 2017). Moreover, having adequate levels of financial literacy allows individuals to create or foster financially secured families, which may ultimately contribute to a positive community economic development (Hilgert, Hogarth, & Beverly, 2003).

Several studies have managed to uncover the predictors of financial literacy. A major stream of research has focused on individual-related factors, such as socioeconomic and demographic factors. For instance, women tend to score lower in financial literacy compared to men, and they perform worse in financial calculations (Agarwalla, Barua, Jacob, & Varma, 2015; Agarwal, Amromin, Ben-David, Chomsisengphet, & Evanoff, 2015; Mottola, 2013). In addition, women reported less enthusiasm and confidence in matters relating to personal finance (Chen & Volpe, 2002). Studies attributed the finding to the fact that women only initiate investment in financial literacy during the late stage of their lives (Fonseca, Mullen, Zamarro, & Zissimopoulos. 2012). Such findings have been supported across different regions worldwide, such as the US, Europe, and Asia (Lusardi, 2019), thereby suggesting that the gender gap in financial literacy is unlikely to be bounded by geographical and cultural factors. Furthermore, households' financial literacy is negatively related to age. Finke, Howe, and Huston (2017) found that financial literacy consistently and linearly declines after age 60.

The personal finance literature found that financial literacy influences a person's financial behaviour and economic decisions. Individuals with high financial literacy tend to perform better in financial behaviours, such as saving, investing, and managing debts (Robb & Woodyard, 2011). For example, individuals with high financial literacy tend to be more careful in investment by allocating part of their portfolio to financial experts and investing in mutual funds (Chu et al., 2017). Also, they are more likely to possess sophisticated assets other than a savings account but less likely to own life insurance with low returns (Grohmann, 2018; Lusardi & Mitchell, 2014). Correspondingly, financially literate people tend to accumulate wealth better (Lusardi & Mitchell, 2014).

There has been a considerable number of studies in the field of behavioural finance relying on college or university student populations (Borden, Lee, Serido, & Collins, 2008; Robb, 2010; Jorgensen et al., 2017; Mudzingiri et al., 2018). In contrast, only a few studies have investigated the general population or working adults. Hence, the present study intends to gather the views of the general population in investigating financial vulnerability. Adults were selected since they act as heads of households, make most of the household financial decisions, and are also exposed to the financial market to a greater extent.

2.3 Financial Behaviour

Financial behaviour is largely determined by individual characteristics, knowledge, and psychological factors (Bergner, 2011; García, 2013; Mudzingiri et al., 2018). Particularly, it has been contended that understanding the association between financial knowledge and corresponding financial behaviour is deemed to be critical in the personal finance area (Robb & Woodyard, 2011).

Gender differences exhibited in financial behaviour have been revealed in the prior literature. In general, women seem to perform poorer in financial behaviour compared to men. For example, Hira and Mugenda (2000) outlined that more women reported involving in impulse and unnecessary purchases, as well as the inability to resist sales and frequent shopping. Falahati and Paim (2012) found that male college students performed better in saving compared to female college students. However, there are contradictory findings in the literature. The well-established fact that women tend to perform lower in financial literacy seems to not influence their practice of sound financial behaviour. According to Nitani et al. (2019), women’s lower levels of financial literacy may make them prone to making suboptimal financial decisions. However, their risk aversion traits and lower overconfidence levels may offset the effect of the lower financial literacy levels, which enables them to perform sound financial behaviour. The above is supported by Theodos, Kalish, McKernan, and Ratcliffe (2014), who found that women’s lower level of financial literacy does not necessarily turn into bad financial behaviours.

H1 Being male is positively associated with better financial behaviour

2.3.1 Financial Behaviour Negatively Influences Financial Vulnerability

Practising sound or unsound financial behaviours can bring personal and interpersonal consequences. It has been shown that positive financial behaviour is related to better evaluation of physical health, mental health, academic success, and life satisfaction among college students (Xiao, Tang, & Shim, 2009). Similarly, several studies have established the positive linkage between financial behaviour and financial well-being/financial satisfaction (Aboagye & Jung, 2018; Burcher, Serido, Danes, Rudi, & Shim, 2018; Jorgensen et al., 2017; Xiao & Porto, 2017). Moreover, Tang and Baker (2016) evidenced the intergenerational consistency in the financial behaviour between parents and their children, suggesting that the pattern of financial behaviour performed by parents can be transferred to children to a certain extent. In conclusion, financial behaviour can be imperative in determining whether a household is financially well-off or financially vulnerable.

H2 Financial behaviour negatively influences financial vulnerability

2.3.2 Financial Behaviour Mediates the Relationship Between Self-Efficacy and Financial Vulnerability

Financial behaviour is a multi-faceted variable which includes any financial-related behaviour as subdimensions (Jorgensen et al., 2017). Financial behaviour can be generally classified into two, namely, actions over time such as saving and spending, as well as event-like activities such as opening or closing retirement savings accounts (Jorgensen et al., 2017).

For instance, Arrondel et al. (2014) focused only on household asset behaviour, emphasising their asset planning capabilities and risky assets. Some studies have measured financial behaviour using a single item scale, which is often related to savings behaviour (e.g. Gathergood, 2012; Lusardi, 2012; Rha, Montalto, & Hanna, 2006). Likewise, Sabri et al., (2020a) focused solely on the saving domain regarding the financial problems among college students. Grohmann (2018) employed the dimensions of saving and borrowing in measuring financial behaviour.

A multidimensional financial behaviour scale is important given that households perform different financial behavioural decisions in their daily lives, and each behaviour holds different weight to households' financial-related outcomes. For example, prior studies have often overlooked the insurance domain of financial behaviour. Nevertheless, inadequate health insurance has always been a risk burdening households due to expensive medical bills and eventually leading them to financial vulnerability (e.g. bankruptcy) (Ayanian, Weissman, Schneider, Ginsburg, & Zaslavsky, 2000; Domowitz & Sartain, 1999; Short & Graefe, 2003). Although saving and borrowing have been deemed as the most frequently considered households' financial behaviour, some other domains are equivalently important, such as retirement planning and risk planning. Ignoring these behavioural domains may incur consequences to households' financial status and other related outcomes as well. This also explains why Joo (2008) claimed that households' financial position improved when they implemented sound financial behaviour in several domains, instead of focusing on one or two domains.

Recent research has advocated the consideration of psychological factors in determining individuals' financial behaviour/decisions (Bialowolski, 2019; Tang & Baker, 2016). Tang and Baker (2016) indicated that self-esteem, which reflects overall perception towards oneself can influence financial behaviour. The authors explained that individuals with self-esteem are more persistent when handling difficult tasks or facing failures, and they tend to engage in more intense goal pursuit behaviour. These traits have made high self-esteem individuals more engaging in financial behaviour given that it is essentially a daunting task of goal setting and goal achievement.

H3 Financial behaviour mediates the relationship between self-efficacy and financial vulnerability

2.4 Self-Efficacy Moderates the Relationship Between Financial Literacy and Financial Behaviour

Self-efficacy refers to a person's belief in his or her ability to perform a particular task or behaviour (Bandura, 1997). According to Bandura (1997), self-efficacy is not a general attribute possessed by people instead it reflects specific beliefs a person holds towards the conduct of particular tasks or behaviours. For instance, a person who holds a high level of social self-efficacy is someone who exhibits great confidence in his or her capability in interacting with other people. Self-efficacy can be reflected in different dimensions of personal behaviour, such as an individual's perseverance level in facing adversity, the uphold of attitude (optimistic vs pessimistic) towards current and future situations, and the manner of thinking (self-enhancing vs self-debilitating) (Bandura, 2006).

Self-efficacy influences a person's selection of activities and behavioural settings, level of effort expends, and the duration of persistence when facing obstacles and difficult events (Bandura & Adams, 1977). It has been shown that greater self-efficacy would generate a relatively active level of coping efforts (Bandura & Adams, 1977). It is well-established that a high level of self-efficacy is beneficial to individual well-being, either in terms of physical or mental, through the improvement of individuals' behaviour (Bandura, 1986; Lim et al., 2014). The inclusion of the self-efficacy concept and related financial outcomes is theoretically and practically relevant since an individual's cognitions and behaviours can be notably impacted by the belief in their abilities to engage in a specific task or activity (Danes & Haberman 2007; Mindra, Moya, Zuze, & Kodongo, 2017; Skagerlund, Lind, Strömbäck, Tinghög, & Västfjäll, 2018).

According to Farrell et al. (2016) and Chong et al. (2021), individuals who exhibit a greater sense of self-efficacy in financial management are more likely to handle encountered financial difficulties with a positive mindset and perceiving difficulties as challenges to be overcome instead of threats to be evaded. As a result, it is generally believed that self-efficacy and trust tends to produce positive and more favourable personal financial outcomes and satisfaction (Simanjuntak et al., 2020). For example, several studies have identified self-efficacy as a driver of individuals or households' financial well-being (Drever et al., 2015; Vosloo, Fouché, & Barnard, 2014). In a similar conceptualisation of self-efficacy as financial capability, a study found the relevance of self-efficacy to financial satisfaction (Kuhnen & Mezler, 2018). The researchers also demonstrated that differences in individuals' self-efficacy can lead to considerable variations in financial distress in the later stage of life. The findings could be attributed to the fact that self-efficacy can influence the perceived control of sustaining a person's desired lifestyle (Brüggen, Hogreve, Holmlund, Kabadayi, & Löfgren, 2017) and the exhibition of sound financial behaviour (Kuhnen & Melzer, 2018, Husniyah & Fazilah, 2011).

Farrell et al. (2016) found that Australasian women who exhibit a greater level of financial self-efficacy are more likely to have investment and savings accounts but less likely to possess credit cards or loans. It is believed that self-efficacy drives forward-thinking and responsible financial behaviour as indicated by having investment and savings accounts. On the other hand, low self-efficacy seems to result in possession of debit and credit, which indicates a relatively undesirable financial planning capacity and financial prospects. Mewse, Lea, and Wrapson (2010) also found that debtors reported lower self-efficacy levels compared to their non-debtors counterparts. Meanwhile, Lown et al. (2015) and Rothwell et al. (2016) demonstrated that self-efficacy influences individuals' saving behaviour positively. Moreover, debtors who resolve their debts reported higher self-efficacy compared to those who avoid their creditors. The finding to a certain extent explains why self-efficacy aligns with financial-related outcomes.

Self-efficacy is related to a wide range of investing behaviour. For instance, a study by Monfort and Goldsmith (2016) revealed that women tend to select less risky investments due to comparatively lower self-efficacy compared to men. Women feel they are less capable of handling risky investment decisions, thus they have lower returns in the long run. Self-efficacy is also positively related to financial help-seeking behaviour. This was reflected in the study by Lim et al. (2014) in which college students who possessed higher financial self-efficacy felt a greater sense of capability in handling financial situations and they were more likely to seek professional financial expertise. Given the positive implications of self-efficacy on households' behaviours in several domains of daily life, studies have recommended further investigation of this concept, especially in terms of financial behaviour. For instance, Petkoska and Earl (2009) suggested the need to investigate the relationship between self-efficacy and households' retirement planning.

As an important psychological variable associated with personal financial-related outcomes, the role of self-efficacy has not been examined as thoroughly as financial literacy (Lusardi et al., 2017; Rothwell et al., 2016; Skagerlund et al., 2018). The relationship between self-efficacy remains unclear and more relevant research is warranted (Lown et al., 2015).

H4 Self-efficacy moderates the relationship between financial literacy and financial behaviour

2.5 Theories and Research Framework

This study adopted and integrated two different theories and one model, namely System Theory and Self-Efficacy Theory (Bandura, 1977 also Family Resource Management Model (Deacon & Firebaugh, 1975) to offer a more comprehensive guideline to the present study to ascertain possible variables that might determine Malaysian households' financial vulnerability. The Family Resource Management Model (Deacon & Firebaugh, 1975) underpinned the research framework of this study. Specifically, the three important components of the family resource management model, namely input, throughput, and output provide the theoretical foundation for the selection of variables (i.e., financial literacy, self-efficacy, financial behaviour, and financial vulnerability) in this study. The model illustrates the process of utilising resources (independent variables) to accomplish the financial goal (dependent variable) has been validated and proven by several personal finance management research (Danes & Yang, 2014; Gutter & Copur, 2011; Hira, 2012; Mimura, 2014; Sumarwan & Hira, 1993).

The conventional economic approach to saving and consumption decisions presumes financially well-informed persons will consume and save proportionately in relation to their income (Lusardi & Mitchell, 2014). Sound execution of saving and spending requires households to possess a certain level of financial knowledge and expertise (Lusardi & Mitchell, 2014). Correspondingly, financial literacy is defined as a resource (input) in the model which is posited to determine the action taking process (throughput). Financial literacy, as a cognitive function, is related to recognition, identification, and problem-solving, and may influence households' financial behaviour, not only through increased awareness but also via initiative. It is believed that having high financial literacy levels empower households to equip themselves with adequate knowledge for subsequent action planning and execution.

Individuals' behavioural tendencies or actual behaviour can be predicted by their basic personal characteristics, such as personality or other psychological factors (Asebedo, 2018). Several studies have argued that personality characteristics may be essential in determining financial behaviours (Asebedo, 2018). Based on the premise of self-efficacy theory (Bandura, 1977), this study included self-efficacy as a determinant construct in the model given that households' financial behaviours might exert a significant influence on their perceived ability to perform a specific task or activity (Mindra et al., 2017). It is posited that self-efficacy drives households to be more persistent and confident, which in turn facilitates the actions of planning, monitoring, and commitment to pre-set financial goals. Therefore, this study extends prior research which focused on financial literacy as resources (inputs) that determine financial behaviour (throughput). The present study examines psychological resources that are potentially important in influencing households' financial behaviour, which has been overlooked in past studies.

This study also hypothesised and examined the role of demographic factors, particularly gender, in relation to financial behaviour. Past studies have delineated that gender differences exist in several financial, trading, savings, and budgeting behaviour domains (Lind et al., 2020). Using a Swedish adult population, Lind et al. (2020) indicated that females can perform better financial behaviour than males when cognitive and socio-demographic factors are controlled for. This is probably due to the fact that females feel less secure in their financial situation than males. Another study by Nitani, Riding, and Orser (2019) revealed that females are more conservative and less likely to be involved in high-cost borrowing.

The financial-related actions taken by households are expected to determine their financial related outcomes (output). As asserted by Robb and Woodyard (2011), whether an individual is financially well-off is pretty much incumbent on their actions taken. For example, financial vulnerability is caused by unwise borrowing choices, which makes households unable to handle debts appropriately given their current and future level of earning capacity (Anderloni et al., 2012). Therefore, it is crucial to understand and obtain the evidenced impact of financial behaviour and financial vulnerability among Malaysian households. Furthermore, this study incorporated the mediation effect by modelling financial behaviour as a mediator in the relationship between financial literacy, self-efficacy, and financial vulnerability. This aligns with the role of financial behaviour in its role as throughput in the family resource management model. The core of mediation analysis lies in the assumption of sequential relationships in which a predictor variable impacts a mediating variable, which in turn impacts a dependent variable. Such an approach is important and fruitful as understanding mediation is the foundation of a wide array of management studies, including personal finance management, to explain how a particular process factor improves or impedes the influence of outcome drivers (Nitzl, Roldan & Cepeda, 2016).

This study also incorporated the moderation effect in the research model. Adhering to the suggestion of prior studies (Lusardi, Michaud, & Mitchell, 2017; Mitchell & Lusardi. 2015), the present study acknowledges the fact that the inconsistent impact of financial literacy on financial behaviour is not due to the problem of financial literacy itself. Instead, it is due to the process being more or less optimal for different people. In line with the suggestion of Loke, Choi, and Libby (2015), the present study posits self-efficacy could intervene in the development of financial behaviour. It is expected that how well households can translate financial literacy into sound financial behaviour depends upon their confidence in executing and handling financial matters. With high self-efficacy, households can better and more effectively utilise their financial literacy to plan and execute their financial behaviour and vice versa. Thus, the proposed framework for this study is presented below in Figure 1.

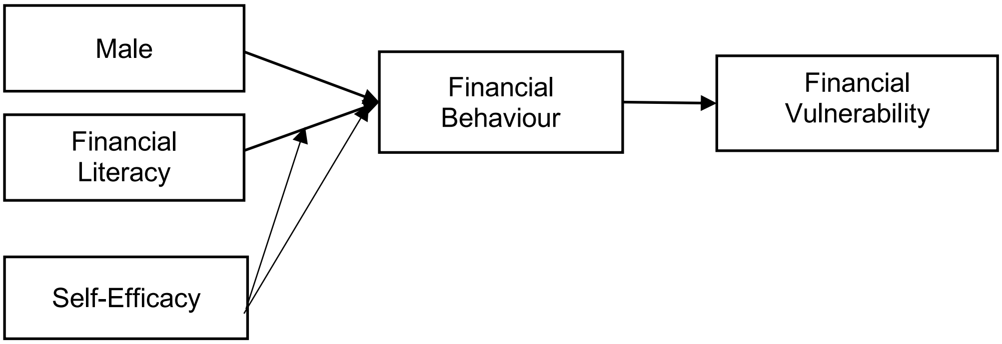

Figure 1 : Research Framework

3.0 Methodology

This study was conducted using multi-stage random sampling and was undertaken in two stages. In the first stage, the sampling zone was categorised into five zones of Malaysia, namely South, North, East, West of Peninsular Malaysia, and East Malaysia where 11 Credit Counselling and Debt Management (AKPK) branches throughout Malaysia. Each selected zone was targeted to obtain 130 respondents aged 18 years and above, comprising Credit Counselling and Credit Management (AKPK) participants and walk-in customers. Specifically, the respondents included those who seek credit counselling services, advice for debt management, and who attended financial education programmes. In the second stage, systematic sampling was employed with the help of AKPK officers to select every *n*th case (3rd, 7th & 9th) of participants and walk-in customers.

3.1 Measures

The questionnaire comprised four main sections. The first section captured respondents' demographic (e.g., gender, marital status, and so on) and socio-economic profiles (job, saving-earning ratio, and the number of dependents). The following sections featured questions for each construct, namely, financial literacy, self-efficacy, financial behaviour, and financial vulnerability.

The questionnaire was designed in four constructs, comprising a total of 86 questions. Financial literacy was measured through 28 statements presented in true/false format, adopted from Malaysia Financial Planning Council (2018). The questions covered several domains, including cash flow management, debt management, saving and investment, retirement planning, risk management, Islamic products, taxation and estate planning, and general questions on the Malaysian financial system. The measurement scale of self-efficacy was 15 items adopted from Chen et al. (2001), measured on a 5-point Likert scale, ranging from “1 = Strongly Disagree” to “5 = Strongly Agree”. A similar scale was employed to assess financial behaviour in five sub-dimensions: cash management, credit management, retirement planning, estate planning and risk management, with a total of 28 items. Financial vulnerability was measured using 14 measurement items adapted from Anderloni et al. (2012), measured on a 10-point scale, where 1 = very stable/not vulnerable and 10 = unstable/vulnerable.

4.0 Results

A frequency distribution analysis was performed to obtain a clearer demographic and other relevant information about the respondents involved in this study. Table 1 presents the demographic profiles, which included gender, education level, and income per month.

Table 1 : Respondents’ Demographic Profile

Demographic	Frequency	Percentage (%)
Gender		
Male	340	53.6
Female	294	46.4
Education Level		
No formal education	6	0.9
Primary school	16	2.5
Secondary school	229	35.9
Diploma	163	25.5
Bachelor	184	28.8
Postgraduate	22	3.4
Professional Certificate	4	0.6
Others	14	2.2
Monthly Income		
Less than RM3000	255	45.5
RM 3000-RM 4999	185	33.0
RM 5000-RM 6999	70	12.5
RM 7000-RM 8999	27	4.8
RM 9000-RM 10999	13	2.3
RM 11000 & above	11	2.0

As shown in Table 1, 53.6% and 46.4% of the respondents were male and female, respectively. The estimates are similar to the male to female ratio reported by the Department of Statistics Malaysia (2019). Most of the respondents completed at least secondary evel of education (35.9%), followed by Bachelor (28.8%), and Diploma (25.5%). The majority of respondents have a monthly income of less than RM 3000 (45.5%), whereas 33% of them have a monthly income between RM 3000 and RM 4999.

Table 2 : The hypothesis statement for direct effects based on the conceptual framework

	Hypothesis statement	**Statistical Analysis to employ**
H1	Being male is positively associated with better financial behaviour.	Path Analysis in SEM
H2	Financial behaviour negatively influences financial vulnerability.	Path Analysis in SEM
H3	Financial behaviour mediates the relationship between self-efficacy and financial vulnerability.	Path Analysis in SEM & Bootstrapping
H4	Self-efficacy moderates the relationship between financial literacy and financial behaviour.	Multi-Group Analysis in SEM

The hypothesis statements and the statistical analysis to be employed are presented in Table 2.

Table 3 : Reliability and Convergent Validity for First-Order and Second-Order Constructs (The Average Variance Extracted (AVE) and Composite Reliability [CR])

First-order constructs	**Indicators**	**Loading**	**CR**	**AVE**
Self-efficacy	SE1	0.58	0.94	0.55
	SE2	0.74		
	SE3	0.75		
	SE4	0.77		
	SE5	0.79		
	SE6	0.81		
	SE7	0.72		
	SE8	0.81		
	SE9	0.78		
	SE10	0.77		
	SE11	0.76		

Second-order construct	Indicators	Loading	CR	AVE
	SE13	0.76		
	SE14	0.60		
	SE15	0.72		
Financial behaviour	FB1	0.80	0.88	0.600
	FB2	0.65		
	FB3	0.82		
	FB4	0.77		
	FB5	0.81		
Financial vulnerability	FV1	0.94	0.93	0.82
	FV2	0.92		
	FV3	0.85		

All AVE and CR values were above their threshold values of 0.5 and 0.6, respectively, fulfilling the necessary threshold as presented in Table 3. (Yusof et.al., 2017). Hence, the study infers that all latent constructs in the model have attained Convergent Validity and Composite Reliability.

4.1 The Assessment of Discriminant Validity among Constructs

Table 4 : Discriminant Validity (Fornell & Larcker, 1981)

	Credit management	Cash management	Estate planning	Retirement planning	Risk management	Consumption expenses	Debt services	Saving	Self-efficacy
Credit management	**0.76**								
Cash management	0.45	**0.75**							
Estate planning	0.42	0.39	**0.86**						
Retirement planning	0.46	0.54	0.54	**0.77**					
Risk management	0.36	0.45	0.69	0.57	**0.82**				
Consumption expenses	-0.21	-0.49	-0.31	-0.38	-0.43	**0.91**			
Debt services	-0.25	-0.32	-0.34	-0.33	-0.37	0.67	**0.78**		
Saving	-0.25	-0.50	-0.37	-0.44	-0.46	0.82	0.69	**0.87**	
Self-efficacy	0.24	0.49	0.24	0.33	0.32	-0.49	-0.27	-0.40	**0.74**

Note: Diagonal elements are the square root of AVE. The value should exceed the inter-construct correlations.

Table 5 : Discriminant Validity (HTMT Criterion)

	Credit management	Cash management	Estate planning	Retirement planning	Risk management	Consumption expenses	Debt services	Saving	Self-efficacy
Credit management									
Cash management	0.625								
Estate planning	0.748	0.42							
Retirement planning	0.787	0.611	0.608						
Risk management	0.616	0.500	0.796	0.669					
Consumption expenses	0.284	0.538	0.329	0.421	0.479				
Debt services	0.489	0.374	0.403	0.405	0.460	0.795			
Saving	0.355	0.532	0.399	0.493	0.509	0.891	0.809		
Self-efficacy	0.337	0.529	0.245	0.35	0.328	0.533	0.309	0.406	

Note: HTMT < 0.90 (Gold et al., 2001)

According to Table 4 and Table 5, the Discriminant Validity of a construct is obtained when the square root of its AVE is greater than its correlation value with other constructs in the model. In other words, the Discriminant Validity is obtained if the diagonal values (in bold) are higher than any other values in the row and column. As a result, the study concludes that all constructs have Discriminant Validity.

Table 6 : The R^2 and Its Implication in This Study

Construct	R^2	Conclusion
Financial Behaviour	0.198	Financial literacy, self-efficacy, gender, and marital status contributed about 19.8 % of the variance in explaining financial behaviour
Financial Vulnerability	0.292	Financial behaviour accounted for 29.2% of the variance in explaining the financial vulnerability

The R^2 represents the combined impact of exogenous variables on endogenous variables (Hair et al., 2017). Resultantly, the R^2 value was 0.198 for financial behaviour and 0.292 for financial vulnerability. The former indicates that financial literacy, self-efficacy, gender, and marital status accounted for 19.8% of the variance in explaining financial behaviour. Similarly, an R^2 of 0.292 signified that financial behaviour accounted for 29.2% of the variance in explaining financial vulnerability. Based on Cohen's (1988) guideline, the variance explained in financial behaviour and financial vulnerability was considered moderate and large, respectively.

Table 7 : Summary of the Result Hypotheses Testing

Hypothesis	Relationship	Std. Beta	Std. Error	t-value	p-value	Decision
H1	GN->FB	-0.07	0.04	2.00	0.02	Supported
H2	FB -> FV	-0.54	0.03	16.22	0.00	Supported
H3	SE-> FB-> FV	-0.24	0.03	7.55	0.00	Supported
H4	FL*SE->FB	0.12	0.03	3.58	0.00	Supported

As exhibited in Table 7, being male is negatively associated with financial behaviour (β= -0.07, t= 2.00, p< 0.05). Gender role theory contends that prescribed role for male and female in the societal norm results in different financial behaviour in gender (Loke, 2017a; Sharif, Ahadzadeh, & Turner, 2020). The gender gap persists in Malaysia despite the dilution of gender stereotypes across many cultures (World Economic Forum, 2019). In Malaysia, males have often assumed the legitimate occupiers of productive roles and are expected to be more career-oriented (Abdullah, Noor, & Wok, 2018), thus probably leading to better financial behaviour. Although the results obtained in this study contradict such facts, some studies in Malaysia lend support to the results obtained (Delafrooz & Paim, 2011; Sabri & MacDonald, 2010). Studies in the Malaysian context (Loke, 2017a; Sharif et al., 2020) explain that males may be more risk-taking while females tend to exercise caution in their financial behaviour. For example, Sabri and McDonald (2010) reported female Malaysian students are more engaged with saving behaviour compared to their male student counterparts. In addition, females perceive money management to be more impactful to their future compared to males.

Next, financial behaviour significantly negatively influences financial vulnerability (β = -0.54, t = 16.22, p<0.05). It is intuitive to think that a financial outcome obtained is largely determined by the household, which has been evidenced in several similar studies. Being financially healthy and happy requires one to exhibit positive financial behaviour, such as regular savings, and proper credit management (Sabri et al., 2020a). On the other hand, engaging in risky financial behaviour, such as possessing a high level of unsecured debt & risky assets exposes households to financial vulnerability (Loke, 2017a). In the present study, being a “doer” is far more important than merely possessing financial knowledge in ensuring the avoidance of financial vulnerability. Hence, H2 was supported according to the hypothesised direct relationship.

On the other hand, self-efficacy showed a significant positive influence on financial behaviour ($\beta = 0.44$, $t = 10.60$, $p < 0.05$). The result is in line with prior personal finance literature in the context of Malaysia (Faique et al., 2017). Self-efficacy has been deemed as the foundation for behavioural change (Faique et al., 2017). A recent Malaysia-based study conducted by Sabri et al. (2020b) indicated that people with a high level of self-efficacy are confident with their ability to handle financial decisions, and manage finance in a positive and self-controlled manner. Meanwhile, one with low self-efficacy is less likely to master financial difficulties, and thus leads to financial misbehaviour, such as overuse of credit cards (Zainudin, Mahdzan, & Yeap, 2019). Hence, the present study highlights the important role of self-efficacy as a psychological factor that is positively related to financial behaviour.

4.2 Confirming the Results of Mediation Test using Bootstrapping

Besides, this study examined the mediation effect of financial behaviour in the relationships between financial literacy and financial vulnerability, and between self-efficacy and financial vulnerability. The mediation was assessed by bootstrapping the indirect effect based on Hayes’s (2013) approach.

4.3 Testing the Financial Behaviour as a Mediator

4.3.1 Testing the Financial Behaviour as a mediator on the Relationship between Self-efficacy and Financial Vulnerability (H3)

The mediating effect of financial behaviour in the relationship between self-efficacy and financial vulnerability was significant ($\beta = -0.24$, $p< 0.05$). Notably, the present study depicts that self-efficacy counteracts financial vulnerability by fostering sound financial behaviour. The mediation linkage is rarely examined in the context of Malaysia. When a household is equipped with high self-efficacy, as manifested in the confidence in controlling their behaviour, the household can indeed perform better in financial management, thereby evading financial vulnerability.

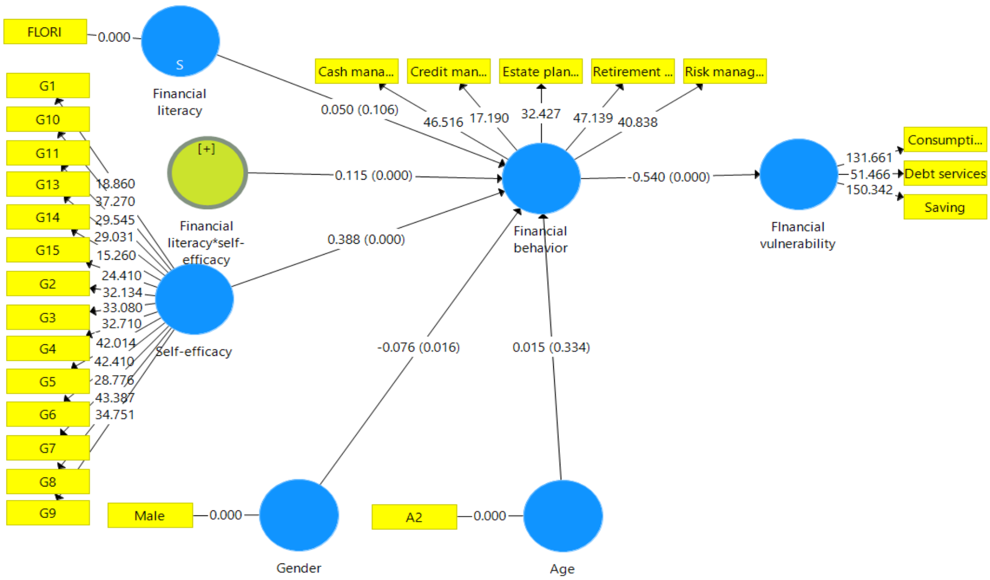

Figure 2 : Moderating Effect of Self-Efficacy

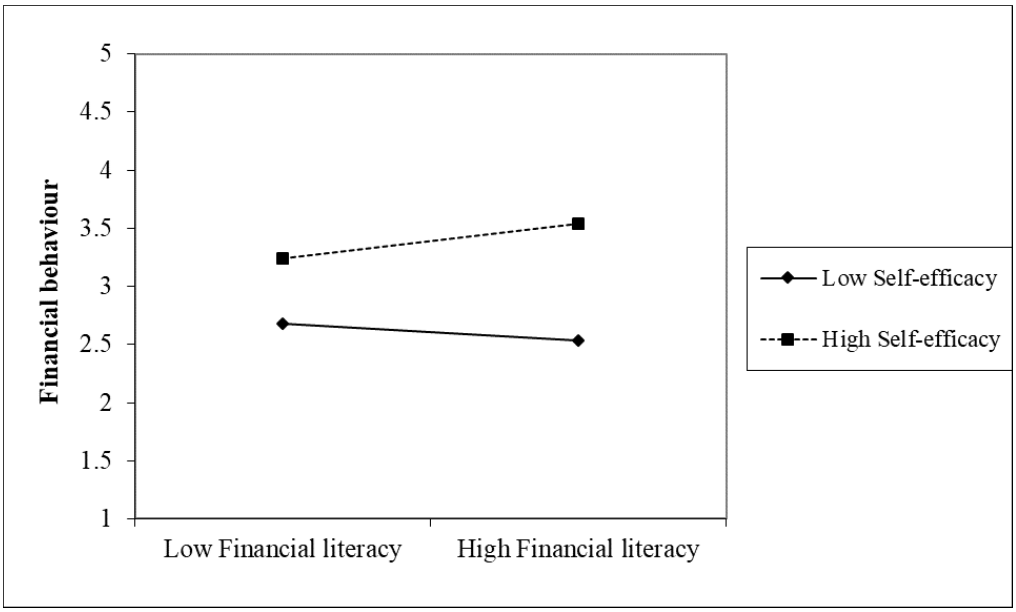

Figure 3 : Interaction Plot for Financial Literacy* Self-Efficacy

4.4 Testing Self-efficacy as Moderator in the Relationship between Financial Literacy and Financial Behaviour (H4)

In the context of PLS-SEM, the assessment of moderating effect was performed by creating interaction terms between a moderator and an exogenous construct. The interaction term created was pointed to the endogenous construct for path analysis. A two-stage approach was selected to model the interaction term since it yields greater statistical power and is suitable for identifying whether a moderator exerts a significant effect on the relationship between an exogenous construct and an endogenous construct (Hair et al, 2017).

As shown in Figure 2, the results indicated that there is a significant moderating effect of self-efficacy in the relationship between financial literacy and financial behaviour ($\beta = 0.115$, $t = 3.626$, $p < 0.01$). Following the suggestion of Dawson (2014), a plot for moderation was illustrated for a better interpretation of the nature of the interaction effect detected. Figure 3 depicts the relationship between financial literacy and financial behaviour is stronger when self-efficacy is high. To the researcher's knowledge, this study is among the first to uncover this finding, especially in the Malaysian context. The finding echoes the notion that financial education needs not only an impartment of financial knowledge but also enhancement of psychological strength such as self-efficacy to fully translate the knowledge into real-life financial behaviour (Falahati & Paim, 2012). Analogically, financial literacy is a vehicle for ideal practising of financial behaviour while self-efficacy represents the fuel that enables and empowers the movement.

In line with the idea of Loke, Choi, and Libby (2015), the present study posits self-efficacy could intervene in the development of financial behaviour. It is expected that how well households can translate financial literacy into sound financial behaviour is depending upon their confidence in executing and handling financial matters. With high self-efficacy, households can better and more effectively utilise their financial literacy to plan and execute their financial behaviour, and vice versa.

5.0 Conclusion and Recommendations

Although most of the literature is inclined to suggest females as being more financial illiterate, the evidence reflects that females may be weaker in terms of domain-specific financial literacy (e.g. insurance and investment) but they are more knowledgeable about overall financial management (Chen and Volpe, 1998). Therefore, the present study refutes the conventional idea that females tend to perform worse in terms of financial behaviour due to lower financial literacy (Lusardi & Mitchell, 2014; Stolper & Walter, 2017).

This study found that financial behaviour negatively influences financial vulnerability, which is in good agreement with previous literature (Nguyen Vu & Scott, 2017; Robb & Woodyard, 2011). Hence, as asserted by Klapper and Lusardi (2019), households' financial behaviour is significantly important not only to financial markets but also to their personal financial status (i.e., financial vulnerability), such as practising high borrowing impairs households' repayment capability and exposing them to macroeconomic shocks (Klapper & Lusardi, 2019). Hunter and Heath (2017) also highlighted that financial behaviour as exhibited in households' possession of credit cards could influence their financial condition, whereas households who have more credit cards have a significantly lesser chance of being stable in their financial condition. In terms of consumption patterns, Aw et al. (2018) indicated that failing to uphold careful spending leads households to fall into financial trouble.

This study identified a significant mediating effect of financial behaviour in the relationship between self-efficacy and financial vulnerability. The findings extend prior literature that found positive impacts of self-efficacy on financial health or households' wealth (Biljanovska & Palligkinis, 2018; Gamst-Klaussen et al., 2019) by demonstrating the underlying mechanism. In brief, having self-efficacy alone is not enough, households need to turn such positive psychological traits into action (sound financial behaviour) to prevent financial vulnerability. Overall, self-efficacy serves as an internal resource for households, thus equipping them to uphold and control their financial behaviour, which in turn aids in preventing undesirable personal or family financial outcomes.

The results revealed a significant moderating effect of self-efficacy in the relationship between financial literacy and financial vulnerability. This moderating effect is largely untested before. The finding is consistent with the notion of Mindra et al. (2017), as investigating self-efficacy was deemed important given that the interaction between peoples' cognition and behaviour might be significantly influenced by beliefs regarding their ability to perform. The finding indicates that the relationship between financial literacy and financial behaviour is stronger when self-efficacy is high. In other words, financial literacy can yield better financial behaviour when self-efficacy is high. Households with high self-efficacy are more likely to utilise their financial literacy effectively since they are empowered to devote more time and effort to accomplish an established goal or activity (Lown et al., 2015). In contrast, financial literacy is less effective in developing sound financial behaviour as such households may not be confident and persistent enough in translating knowledge into action.

5.1 Theoretical Implications

As the understanding of financial knowledge, financial behaviour, and outcomes such as subjective financial wellbeing and vulnerability remain scarce, this study fills the gaps in previous research. Firstly, this study highlights the broken role of financial literacy which was conventionally over-focused in prior literature. The non-significant impact of financial literacy indeed advances the stagnant understanding of improving financial wellness, highlighting that merely improving financial literacy is not a viable option. This also explains why many people are still financially vulnerable even after undergoing financial literacy training programmes.

Secondly, this study adds to the body of knowledge in personal finance by integrating and validating the self-efficacy theory into the family resource management model. In the past, the input element in the family resource management model has focused on financial stress, financial literacy, financial information sources, and socio-economic characteristics, such as income and ethnic background (Mokhtar et al., 2020; Lown & Ju, 1992; Mimura, Koonce, Plunkett, & Pleskus, 2015). This study contributes by considering the psychological variable, self-efficacy, as the input. The result provides a relatively new perspective to comprehend personal finance matters (i.e., financial behaviour and vulnerability). The examination of mediating effect of financial behaviour in the relationship between financial literacy and financial vulnerability has yet to be assessed in the prior literature. The present study offers evidence for self-efficacy as an important internal resource guiding households' financial behaviour, which is crucial in reducing financial vulnerability.

Thirdly, this study enhances the literature by revealing the significant moderating effect of self-efficacy in the relationship between financial literacy and financial vulnerability. The finding informs the literature about the boundary condition of self-efficacy, thus determining when financial literacy can be more effective in stimulating sound financial behaviour. Through the present finding, the literature is made known that the financial literacy-financial behaviour link is not direct and linear. Instead, it needs to be coupled with strong self-efficacy for full effectiveness. This also explains why there is inconclusive evidence for the effectiveness of financial literacy on financial behaviour. Hence, this study highlights self-efficacy as a missing link between financial literacy and sound financial behaviour among Malaysian households.

5.2 Practical Implications

The findings obtained in this study could be fruitful for financial counsellors, educators, and other relevant authorities in helping households to avoid financial vulnerability. The insignificant impact of financial literacy does not suggest financial counsellors, educators, and households abandon the acquisition of more financial knowledge. Instead, they should start changing the conventional thought that financial literacy is the only way to curb financial vulnerability. The present study notes that self-efficacy should be imparted to households. Therefore, policy and educational efforts to foster households' sound financial behaviour need to be accompanied by tools to enhance their self-belief towards their capacity to manage their personal finances to maximise the power of financial knowledge.

Given that gender differences in financial behaviour have been evidenced in the current study and prior literature, either in financial management or consumption behaviours (Aw et al., 2018; Xiao, Tang, Serido, & Shim, 2011), finance education and counselling services need to be tailored for males and females. For instance, practitioners ought to consider the common role of male households as family breadwinners and major financial decision-makers in the family, and thus design a more relevant strategy. Male households perhaps need more assistance focusing on risk management as they are more risk-tolerant and more involved in risky investments (Hoque, Wong, & Carducci, 2015). Additionally, since men tend to have a higher self-efficacy which could aid in sound financial behaviour (Montford & Goldsmith, 2016), practitioners need to carefully monitor this event to prevent it from turning into over-confidence.

College professors and classes usually represent vital information sources and they are easily accessible to young college adults. Nevertheless, it is relatively difficult for adults who have started working to access these information sources for personal financial consultancy. Relevant authorities such as AKPK need to improve the awareness among the general public about the service and the assistance offered. The present findings revealed the inadequacy to assist households through increasing financial literacy alone, hence a more important and direct approach is to support them in moulding proper financial behaviour.

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References

Abdullah Yusof, S. (2018). Ethnic disparity in financial fragility in Malaysia. *International Journal of Social Economics, 46*(1), 36-46.

Aboagye, J., & Jung, J. Y. (2018). Debt holding, financial behaviour, and financial satisfaction. J*ournal of Financial Counseling and Planning, 29*(2), 208-218.

Agarwal, S., Amromin, G., Ben-David, I., Chomsisengphet, S., and Evanoff, D. D. (2015). *Financial literacy and financial planning: Evidence from India. Journal of Housing Economics, 27,* 4-21.

Agarwalla, S. K., Barua, S., Jacob, J., and Varma, J. R. (2015). Financial literacy among working young in urban India. *World Development, 67*, 101-109.

Ali, A., Abd Rahman, M. S., and Bakar, A. (2015). Financial satisfaction and the influence of financial literacy in Malaysia. *Social Indicators Research, 120*(1), 137-156.

AKPK Financial Behaviour Survey (2018). Financial behaviour and state of the financial well-being of Malaysian working adults. https://www.akpk.org.my/sites/default/files/AKPK_Financial%20Behaviour%20&%20State%20of%20Finanical%20Well-being%20of%20Malaysian%20Working%20Adult.pdf

Anderloni, L., Bacchiocchi, E., and Vandone, D. (2012). Household financial vulnerability: An empirical analysis. *Research in Economics, 66*(3), 284-296.

Arrondel, L., Bartiloro, L., Fessler, P., Linder, P., Mathä, T. Y., Rampazzi, C., . . . Vermeulen, P. (2014). How do households allocate their assets? Stylised facts from the Eurosystem Household Finance and Consumption Survey. ECB Working Paper No 1722.

Aw, E. C. X., Cheah, J. H., Ng, S. I., and Sambasivan, M. (2018). Breaking compulsive buying-financial trouble chain of young Malaysian consumers. *Young Consumers, 19*(3), 328-344.

Asebedo, S. D. (2018). Personality and Financial Behaviour. *Client Psychology*, 137-153.

Ayanian, J. Z., Weissman, J. S., Schneider, E. C., Ginsburg, J. A., and Zaslavsky, A. M. (2000). Unmet health needs of uninsured adults in the United States. *Journal of the American Medical Association, 284,* 2061-2069.

Bandura, A., and Adams, N. E. (1977). Analysis of self-efficacy theory of behavioural change. *Cognitive Therapy and Research, 1*(4), 287-310.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1997). Self-efficacy: The exercise of control. W H Freeman/Times Books/ Henry Holt and Co.

Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science, 1*(2), 164-180.

Bergner, R. M. (2011). What is behaviour? and so what? *New Ideas in Psychology, 29*(2), 147-155.

Białowolski, P. (2019). Economic sentiment as a driver for household financial behaviour. *Journal of Behavioural and Experimental Economics, 80,* 59-66.

Biljanovska, N., and Palligkinis, S. (2018). Control thyself: Self-control failure and household wealth. *Journal of Banking and Finance, 92*, 280-294.

Borden, L. M., Lee, S. A., Serido, J., and Collins, D. (2008). Changing college students' financial knowledge, attitudes, and behaviour through seminar participation. *Journal of Family and Economic Issues, 29*(1), 23-40.

Burcher, S. A., Serido, J., Danes, S., Rudi, J., and Shim, S. (2018). Using the expectancy-value theory to understand emerging adults' financial behaviour and financial well-being. *Emerging Adulthood*, 1-10.

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

Chen, H., & Volpe, R. P. (1998). An analysis of personal financial literacy among college students. *Financial Services Review, 7*(2), 107-128.

Chen, H., & Volpe, R. P. (2002). Gender differences in personal financial literacy among college students. *Financial Services Review, 11*(3), 289-307.

Chong, K.F., Sabri, M.F., Magli, A.S., Abdul Rahim, H., Mokhtar, N., & Othman, M.A. (2021). The effects of financial literacy, self-efficacy and self-copying on the financial behaviour of emerging adults. *Journal of Asian Finance, Economics and Business, 8(*3):905-915.

Chu, Z., Wang, Z., Xiao, J. J., and Zhang, W. (2017). Financial Literacy, portfolio choice and financial well-being. *Social Indicators Research, 132*(2), 799-820.

Christelis, D., Georgarakos, D., and Haliassos, M. (2013). Differences in portfolios across countries: Economic environment versus household characteristics. *Review of Economics and Statistics, 95*(1), 220-236.

Cohen, J. (1988). Statistical power analysis (2nd ed.). Hillsdale NJ: Erlbaum.

Danes, S. M., & Haberman, H. (2007). Teen financial knowledge, self-efficacy, and behaviour: A gendered view. *Journal of Financial Counseling and Planning, 18*(2), 48-60.

Danes, S. M., and Yang, Y. (2014). Assessment of the use of theories within the Journal of Financial Counseling and Planning and the contribution of the family financial socialization conceptual model. J*ournal of Financial Counseling and Planning, 25*(1), 54-68.

Dawson, J. F. (2014). Moderation in management research: What, why, when, and how. *Journal of Business and Psychology, 29*(1), 1-19.

Deacon, R., & Firebaugh, F. (1975). Home Management Context and Concepts. Boston: Houghton Mifflin Company.

Del Rio, A. & Young, G. (2008). The impact of unsecured debt on financial pressure among British households. *Applied Financial Economics, 18*(15), 1209-1220.

Delafrooz, N., & Paim, L. H. (2011). Determinants of financial wellness among Malaysian workers. *African Journal of Business Management, 5*(24), 10092-10100.

Dey, S., Djoudad, R., & Terajima, Y. (2008). A tool for assessing financial vulnerabilities in the household sector. Bank of Canada Review, 2008(Summer), 47-56.

Domowitz, I., & Sartain, R. L. (1999). Determinants of the consumer bankruptcy decision. *The Journal of Finance, 54,* 403-420.
Drever, A. I., Odders-White, E., Kalish, C. W., Else-Quest, N. M., Hoagland, E. M., and Nelms, E. N. (2015). Foundations of financial well-being: Insights into the role of executive function, financial socialization, and experience-based learning in childhood and youth. *Journal of Consumer Affairs, 49(*1), 13-38.
Faique, F. A., Ismail, S., Bakri, M. H., Idris, N. H., Yazid, Z. A., Daud, S., & Taib, N. M. (2017). Testing the financial attitude as a mediator for the relationship between financial self-efficacy with financial behaviour. *Advanced Science Letters, 23*(8), 8009-8012.
Falahati, L., & Paim, L. (2012). Gender differences in saving behaviour determinants among university students. *Journal of Basic and Applied Scientific Research, 2*(6), 5848-5854.
Farrell, L., Fry, T. R., & Risse, L. (2016). The significance of financial self-efficacy in explaining women's personal finance behaviour. *Journal of Economic Psychology, 54*, 85-99.
Finke, M. S., Howe, J. S., and Huston, S. J. (2017). Old age and the decline in financial literacy. *Management Science, 63*(1), 213-230.
Financial Stability and Payment Systems Report. (2015). Market conduct and consumer empowerment. Central Bank of Malaysia.
Fonseca, R., Mullen, K. J., Zamarro, G., and Zissimopoulos, J. (2012). What explains the gender gap in financial literacy? The role of household decision making. *Journal of Consumer Affairs, 46*(1), 90-106.
Fornell, C. G., and Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. J*ournal of Marketing Research, 18*(1), 39-50.
Fuenzalida, M., and Ruiz-Tagle, J. (2010). Household financial vulnerability. In R. A. Alfaro (Ed.), Financial stability, monetary policy, and central banking (pp. 299-326). Central Bank of Chile.
Garcia, M. J. R. (2013). Financial education and behavioural finance: new insights into the role of information in financial decisions. *Journal of Economic Surveys, 27*(2), 297-315.
Gamst-Klaussen, T., Steel, P., and Svartdal, F. (2019). Procrastination and personal finances: Exploring the roles of planning and financial self-efficacy. *Frontiers in Psychology, 10,* 775.

Gathergood, J. (2012). Self-control, financial literacy & consumer over-indebtedness. *Journal of Economic Psychology, 33*(3), 590-602.

Grohmann, A. (2018). Financial literacy & financial behaviour: Evidence from the emerging Asian middle class. *Pacific-Basin Finance Journal, 48*, 129-143.

Gutter, M., and Copur, Z. (2011). Financial behaviours and financial well-being of college students: Evidence from a national survey. *Journal of Family and Economic Issues, 32*(4), 699-714.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) (2nd ed). SAGE Publications.

Haliassos, M., Jansson, T., and Karabulut, Y. (2016). Incompatible European partners? Cultural predispositions and household financial behaviour. *Management Science, 63*(11), 3780-3808.

Hayes, A. F. (2013). An introduction to mediation, moderation, and conditional process analysis: A regression-based approach. New York, NY: Guilford Press

Hilgert, M. A., Hogarth, J. M., & Beverly, S. G. (2003). Household financial management: The connection between knowledge and behaviour. Federal Reserve Bulletin, 89, 309-322.

Hira, T. K., and Mugenda, O. (2000). Gender differences in financial perceptions, behaviours and satisfaction. *Journal of Financial Planning, 13*(2), 86-93.

Hira, T. K. (2012). Promoting sustainable financial behaviour: implications for education and research. *International Journal of Consumer Studies, 36*(5), 502-507.

Hoque, M., Wong, A., & Carducci, B. (2015). Do sensation seeking, control orientation, ambiguity, and dishonesty traits affect financial risk tolerance? *Managerial Finance, 42(*1), 34-41.

Hunter, J. L., and Heath, C. J. (2017). The relationship between credit card use behaviour and household well-being during the great recession: Implications for the ethics of credit use. *Journal of Financial Counseling and Planning, 28*(2), 213-224.

Husniyah, A. R., & Fazilah, A. S. M. (2011). Factors contributing to financial stability of urban and rural families. *Pertanika Journal of Social Sciences and Humanities*, *19*(1), 99-112.

Jariwala, H. V., & Dziegielewski, S. F. (2017). Pathway to financial success: Autonomy through financial education in India. *Journal of Social Service Research, 43*(3), 381-394.

Jorgensen, B. L., Rappleyea, D. L., Schweichler, J. T., Fang, X., and Moran, M. E. (2017). The financial behaviour of emerging adults: A family financial socialization approach. *Journal of Family and Economic Issues, 38(*1), 57-69.

Joo, S. (2008). Personal financial wellness. In J. J. Xiao (Ed.), Advances in Consumer Finance Behaviour Research (pp. 21-33). New York: Springer.

Klapper, L., and Lusardi, A. (2019). Financial literacy and financial resilience: Evidence from around the world. *Financial Management,* 1-26.

Kuhnen C.M., & Melzer B. (2018). Non-cognitive abilities and loan delinquency: The role of self-efficacy in avoiding financial distress. *Journal of Finance, 73*(6), 2837-2869.

Lim, H., Heckman, S., Montalto, C. P., and Letkiewicz, J. (2014). Financial stress, self-efficacy, and financial help-seeking behaviour of college students. *Journal of Financial Counseling and Planning, 25*(2), 148-160.

Limbu, Y. B., and Sato, S. (2019). Credit card literacy and financial well-being of college students: A moderated mediation model of self-efficacy and credit card number. *International Journal of Bank Marketing, 37*(4), 991-1003.

Lind, T., Ahmed, A., Skagerlund, K., Strömbäck, C., Västfjäll, D., and Tinghög, G. (2020). Competence, confidence, and gender: The role of objective and subjective financial knowledge in household finance. *Journal of Family and Economic Issues, 41*(2), 1-13.

Leika, M., & Marchettini, D. (2017). A generalised framework for the assessment of household financial vulnerability. IMF Working Paper, WP/17/228, November 2017. https://www.imf.org/en/Publications/WP/Issues/2017/11/07/A-Generalised-Framework-for-the-Assessment-of-Household-Financial-Vulnerability-45297.

Loke, Y. J. (2017a). Financial vulnerability of working adults in Malaysia. *Contemporary Economics, 11*(2), 205-219.

Loke, Y. J. (2017b). The influence of socio-demographic and financial knowledge factors on financial management practices of Malaysians. *International Journal of Business and Society, 18*(1), 33-50.

Loke, V., Choi, L., and Libby, M. (2015). Increasing youth financial capability: An evaluation of the MyPath savings initiative. *Journal of Consumer Affairs, 49*(1), 97-126.

Lown, J. M., & Ju, I. S. (1992). A model of credit use and financial satisfaction. *Financial Counseling and Planning, 3*(1), 105-124.
Lown, J. M., Kim, J., Gutter, M. S., and Hunt, A. T. (2015). Self-efficacy and savings among middle and low-income households. *Journal of Family and Economic Issues, 36*(4), 491-502.
Lusardi, A. (2019). Financial literacy and the need for financial education: evidence and implications. *Swiss Journal of Economics and Statistics, 155*(1), 1.
Lusardi, A., and Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. Journal of Economic Literature, 52(1), 5-44.
Lusardi, A., Michaud, P. C., and Mitchell, O. S. (2017). Optimal financial knowledge and wealth inequality. J*ournal of Political Economy, 125*(2), 431-477.
Mamun, A. A., Ibrahim, M. A. H. B., Muniady, R., Ismail, M. B., Nawi, N. B. C., & Nasir, N. A. B. M. (2018). Development programs, household income and economic vulnerability: A study among low-income households in Peninsular Malaysia. *World Journal of Entrepreneurship, Management and Sustainable Development, 14(*4), 353-366.
Mewse, A. J., Lea, S. E., and Wrapson, W. (2010). First steps out of debt: Attitudes and social identity as predictors of contact by debtors with creditors. *Journal of Economic Psychology, 31*(6), 1021-1034.
Mimura, Y. (2014). The relationship between life satisfaction among wives and financial preparedness of households in Japan. *Journal of Family and Economic Issues, 35*(4), 532-541.
Mimura, Y., Koonce, J., Plunkett, S. W., and Pleskus, L. (2015). Financial information source, knowledge, and practices of college students from diverse backgrounds. *Journal of Financial Counseling and Planning, 26*(1), 63-78.
Mindra, R., Moya, M., Zuze, L. T., & Kodongo, O. (2017). Financial self-efficacy: a determinant of financial inclusion. I*nternational Journal of Bank Marketing, 35*(3), 338-353.
Mitchell, O. S., & Lusardi, A. (2015). Financial literacy and economic outcomes: Evidence and policy implications. *The Journal of Retirement, 3(*1), 107-114.
Mokhtar, N., Sabri, M.F., & Ho, C.S.F. (2020). Financial capability and differences in age and ethnicity. *The Journal of Asian Finance, Economics and Business, 7*(10), 1081-1091.

Montford, W., & Goldsmith, R. E. (2016). How gender and financial self-efficacy influence investment risk-taking. *International Journal of Consumer Studies, 40*(1), 101-106.

Mottola, G. R. (2013). In our best interest: Women, financial literacy, and credit card behaviour. *Numeracy, 6*(2), 1-15.

Mudzingiri, C., Muteba Mwamba, J. W., & Keyser, J. N. (2018). Financial behaviour, confidence, risk preferences and financial literacy of university students. *Cogent Economics and Finance, 6*(1), 1512366.

Nguyen Vu, N., and Scott, J. (2017). Financial capability: Literacy, behaviour, and distress. Working paper. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3178367

Nitani, M., Riding, A., & Orser, B. (2019). Self-employment, gender, financial knowledge, and high-cost borrowing. *Journal of Small Business Management, 58*(4), 669-706.

Nitzl, C., Roldan, J. L., & Cepeda, G. (2016). Mediation analysis in partial least squares path modelling. *Industrial Management and Data Systems, 116*(9), 1849-1864.

Patel, A., Balmer, N. J., & Pleasence, P. (2012). Debt and disadvantage: the experience of unmanageable debt and financial difficulty in England and Wales. *International Journal of Consumer Studies, 36*(5), 556-565.

Petkoska, J., & Earl, J. K. (2009). Understanding the influence of demographic and psychological variables on retirement planning. *Psychology and Aging, 24*(1), 245-251.

Poh, L.M., Sabri, M.F., Abdul Rahim, H., & Wijekoon, R. (2021). Determinants of Financial Vulnerability among Civil Servants in Peninsular Malaysia. *Malaysian Journal of Consumer and Family Economics, 27,* 113-143.

Remund, D. L. (2010). Financial literacy explicated: The case for a clearer definition in an increasingly complex economy. *Journal of Consumer Affairs, 44*(2), 276-295.

Rha, J. Y., Montalto, C. P., and Hanna, S. D. (2006). The effect of self-control mechanisms on household saving behaviour. *Journal of Financial Counseling and Planning, 17*(2), 3-16.

Robb, C. A. (2010). An exploration of the relationship between college students personal financial knowledge and credit card use behaviours. *Consumer Interests Annual,* 56, 74.

Robb, C. A., & Woodyard, A. (2011). Financial knowledge and best practice behaviour. *Journal of Financial Counseling and Planning, 22*(1), 60-70.

Rothwell, D. W., Khan, M. N., and Cherney, K. (2016). Building financial knowledge is not enough: Financial self-efficacy as a mediator in the financial capability of low-income families. *Journal of Community Practice, 24*(4), 368-388.

Ruxyn, T. (2017). Bank Negara reveals the four biggest mistakes Malaysians make when it comes to money. http://says.com/my/news/bank-negara-malaysia-reveals-worryingfindings-on-financial-literacy-among-malaysians

Sabri, M. F., and MacDonald, M. (2010). Savings behaviour and financial problems among college students: The role of financial literacy in Malaysia. C*ross-Cultural Communication, 6(*3), 103-110.

Sabri, M.F., Gudmunson, C.G., Griesdorn, T.S., & Dean, L.R. (2020). Influence of family financial socialization on academic success in college. *Journal of Financial Counseling and Planning*, *31*(2), 267-283.

Sabri, M. F., Aw, E. C. X., Abdul Rahim, H., Burhan, N. A. S., Othman, M. A., & Simanjuntak, M. (2021). Financial literacy, behaviour and vulnerability among Malaysia households: Does gender matter? *International Journal of Economics and Management*, *15*(2), 241-256.

Sabri, M., Wijekoon, R., & Rahim, H. (2020). The influence of money attitude, financial practices, self-efficacy and emotion coping on employees' financial well-being. *Management Science Letters, 10*(4), 889-900.

Sharif, S. P., Ahadzadeh, A. S., and Turner (2020). Gender differences in financial literacy and financial behaviour among young adults: The role of parents and information seeking. *Journal of Family and Economic Issues*, *41,* 672-690.

Short, P. F., and Graefe, D. R. (2003). Battery-powered health insurance? Stability in the coverage of the uninsured. *Health Affairs, 22,* 244-255.

Simanjuntak, M., Putri, N.E., Yuliati, L.N., & Sabri, M.F. (2020). Enhancing customer retention using customer relationship management approach in car loan bussiness. *Cogent Business and Management* *7*(1): 1-17. https://doi.org/10.1080/23311975.2020.1738200.

Skagerlund, K., Lind, T., Strömbäck, C., Tinghög, G., and Västfjäll, D. (2018). Financial literacy and the role of numeracy–How individuals' attitude and affinity with numbers influence financial literacy. *Journal of Behavioural and Experimental Economics, 74,* 18-25.

Stolper, O. A., & Walter, A. (2017). Financial literacy, financial advice, and financial behaviour. *Journal of Business Economics, 87*(5), 581-643.

Sumarwan, U., and Hira, T. K. (1993). The effects of perceived locus of control and perceived income adequacy on satisfaction with the financial status of rural households. *Journal of Family and Economic Issues, 14(*4), 343-364.

Tang, N., & Baker, A. (2016). Self-esteem, financial knowledge and financial behaviour. *Journal of Economic Psychology, 54,* 164-176.

Theodos, B., Kalish, E., McKernan, S. M., & Ratcliffe, C. (2014). Do financial knowledge, behaviour, and well-being differ by gender? Urban Institute: Washington, DC.

Vosloo, W., Fouché, J., and Barnard, J. (2014). The relationship between financial efficacy, satisfaction with remuneration and personal financial well-being. I*nternational Business and Economics Research Journal, 13*(6), 1455-1470.

World Economic Forum. (2019). The global gender gap report 2020. Geneva: World Economic.

Xiao, J. J., Tang, C., and Shim, S. (2009). Acting for happiness: Financial behaviour and life satisfaction of college students. *Social Indicators Research, 92*(1), 53-68.

Xiao, J. J., Tang, C., Serido, J., and Shim, S. (2011). Antecedents and consequences of risky credit behaviour among college students: Application and extension of the theory of planned behaviour. J*ournal of Public Policy and Marketing, 30*(2), 239-245.

Xiao, J. J., and Porto, N. (2017). Financial education and financial satisfaction: Financial literacy, behaviour, and capability as mediators. *International Journal of Bank Marketing, 35*(5), 805-817.

Yusof, R., and Sabri, M. F. (2017). Determinants of retirement savings. *Malaysia Journal of Consumer Family Economics, 20*, 168-183.

Zainudin, R., Mahdzan, N. S., and Yeap, M. Y. (2019). Determinants of credit card misuse among Gen Y consumers in urban Malaysia. *International Journal of Bank Marketing, 37*(5), 1350-1370.