Towards Achieving Long-Term Debt Sustainability: A Systematic Review of the Key Determinants of Personal Bankruptcy

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Abstract: Purpose: This systematic review aimed to assess previous research about financial and non-financial causes of personal bankruptcy among individual households. Additionally, the paper aimed to provide an insight into the key determinants of personal bankruptcy and to determine their relationship with individual characteristics. The fundamental causes of bankruptcy and its effects on financial status were also discussed. Through understanding the causes of bankruptcy, we hope to help financial institutions to minimise the number of personal bankruptcies.

Design/methodology/approach: A comprehensive systematic search was conducted to identify articles on determinants of personal bankruptcy. The selected articles were then analysed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol.

Findings: We identified several themes that emerged as the key determinants of personal bankruptcy filings. These determinants were demographic indicators, socioeconomic status indicators, debt indicators, financial indicators, social stigma indicators, behavioural indicators, and macroeconomic indicators.

Research implications: The key determinants of personal bankruptcy that were identified in this systematic review are renowned factors in the personal bankruptcy literature. Therefore, these determinants should be studied extensively to examine their effects in other studies and using a different type of datasets.

Practical implications: The findings of this study help the financial institutions to predict the likelihood of consumer default by developing an effective credit scoring model. Additionally, the development of an effective credit scoring model could serve as an early warning indicator to identify “high risk” client.

Originality/value: Bankruptcy is a long-term process that does not occur instantly. Therefore, a longitudinal and comprehensive approach is required to understand bankruptcy. Our findings contribute to the current literature by providing a better understanding of the causes of personal bankruptcy. We recommend developing an effective credit scoring model to predict the likelihood of personal bankruptcy.

Keywords: COVID-19, determinants, long-term debt sustainability, personal bankruptcy prediction, systematic review

1. Introduction

The recent Coronavirus Disease 2019 (COVID-19) pandemic has shown the increasing vulnerability among firms and households involved in waves of financial distress and bankruptcies (United Nations, 2020). Since the financial crisis, the world economic growth has been projected to decline. It is expected that this economic collapse will be accompanied by a reduction in financial growth, low government revenues, and overinvestment in non-profitable businesses. In the wake of these episodes, the incidence of personal bankruptcies around the world has been on the rise. Personal bankruptcy filings have been a topic of extensive interest because it is an important indicator of household financial problems nationally (Garrido et al., 2020).

Several concerns have also been raised regarding debt sustainability, specifically on slow repayment issues and the accelerating pace of debt accumulation among the households (Friedline, Chen, & Morrow, 2020; Lanning & Rose, 2020; United Nations, 2020). Debt sustainability refers to individuals’ ability to pay their debt within the stipulated time frame without applying for debt cancellation or accumulating arrears (United Nations Conference on Trade and Development (UNCTAD), 2019). These concerns need to be addressed, as failures to sustain debts lead to an increasing number of personal bankruptcy filings.

The growth in personal bankruptcy filings has been clarified by two different conceptual frameworks: strategic and non-strategic motives (Fay, Hurst, & White, 2002). The strategic filing refers to consumers who determine their present level of debt based on expectations about a future financial shock and the bankruptcy option. The non-strategic filing, on the other hand, is when someone who incurs debt myopically, without consideration for possible bankruptcy filing (i.e., with an honest intention of paying off the debt (Zhang, Sabarwal, & Gan, 2015). The strategic motive blames the reduction in the stigma of debtor lapses. According to the strategic motive, individuals may intentionally file for personal bankruptcy to relieve them from paying the
debt. Meanwhile, the non-strategic motive blames the economic insecurity and a desperate social safety net (Fay et al., 2002; Gutiérrez-Nieto, Serrano-Cinca, & de la Cuesta-Gonzalez, 2017; Bauchet & Evans, 2019).

This systematic review aimed to identify the key determinants of personal bankruptcy by examining relevant published literature from the Web of Science (WoS), a credible research database. The key determinants of personal bankruptcy are crucial to developing a good credit scoring model in order to predict the likelihood of personal bankruptcy. An effective credit scoring model would provide an early warning signal when financial distress is expected among the household. The model would also make an accurate prediction of the likelihood of personal bankruptcy. Additionally, our work is in line with one of the Sustainable Development Goals (SDGs) targets. In this review, we mainly focused on Target 17.4 to better understand the concerns related to long-term debt sustainability (Antoniades, Widiarto, & Antonarakis, 2019; United Nations, 2020). It is also hoped that, by assessing the key determinants of personal bankruptcy, we could assist the policymakers to carefully reform the bankruptcy law in order to minimise the number of personal bankruptcies.

2. Methodology

Materials and method

A systematic search of the literature was conducted by following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009). After retrieving the relevant articles, we screened for determinants of personal bankruptcy and categorised them into themes. From that, we identified the literature gaps and assessed the key determinants of personal bankruptcy.

Source of Information

The literature search should be from credible research databases. The Web of Science (WoS) is a research database that stores a large number of credible articles. Therefore, the articles in this study were selected from the WoS database to ensure that only high-quality and reliable articles on personal bankruptcy were analysed. The literature search included peer-reviewed articles published in English between 2016 and 2020.

Identification and selection of studies

The first step of the literature search process was to identify the relevant articles in finance and economics. The WoS database was searched with the following search strings and keywords (developed in April 2020):

- $TI= (determinants OR factors OR causes AND personal bankruptcy OR default OR financial strain OR financial distress OR financial hardship OR financial difficulties OR debt delinquency OR indebtedness OR overindebtedness)$

A total of 60 articles were identified through database searching. These articles were then screened against the inclusion and exclusion criteria presented in Table 1. Articles that did not meet the inclusion criteria were excluded from the analyses to provide reliable outcomes. Only 31 articles were eligible for inclusion. We studied the articles from a global perspective.

Eligibility criteria

After the articles were selected, they were independently reviewed by the authors for eligibility. Full-text articles were thoroughly reviewed. From that, a total of 22 relevant articles (i.e., determinants of personal bankruptcy) were chosen for further analyses. The study selection process is shown in Diagram 1. The diagram was adapted from Moher et al. (2009).

<table>
<thead>
<tr>
<th>Table 1. Inclusion and exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criteria</td>
</tr>
<tr>
<td>Publication year</td>
</tr>
<tr>
<td>Document type</td>
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<table>
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<tr>
<th>Publication stage</th>
<th>Final and published</th>
<th>Article in press</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source type</td>
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<td>Non-English</td>
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<tr>
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<td>Corporate bankruptcy</td>
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<tr>
<td>Countries</td>
<td>Global</td>
<td>-</td>
</tr>
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</table>

**Diagram 1.** The process of selecting articles based on the PRISMA protocol (Moher et al., 2009)

### 3. Results and Discussion

Previous studies on determinants of personal bankruptcy were mainly focused on economically developed countries such as the United States of America (U.S.A) and Australia. There are currently a few studies that investigated the determinants of personal bankruptcy in the emerging market and developing economies (EMDEs) and low-income countries (LICs), as shown in Table 2. A recent report indicated that countries in the EMDEs and LICs categories have a low level of national savings, high unemployment rate, and unstable financial conditions (World Bank, 2020). Therefore, further investigation of the key determinants of personal bankruptcy in EMDEs and LICs is warranted.

Due to the financial crisis and economic instability, the financial security of the Organisation for Economic Co-operation and Development (OECD) member countries showed a downtrend pattern in recent decades. In addition to that, household savings in OECD member countries have declined from 14% in the year 1970 to 5% in the year 2016 (OECD, 2019). Household debt, on the other hand, continued to increase drastically to almost 140% in the year 2016. Several nations such as Canada, Australia, and Scandinavia were among the nations with the world’s highest household debt (OECD, 2017).

An increasing pattern in household debt was also seen in EMDEs countries such as Malaysia. Malaysia is one of the EMDEs countries with the lowest rates of household savings of less than 4% (World Bank, 2019). Ten years after the world economic crisis, the household debt to gross domestic products (GDP) escalated in several EMDEs countries including Malaysia, Indonesia, China, Philippines, Thailand, and South Korea (International Monetary Fund, 2018). The increasing household debt remains an unresolved issue in some East Asian and South-East Asian countries.

With regards to these dire economic situations, little is known regarding the sustainability of households to service their debts. This is important as insolvency leads to the increasing number of loan defaults. For that matter, the Sustainable Development Goal (SDG) has been established to assist developing countries in sustaining their long-term debts. However, the competency of SDG in achieving its objective within the next...
decade has largely remained an open question, even before the COVID-19 pandemic. Therefore, it is crucial to have a better understanding of the causes of personal bankruptcy in order to provide practical solutions to this financial problem.

In this systematic review, we identified the key determinants of personal bankruptcy filings. The key determinants were demographic indicators, socioeconomic status indicators, debt indicators, financial indicators, social stigma indicators, behavioural indicators, and macroeconomic indicators.

Most of the articles used data from public surveys such as the Survey of Consumer Finances, American Community Surveys, Survey of Income and Programme Participation, and online surveys. Additionally, a majority of the articles employed logistic regression (Gutiérrez-Nieto, Serrano-Cinca, & de la Cuesta-Gonzalez, 2017; Hock-eam & Yeok, 2017; Agarwal, He, Sing, & Zhang, 2018; Rivera, 2018; O’Brien, Anderson, Ramsay, & Ali, 2019;) and ordinal lease square (OLS) regression (Ali, Anderson, O’Brien, & Ramsay, 2016; Chan, Haughwout, Hayashi, & Van Der Klauuw, 2016; Desai, 2017; Fisher, 2019) statistical methods to analyse the data.

### Table 2. Type of economies and names of countries included in this review

<table>
<thead>
<tr>
<th>Type of economies</th>
<th>Samples</th>
<th>No. of articles</th>
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</thead>
<tbody>
<tr>
<td>Advanced economies</td>
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<td>18</td>
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<tr>
<td>EMDEs</td>
<td>Malaysia (2), Brazil (1), Mexico (1)</td>
<td>4</td>
</tr>
<tr>
<td>LICs</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

**Demographic indicators**

Demographic characteristics such as age, race, gender, marital status, and the number of children were the variables used to explain the different levels of financial vulnerability. The financial vulnerability reflects a country’s level of financial instability. Although previous studies have examined the causes and effects of personal bankruptcy filings (Ali, Anderson, O’Brien, & Ramsay, 2016; Ali, O’Brien, & Ramsay, 2017; Gutiérrez-Nieto, Serrano-Cinca, & de la Cuesta-Gonzalez, 2017; Bauchet & Evans, 2019; Bourova et al., 2019), little is known regarding the relationship between individuals demographic characteristics and personal bankruptcy filings (Fisher, 2019). Furthermore, studies investigating the demographic characteristics of bankruptcy filers showed inconsistent findings.

Notably, most studies show that age is a potent predictor of bankruptcy, and age determines one’s capability to repay a debt. Specifically, it is presumed that old adults are more responsible and mature than young adults. This is primarily because young adults tend to depend on their parents or other relatives from inadequate expenditure due to limited income. In support of this assumption, a study in Australia showed that students living at home with their parents demonstrated low financial stress and good mental health (Watson, Barber, & Dziurawiec, 2016). In contrast, Rahman, Azma, Masud, & Ismail (2020) found that the number of bankruptcy filings was high in young Malaysian households.

Studies have also found that the tendency of a person to file for personal bankruptcy was positively correlated with age (Ali et al., 2016; Agarwal, He, Sing, & Zhang, 2018; Bauchet & Evans, 2019; Fisher, 2019), as compared to studies by O’Brien et al. (2019) and Er (2020). Their studies showed that it was common for middle-aged adults (ages 29 to 44 years) to bankrupt (O’Brien et al., 2019; Er, 2020). When bankruptcy is plotted as a function of age, the plot would resemble a bell-shaped curve, where it peaks at the age of 39 years. One of the factors that may contribute to bankruptcy in the middle-aged adults is the high living cost associated with growing families. Old adults, on the other hand, are financially literate and tend to have more savings than young and middle-aged adults. Therefore, old adults are unlikely to bankrupt.

In terms of gender, a majority of the studies found that males were more likely to be in debt than females, suggesting that women are more cautious than men when making risky decisions (Agarwal et al., 2018; Rivera, 2018; O’Brien et al., 2019; Rahman et al., 2020). However, from a peer-to-peer (P2P) lending case in Mexico, Rivera (2018) found that women tend to default on their loans when they have low credit scores C and F. Therefore, gender is not a potent indicator of bankruptcy and lenders should not characterise default risk based on gender.
Apart from that, race and ethnicity also determine personal bankruptcy because racial differences in debt burdens and the costs of debt enforcement help to explain well-documented racial disparities in bankruptcy filings (Morrison, Pang, & Uettwiller, 2018). For instance, Fisher (2019) identified that a majority of the bankruptcy filers in the U.S.A were African Americans. It is currently not clear if this was related to the Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA), or other factors such as the Great Recession. On the other hand, Agarwal et al. (2018) pointed out that bankruptcy filings among Singaporeans were not race-neutral. The number of personal bankruptcy filings was smaller among the Chinese but larger among other minority races, including the Malays and the Indians. However, Agarwal et al. (2018) were unable to ascertain if the minority ethnic status was associated with increased indebtedness among the Malays and Indians. Additionally, Agarwal et al. (2018) were unable to ascertain if the majority ethnic status was associated with reduced indebtedness among the Chinese. Nevertheless, Agarwal et al. (2018) argued that individuals’ credit activities and attitudes toward debt were not determined by economic differences between the minority ethnic group (i.e., Malays and Indians) and the majority ethnic group (i.e., Chinese) in Singapore.

Marital status is also a significant predictor of personal bankruptcy as it reflects family stability and accountability. Fisher (2019) found that bankruptcy filers were more likely to be divorced. Additionally, Ali et al. (2016) indicated that couples tend to incur more debt and have a higher likelihood of personal bankruptcy than singles. Also, there was no significant difference between single and married individuals with respect to indebtedness (Rahman et al., 2020). Thus, the increasing percentage of divorced filers may not exclusively be related to divorce itself, but it could instead be due to financial difficulties that later lead to divorce.

In summary, demographic data is a key determinant of personal bankruptcy. Demographic data is also important to determine if the samples in this study represented sample the target population (Salkind, 2010). Collectively, age, gender, race, ethnicity, and marital status were factors that determine the likelihood of personal bankruptcy. However, the relationships between these demographic characteristics, particularly between age, race, and marital status has not been well-established.

**Socioeconomic Status Indicators**

Socioeconomic status refers to the social and economic factors that determine the social standings of individuals or groups within a society (Galobardes, Shaw, Lawlor, Lynch, & Smith, 2006). Socioeconomic circumstances must be considered when understanding financial risk factors such as bankruptcy. Examples of socioeconomic circumstances include income level, educational attainment, social class, and occupation. However, there is a limited number of studies on the relationship between socioeconomic status and personal bankruptcy. Indicators such as income, occupation, education, homeownership, and household composition (e.g., number of children or dependent) are typically analysed as demographic indicators. The indistinction between the demographic and socioeconomic status indicators should be investigated in detailed to understand the inequalities that emerge within the society. By distinguishing the demographic and socioeconomic indicators, researchers could conduct proper analyses for developing accurate public financial management strategies.

In this review, we found only three studies that investigated the socioeconomic status in detailed (Bauchet & Evans, 2019; Bourova et al., 2019; Fisher, 2019). Income level, which indicates the earning capacity of an individual, is an important indicator that should be used to measure socioeconomic status. According to studies in Australia (Bourova et al., 2019) and in the U.S.A. (Burcht & Chan, 2019), the likelihood of personal bankruptcy was higher in people from lower social classes because they have limited financial savings than those from upper social classes. Additionally, individuals with less income depend heavily on financial support and often have more debt commitments than higher income individuals (Burcht & Chan, 2019). As a result, they may be more likely to default on their loans if debt becomes unmanageable. Burcht & Chan (2019) also reported that medical crowdfunding activities have adverse effects on the incidence of personal bankruptcy filings among the disadvantaged group. Financially unstable individuals may experience a greater sense of doubtfulness and incapability to become debt-free than wealthy individuals. Thus, they are prone to financial distress. On the contrary, findings by Ali et al. (2016) revealed that individuals with a high level of income also tend to have a high level of debt. This finding suggests that debt levels rise with income level.

Education level is also an important indicator to measure the socioeconomic status of an individual as it specifies the literacy of the individual. Education has also traditionally thought as a hedge against job loss. An individual with a higher educational level is commonly associated with better earnings, greater life chances, and a stable job position. As a result, it has been assumed that an individual with a higher education qualification would unlikely to default on their loan and file for bankruptcy. Interestingly, studies showed that individuals who
file for bankruptcy nowadays were those with high educational level and holding professional positions (O’Brien et al., 2019; Er, 2020). These findings contradict with the life cycle permanent income hypothesis, which was proposed by an American economist named Milton Friedman in 1957. The hypothesis proposed that individuals mostly adjust their way of living (and perhaps their class identity) according to their long-term (permanent) income. Moreover, the debtors in bankruptcy with the highest level of education show the greatest disadvantage in their earnings. Those with higher income occupations reported a much lower incidence of bankruptcy; however, when they did go bankrupt, they reported much higher levels of debt (Ali et al., 2016; O’Brien et al., 2019). In summation, their educational level and professions had placed them in the middle class. However, their incomes and net worth situated them in the lower class.

Additionally, studies have shown that debtors with children or other dependents have more financial obligations than debtors without dependents, and therefore, they were inclined to file for bankruptcy (Bauchet & Evans, 2019; O’Brien et al., 2019). This is because debtors with dependents (e.g., children, disabled family members, grandparents, and other extended family members) need to spend more to sustain their household members. Also, if the dependents require special medical care or attending college, the cost of providing such necessities may reduce the net household earnings. Hence, from a financial standpoint, dependents pose as a risk factor.

In summary, the likelihood of individuals experiencing adverse financial outcomes (e.g., bankruptcy) may be primarily explained by differences in socioeconomic status. It can be said that individuals from a lower socioeconomic background are less capable of managing their debt as compared to those from a higher socioeconomic background. Moreover, the analysis clearly showed that individuals who experienced adverse financial outcomes, regardless of their socioeconomic status, demonstrated poor self-regulation such as ineffective debt management practices, delay discounting, and poor financial planning. Collectively, socioeconomic factors were shown to be associated with personal bankruptcy.

Debt Indicators

Most debtors believed that they are capable of paying their debts. However, it usually takes them several years to know if they are truly capable of paying their debts. Therefore, debtors should apply for debt relief after five to eight years from the loan commencement date. Er (2020) reported that the bell-shaped of life cycle patterns in debt also leads to a bell-shaped in bankruptcies. This pattern, which is in accordance with the life cycle theory, is not surprising as it would usually take some time for a debt to accumulate. Consequently, debtors would struggle to pay when the debt is too much, and they eventually file for bankruptcy. Er (2020) also identified the number of creditors as a key indicator of debt. In the study, Er (2020) investigated on immigrants’ bankruptcy in Germany. It was found that the self-employed immigrants’ debtors had quite a number of creditors. The study also found that about 88% of immigrants’ debtors had less than 15 creditors. The highest debt sector was made up from debt owed from the financial institutions (60%), followed by debt owed to tax authorities which included income tax, value-added tax, business taxes, and car tax (14%). Next in rank were sales agreements, instalment contracts, service agreements (e.g., repairs and holidays) (5%), and tenancy cost (5%). The statistics indicated that the bankruptcy proceedings might have several weaknesses that could be abused by debtors, and this has led to the issue of moral hazard among the immigrant debtors. However, there is no evidence to substantiate on the claim of moral hazard among the immigrant debtors because the moral hazard problem may also arise from the creditors. This is because the findings showed that most creditors were irresponsible and unaccommodating towards their financially distressed customers.

A similar finding was also found by Chen & Zhao (2017), who revealed that individuals tend to default on their loan when they have more debt. An advantage of filing bankruptcy is that the debt would be discharged. For this reason, debtors with a high level of debt tend to file for bankruptcy. Correspondingly, Bauchet & Evans (2019) showed that higher credit card debt increased the chances of bankruptcy. They further noted that this was partially due to the economic recessions that had caused more households to depend on the credit card to compensate for inadequate expenditure due to personal financial problems. However, Bourova et al. (2019) indicated that the largest type of debt among Australian households was related to either electricity or gas bills (55.4%), rather than due to credit card debts (45.1%) as reported by Chen & Zhao (2017).

Hock-eam & Yeok (2017) found that loan-related characteristics (e.g., loan amount, tenure, the interest charged, instalment, and availability of guarantor) were the most important determinants of vehicle loan default. Additionally, the related characteristics were more reliable to predict the likelihood of vehicle loan default as compared to other determinants such as sociodemographic status, financial ability, and vehicle-related characteristics. Alternatively, a recent study by Carlsson Hauff & Nilsson (2020) found that specific details about
monthly commitments (i.e., a statement of future cash flow coming from interest rate payments, amortisations, and monthly rent) lowered the likelihood of a person to run into debt. However, lender guidelines that allow excessive loans (expressed in terms of a bank recommendation) and debtors’ overconfidence lead to excessive borrowing.

Taken together, the debt indicators such as loan amount, tenure, instalment size, and type of credit are factors that determine the likelihood of personal bankruptcy filings. Worthy of note, there has not been much research on financial ratios, especially on debt and liquidity ratios. Currently, there are only two studies (Chan et al., 2016; Eraslan, Hulya, Kosar, Li, & Sarte, 2017) that analysed financial ratios with regard to personal bankruptcy. The financial ratios are also important indicators that can be used to predict bankruptcy among households.

**Financial Indicators**

Bankruptcy filings commonly lead to depletion of financial resources and increasing debts. Additionally, incidents such as unemployment, illness, retirement, foreclosure or repossessin of asset, and injury could lead to bankruptcy filings (Bauchet & Evans, 2019).

Apart from the demographic indicators, income is also a key determinant of personal bankruptcy. Personal bankruptcy causes micro and macroeconomics issues as it is related to income. Bauchet & Evans (2019) showed that a majority of the bankruptcy filers were those in middle-income category. This may be due to increasing debt and uncertainty of income. The uncertainty of income is the result of corporations downsizing and the rapid shrinking of job tenure that contributed to the middle-income financial distress. Most people, especially those who have been in a promising career for a long-term, often find themselves at the verge of bankruptcy after losing their job, which they thought it was already secured. Additionally, individuals with low-income may less likely to file for bankruptcy, conceivably because they do not have much access to credit. Besides the uncertainty of income, overconfidence on future income and financial abilities could also result in excessive debt and eventually lead to household bankruptcy (Carlsson Hauff & Nilsson, 2020).

An asset is a resource of value that can be converted into cash. It is important to know not only whether the debtors have a current source of income but also whether they have tangible valuables or financial resources available to them or their creditors. As such, assets such as house provide protection against bankruptcy by representing values that can be liquidated to meet financial liabilities. On the contrary, income and employment status were not significantly correlated with bankruptcy, as outlined in Bauchet and Evans (2019) under Chapter 13 filing. Additionally, Bauchet and Evans (2019) highlighted under Chapter 13 filing, that the most important determinant of the bankruptcy filing was the asset exemptions. The most significant determinant was whether the debtor was a homeowner, with more homeowners using Chapter 13. The findings in Bauchet & Evans (2019) was similar to that in O’Brien et al. (2019) who examined the attributes of involuntary bankruptcy based on individuals’ financial characteristics including the source of income, assets, and debts. They found that those who were thrust into involuntary bankruptcy had higher incomes, higher debt levels, more assets, and were engaged in more business activities than other debtors (O’Brien et al., 2019). In their analyses, O’Brien et al. (2019) showed that voluntary bankruptcy depends whether the debtor was a homeowner or not. However, occupation is moderately influential, with debtors having a high occupational level were more likely to thrust into involuntary bankruptcy.

Nevertheless, other important financial indicators such as savings, expenses, and cash flows are seldomly analysed in studies on personal bankruptcy. Therefore, it is crucial to explore further these indicators as the key determinants of personal bankruptcy filings.

**Social Stigma Indicators**

This study has also identified other key determinants of personal bankruptcy filings including stigma (Ali et al., 2017; Grana & Hansen, 2019), unexpected life events (e.g., loss of income) (Bauchet & Evans, 2019; Gutiérrez-Nieto et al., 2017), and medical and health problems (Bourova et al., 2019).

In a study, Grana & Hansen (2019) modelled the costs influenced by bankruptcy spill overs. They found that bankruptcy was associated with costs, including direct costs (e.g., filing fees, attorney fees, and future credit constraints) and spill over costs (e.g., bankruptcy stigma and information costs). These findings indicated that stigma spreads across a social network. For instance, a filing by a household may lower stigma for its immediate acquaintances and later for their other acquaintances. Furthermore, a decline in stigma coming from a filing may have long-term effects. In their study, the bankruptcy spill overs were larger for neighbours than for people who
merely stay in a similar neighbourhood. At the neighbourhood level, an additional bankruptcy filing in the current year increases expected bankruptcy in the following year by up to 7%. An additional bankruptcy filing in an adjacent neighbourhood increases future bankruptcy by only 1%, as closer neighbours tend to share information than people who merely stay in the same neighbourhood. They also showed that a one-mile increase in neighbourhood distance lowered the likelihood of attorney-sharing by 20%. These findings provided evidence that long temporal lags influenced the decision to file for bankruptcy through the stigma effect. Short lags, however, matter more than the long temporal lags because they include both the stigma and information effects. Hence, it has been well-established that one’s propensity to file for bankruptcy depends on geography or locality of residence. This is because local culture and norms strongly influence stigma perceptions associated with the bankruptcy filing.

Meanwhile, in another study, Gutiérrez-Nieto et al. (2017) identified the leading causes that drive over-indebtedness by contrasting opinions made by experts and individuals. They conducted cluster analyses and identified two clusters. The first cluster was circumstances-related causes, whereas the second cluster was individual-related causes. For the first cluster, the study showed that individuals tend to blame circumstances when bankruptcy hits them. Circumstances such as external adverse shocks (e.g., economic crisis) and internal adverse shocks (e.g., unemployment or business closure) were the leading causes of over-indebtedness among individuals in Spain. Also, pressure from financial institutions that arises from a competitive lending market has led most financial institutions to be irresponsible when lending money by approving loans to everyone, even to those with high credit risk. This unethical practice pushes individuals towards over-indebtedness. Conversely, experts believed that over-indebtedness was caused by the lack of financial literacy among individuals and the inclination to follow others in fulfilling their materialistic attitude.

On another note, Ali et al. (2017) conducted a study among Australians to assess the extent to which bankruptcy was regarded as stigmatising. The perceptions of the Australian community towards bankruptcy were average. The findings showed that the general public disapproved of people who go into bankruptcy. Specifically, the result showed that 53% of Australians believed that people who go bankrupt were extravagant or greedy. Only 21% of Australians viewed bankrupt individuals with sympathy. The study implies that the public associated bankruptcy with negative attitudes. They also associated bankruptcy with emotional states such as shame. Therefore, due to these stigmatising effects (O’Brien et al., 2019), a majority of Australian debtors tend to file for involuntary bankruptcy because they have more to lose by doing this (e.g., family home, business venture, and career).

**Behavioural Indicators**

There is an increasing number of studies that investigated behavioural indicators of personal bankruptcy. Among these indicators were financial literacy, risk perception, materialism, medical crowdfunding activity, and economising behaviours (Watson et al., 2016; Gutiérrez-Nieto et al., 2017; Burtch & Chan, 2019; Rahman et al., 2020). Analysing behavioural indicators is crucial to minimise the occurrence of moral hazard among individuals. However, it is challenging to acquire data on behavioural indicators through public surveys.

**Macroeconomic Indicators**

Macroeconomic indicators can be used as a proxy to measure whether there are decisive factors for default rate and to predict the likelihood of personal bankruptcy. The current literature published in WoS database rarely measures macroeconomic indicators. There have only been two studies that investigated the relationship between macroeconomic indicators and personal bankruptcy (Desai, 2017; Schuh, Filho, & Coronel, 2019).

However, macroeconomic aggregates such as consumption, unemployment rate, gross domestic product, and income growth provide inconclusive results in predicting bankruptcy. Therefore, future works may consider using macroeconomic indicators when analysing the key determinants of personal bankruptcy as the findings may offer more holistic and accurate understandings.

**Summary of the Previous Study on the Determinants of Personal Bankruptcy**

The subject of consumer bankruptcy has achieved high visibility over the last few years. Diagram 1 illustrates the main themes with identification of variables that emerged from recent studies on personal bankruptcy. Meanwhile, Table 3 list out the main variables that being used in the personal bankruptcy study and highlighted the research gaps identified from the study.
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Diagram 1. Main themes identified for the key determinants of personal bankruptcy

Table 3. List of variables used in the personal bankruptcy studies and identification of research gaps

<table>
<thead>
<tr>
<th>Main Themes</th>
<th>Study</th>
<th>Main Variables Used</th>
<th>Gaps</th>
</tr>
</thead>
<tbody>
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<tr>
<td></td>
<td>Er (2020)</td>
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<td></td>
<td>Fisher (2019)</td>
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</tr>
<tr>
<td></td>
<td>Bauchet &amp; Evans (2019)</td>
<td>Age, changes in household size, changes in marital status, educational level, gender, marital status, number of children, race or ethnicity</td>
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<td></td>
<td>Skiba &amp; Tobacman (2019)</td>
<td>Age, homeownership, length of stay at current residence, race, years working at the current job</td>
<td></td>
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<tr>
<td></td>
<td>Bourova et al. (2019)</td>
<td>Age, gender, place of birth</td>
<td>Lack of a clear distinction between demographic and socio-economic status indicators</td>
</tr>
<tr>
<td></td>
<td>O'Brien et al. (2019)</td>
<td>Age, gender, family situation (number of dependents), occupation, state of residence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agarwal et al. (2018)</td>
<td>Age, gender, marital status, housing type, postal code, race</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rivera (2018)</td>
<td>Age, residential area, educational level, gender, marital status</td>
<td></td>
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<tr>
<td></td>
<td>Eraslan, Hulya, Kosar, Wenli, &amp; Sarte (2017)</td>
<td>Income above-median status, homeowner status, job tenure</td>
<td></td>
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<tr>
<td></td>
<td>Hock-eam &amp; Yeok, (2017)</td>
<td>Age, marital status, ethnicity, length of stay at current residence residential area</td>
<td></td>
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<tr>
<td></td>
<td>Ali et al. (2017)</td>
<td>Age, gender, highest formal qualification, postcode</td>
<td></td>
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<tr>
<td></td>
<td>Ali et al. (2016)</td>
<td>Age, sex, occupation, level of income, source of income, family situation (number of dependents), spouse’s income, state of residence, residual area</td>
<td></td>
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<tr>
<td></td>
<td>Corradin, Gropp, Huizinga, &amp; Laeven (2016)</td>
<td>Age, house tenure, marital status, homestead exemptions, health status</td>
<td></td>
</tr>
</tbody>
</table>
| **Socioeconomic Status** | Fisher (2019) | Income, employment  
Bauchet & Evans (2019) | Income, negative financial events, the total value of household assets, work status  
Bourova et al. (2019) | Educational level, Centrelink wage recipient status, employment status, homeownership, location, median personal income, social relationship (marital status)  
Debt | Carlsson Hauff & Nilsson (2020) | Lender guidelines, explicit information on loans, overconfidence in financial literacy  
Er (2020) | Number of creditors, debts by sector  
Bauchet & Evans (2019) | Amount of debt, sources of debt  
Skiba & Tobacman (2019) | Payday loan access  
Grana & Hansen (2019) | Cost of repaying debt  
Bourova et al. (2019) | Types of debt, amount of debt  
Rivera (2018) | Loan characteristics (requested amount, actual amount funded, loan term, loan purpose, loan rate, number of investors per loan, loan history, payment-to-income ratio, refinancing status) Credit score  
Eraslan et al. (2017) | Ratios (asset-to-debt ratio, arrears-to-debt ratio, rental/mortgage-payment-to-income ratio)  
| Medical debt | Accumulated arrears  
Total unsecured debt  
Hock-eam & Yeok (2017) | Loan characteristics (amount, tenure, the interest charged, instalment, availability of guarantor)  
Chan et al. (2016) | Loan-to-value (LTV) ratio, amount of unused credit limit on credit card, and home equity line lines of credit (HELOCs)  
Corradin et al. (2016) | Mortgage debt, financial liabilities  
Financial | Grana & Hansen (2019) | Value of non-exempt assets  
O’Brien et al. (2019) | Income, source of income, unsecured assets and debts  
Hock-eam & Yeok (2017) | Vehicle characteristics (price, ownership, types of car (foreign or local), car condition, capacity)  
| Financial ability (house ownership, length of stay, employment status, employment sector, income, other loans, repayment ratio)  
Corradin et al. (2016) | Financial assets, homeownership, home value  
Stigma / adverse events | Grana & Hansen (2019) | Bankruptcy costs (filing fees, attorney fees, future credit constraints)  
| Spill over costs (stigma, information cost)  
| Distance  
Eraslan et al. (2017) | Excess income shock, the timing of the shock to excess income, repeat filer status, attorney experience  
| No studies focus on expenses, cash flow, savings  
Limited focusing studies on financial ratios (e.g. ratio, service coverage ratio)  
|
Towards Achieving Long-Term Debt Sustainability: A Systematic Review of the Key Determinants of Personal Bankruptcy

<table>
<thead>
<tr>
<th>Behavioural</th>
<th>Macroeconomic</th>
<th>Critical gap in macroeconomic indicators as existing literature rarely measures macroeconomic variables</th>
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</thead>
<tbody>
<tr>
<td>Gutiérrez-Nieto et al. (2017)</td>
<td>Adverse shocks (internal and external), financial institutions’ pressure</td>
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<tr>
<td>Rahman et al. (2020)</td>
<td>Behavioural</td>
<td></td>
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<tr>
<td>Burtch &amp; Chan (2019)</td>
<td>Financial literacy, risk perception, materialism</td>
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<tr>
<td>Gutiérrez-Nieto et al. (2017)</td>
<td>Medical crowd funding activity (amount raised, duration of fundraiser, geographic location, a textual description of the fundraiser’s purpose)</td>
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<tr>
<td>Watson et al. (2016)</td>
<td>Financial illiteracy, a propensity to indebtedness</td>
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<td></td>
<td>Living situation, perceived parental financial support, economising behaviours</td>
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<tr>
<td>Schuh et al. (2019)</td>
<td>Consumption, GDP, inflation, interest rate, unemployment, the volume of payroll loans granted</td>
<td></td>
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<tr>
<td>Desai (2017)</td>
<td>The unemployment rate, income growth, income per capita, population</td>
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</table>

4. Conclusion

In this systematic review, we examined a total of 22 articles to identify the key determinants of personal bankruptcy filings. Our motivation was driven by the lack of literature on the causes of personal bankruptcy, particularly in EMDEs and LICs. However, the lack of research in this area does not reflect that the topic is irrelevant or obsolete. This instead shows that the causes of personal bankruptcies have gained interest in the industry (under credit scoring) where the results and data are mainly proprietary and protected. Therefore, research on the determinants of personal bankruptcy, particularly in Malaysia, is warranted.

The Malaysian banks need to have a reliable credit score tool as loan applications were mostly rejected due to concerns regarding default risk. For that matter, the Central Bank of Malaysia (BNM) has provided the Central Credit Reference Information System (CCRIS) to calculate credit risk scores. This computerised database system is one of the credit score tools used by financial institutions in Malaysia. The CCRIS provides report in three major categories of credit-related information: (i) outstanding credit, (ii) special attention accounts, and (iii) credit facility applications made in the past one year. From this acquired information, a credit report is generated, and it will be used by the financial institutions to evaluate credit risk scores of applicants. Also, the interest rate is charged based on individual credit score. Despite the reliability of CCRIS, statistics from Malaysia Department of Insolvency revealed that loan defaults are still prevalent which contributed to the increasing number of personal bankruptcies in Malaysia. From these findings, it is important to identify and assess the determinants of personal bankruptcy.

Based on the systematic review that has been conducted, several themes have been identified as key determinants of personal bankruptcy. These determinants are demographic, socioeconomic status, debt, financial, social stigma, behavioural, and macroeconomic indicators. Out of these, the demographic indicators were mostly studied in the research, followed by debt and financial indicators. There is an increasing trend on conducting studies on behavioural indicators. However, less attention was given on socioeconomic and macroeconomic indicators. This finding shows the potential gaps in the literature that need to be fulfilled to clarify our understanding of the key determinants of personal bankruptcy. It is important to note that the determinants of personal bankruptcy listed above are not yet comprehensive, as more determinants may be discovered in future research.

This study has important implications for scholarship and public policies, especially in countries where personal bankruptcy is prevalent, and public perceptions on bankruptcy have become the “new norms”. Additionally, the issues highlighted above have direct implication for researchers, government, and the financial institutions for the following reasons. Firstly, this systematic review was conducted from the relevant literature on the determinants of bankruptcy. The findings from the systematic review has significantly contributed to the body of knowledge in personal bankruptcy study. Indeed, one of the main goals that has been achieved from this study is to fill the gap in the body of knowledge that has not been explored before. Secondly, the increase in
personal bankruptcy may be associated with increased banks losses due to loan default, which could negatively affect their safety, security, and performance. As consequences, an increase in the number of bankruptcies can result in underperformed financial markets, a reduction in the economy spending, and lower bank profitability. Therefore, financial institutions can develop an effective credit scoring model by analysing the key determinants of personal bankruptcy. Hopefully, the model can give an early warning signal to the financial institutions for them to take preventive measures in identifying “high risk” client. Thirdly, due to uncertainty in the world’s economy nowadays, people may have trouble sustaining their debts and financial status. These repercussions also contribute to an increasing number of personal bankruptcy filings. Therefore, the development of an effective credit scoring model should be critically considered to complement the existing credit scoring models and CCRIS.

**Recommendations for future research**

The study of key determinants of personal bankruptcy is an ongoing process. This study is focusing on articles review published by WoS database only. Therefore, future research may consider analysing more literature from different databases, with more open and comprehensive data infrastructure such as Scopus, Dimensions and Iris.ai. This would empower future research to identify more key determinants of personal bankruptcy in order to develop a comprehensive credit scoring model that would generate better predictive capability in assessing the individual credit risk.

5. **Acknowledgement**

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**References**

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