Information Management and Business Review (ISSN 2220-3796)
Vol. 15, No. 3(SI), pp. 229-243, September 2023

Factors Affecting Personal Bankruptcy among Malaysians

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Abstract: Malaysia faces higher bankruptcy cases involving personal bankruptcies among Malaysians despite increasing the threshold of a personal bankruptcy declaration. This research aims to study the factors influencing Malaysian personal bankruptcy, utilizing the macroeconomic aggregates as the determinants, which are inflation rate (IR), unemployment rate (UE), lending interest rate (LR), Gross Domestic Product (GDP) per capita and household final consumption expenditure (HFCE). This study uses a quantitative approach and time series analysis which includes a group of data from 1985 to 2021, i.e., 37 years of observations. The sample series of time frames is sufficient to assess the long-term relationship between the macroeconomic perspectives and personal bankruptcy. The data was analyzed using multiple linear regression analysis. The finding shows a significant negative relationship between Malaysian personal bankruptcy and unemployment rate, lending interest rate and household final consumption expenditure. In contrast, there is an insignificant relationship between Malaysian personal bankruptcy and the inflation rate.

Keywords: *Personal Bankruptcy, Malaysian, Bankruptcy Cases.*

1. Introduction and Background

Personal bankruptcy is now one of the main concerns of the government as it will impede the achievement if the situation continues to persist within the country's economic growth. According to the Star (2022), the Insolvency Department has revealed that a staggering 18 individuals were declared bankrupt every day within the early five months of 2022. They reported the numbers are concerning as the threshold for bankruptcies has been increasing for the past couple of years despite the showcased number of individuals decreasing in these periods. According to the Malaysian Department of Insolvency (2022), debtors who are unable to pay their debts of at least RM100,000 will be declared bankrupt by the adjudication order made by the High Court of Malaysia. The number of personal bankruptcy cases in Malaysia has evolved from the year 1985 until the year 2021 (Malaysian Department of Insolvency, 2006; 2007). Generally, personal bankruptcy has displayed a rising trend from the 1980s until the 2010s. In the year 1995 until the year 2004, there was a continuous increase in personal bankruptcy cases in Malaysia due to the Post-Global Financial Crisis in 1997. According to Syed Nor et al. (2019), personal bankruptcy cases have shown an increase from 13,238 cases in 2007 to 22,351 cases in 2014 which is equivalent to an increase of 68.8 percent from the total accumulated personal bankruptcies of 131,282 cases in 2014.

This increase in cases is alarming to the country as it will hurt the economy as well as society. However, in the year 2017, according to the Insolvency Act 1967 under amendment section 5 of Act 360, the amendment act stated that the minimum personal bankruptcy limit or threshold for a declaration of personal bankruptcy has increased from RM50,000 to RM100,000. Thus, the number of individuals that have been declared bankrupt has decreased since the year 2017 until the year 2021. It can be seen that the number of bankruptcy cases continuously decreased from 18,227 cases in the year 2017 to 6,554 cases in the year 2021. Moreover, due to the recent crisis such as the coronavirus disease 2019 (COVID-19) pandemic, has affected people especially businesses to shut down and eventually lead the owners to bankruptcy. This would also inflict on the employees especially, causing them to lose their jobs and causing the number of unemployed individuals to increase (Isa et al., 2021). Numerous studies have been constructed based on the macroeconomic aggregates such as inflation rate (IR), unemployment rate (UE), lending interest rate (LR), Gross Domestic Product (GDP) per capita and household final consumption expenditure (HFCE) to give an insight on the personal bankruptcy determinants. However, the limitation faced by researchers who want to study the personal bankruptcy of individuals in Malaysia is the lack of accessibility.

In reliable data and previous studies by other researchers, the issue is less focused on within Malaysia. To

address this issue and find a solution, a framework of factors that influence personal bankruptcy among Malaysians has been proposed. This framework will provide information regarding the significance of personal bankruptcy on the growth of the economy, society, and governments. The concern about personal bankruptcy in Malaysia has been increasing in recent years until now. Although the year 2017 to the year 2021 depicts a decrease in bankruptcies in Malaysia, this is not entirely true because the Insolvency Act 1967 was changed in 2020 to raise the personal bankruptcy threshold from RM50,000 to RM100,000 (Bank Negara Malaysia, 2022b). This proves that the decrease in bankruptcies does not indicate a decrease in the number of individuals unable to pay their debts. According to Richard Banks & Associates (2020), it was demonstrated that consumers may have been stuck with large monthly payments instead of being able to return to normal earnings and spending because they were unable to discharge debts, which may have had unfavorable effects and exacerbated the recession in the United States during the early.

Following the challenging times of the Asian Financial Crisis in 1997 and the Global Financial Crisis in 2009, the policymakers have implemented several rules and regulations to improve the local banking structure as well as the financial market (Barth Gerard Caprio et al., 2013). If policymakers had a better understanding of the factors that contribute to personal bankruptcy, they might be able to come up with a more effective strategy to slow the growth in the number of people filing for bankruptcy protection. This study aims to investigate the factors of personal bankruptcy in Malaysia from a macroeconomic perspective within a time frame of 37 years which includes inflation rate, unemployment rate, lending interest rate, GDP per capita, and household final consumption expenditure. The type of data analysis that is gathered and concluded in this study is a time series analysis, which includes a group of data from 1985 to 2021 with a total of 37 years of observations. The series of the time frame is chosen and observed up until 2021 with the belief of personal bankruptcy in an uptrend situation, impacted by the COVID-19 and financial crisis that led Malaysia to be at the edge of bankruptcy. Finally, the chosen time frame is believed to be ample enough to evaluate the long-term relationship that exists between the variables data mentioned above.

2. Literature Review

Bankruptcy: Bankruptcy is a legal process in which an individual is declared bankrupt because of a High Court Adjudication Order issued against the debtor, either on the creditor's or the debtor's petition, if the person is unable to pay his debts totaling at least RM100,000 (Malaysian Department of Insolvency 2022a). Personal bankruptcy cases have been rising especially during the COVID-19 recession. According to Li et al. (2020), the authors have stated that the bankruptcy declaration has a role in solving financial difficulties faced by the claimers. This is because when an individual faced financial problems, they were likely to claim self-bankruptcy as they were unable to repay impulsive loans. Besides that, Selvanathan et al. (2016) claimed that the spending behavior of Malaysians is one of the factors that can contribute to personal bankruptcy. The Cyclical Theory of Poverty occurs when individuals are unexpectedly unable to provide for their basic needs owing to unforeseeable events such as chronic unemployment, personal debt, educational failure, and others (Oxford University Press, 2009). With the faltering economy, especially the recession during COVID-19, the cyclical explanation looks at individual situations and community resources as mutually dependent (Addae-Korankye, 2019).

For instance, when individuals lose their employment, they may first rely on their savings to subsist. As time goes by, their savings will be depleted, and they are forced to resort to using credit to make ends meet until they can return to work and gain income. Once they finally find new employment, they discover that their debt levels, comprised of both old and new debt, have risen to an amount that they are unable to pay off with the new income. Thus, declaring bankruptcy is the only way for some individuals to break the cycle. This is why the number of bankruptcies continues to rise, even after the economy improves and people return to work. In other terms, increasing the employment rate leads to insufficient income, which in turn leads to low levels of spending, consumption, and savings. This posits that individuals who owe more than they possess, or in other terms, individuals who cannot repay their debts as they become due, are unable to invest in training, and businesses or start their businesses; which further means that there will be no expansion, the market will dwindle, and people will disinvest, leading to lack of opportunities in the community (Ann-Yew, 2017).

In his 1936 book The General Theory of Employment, Interest, and Money, Keynes formulated the Liquidity

Preference Theory (Lerner, 1936). This theory explains, in essence, how the supply and demand for money determine the lending interest rate. According to this theory, keeping money in cash due to its liquidity is preferable. However, the central bank can adjust the lending interest rate to achieve a particular economic objective. When the lending interest rate is reduced, the bank's savings account and fixed deposit investments become less attractive. This will increase the motivation to hold cash for consumption or investment in other financial instruments. Similarly, a lower lending interest rate results in a lower cost of borrowing, which can encourage both investment and consumption borrowing. The ultimate goal of a lower lending interest rate is to increase the market's money supply, thereby driving economic growth. However, as White (2006) points out, personal debt began to accumulate during the low-interest rate environment. The loan became very appealing in this favorable environment until the borrowing exceeded the ability to service the debts. As a result of their high debt, a large number of people have filed for personal bankruptcy.

Inflation Rate: Theoretically, inflation is one of the contributing factors that may influence personal bankruptcy. According to Fernando (2022), inflation is a rise in prices, which can be translated as the decline of purchasing power over time. Built-in inflation, demand-pull inflation, and cost-push inflation are the three different types of inflation that are sometimes distinguished from one another. Ninh et al. (2018) published the results of their research into the forecasting of financial distress and bankruptcy in Vietnam. As a result of this study, the researchers concluded that there is a positive relationship between inflation for short-term Treasury bills and financial distress. These findings imply that the likelihood of financial distress among Vietnamese firms is inversely proportional to the firm's level of solvency. Additionally, the ideas of Devi and Firmansyah (2018) lend support to this concept. According to them, inflation directly has a negligible but positively significant effect on the financial distress of Islamic rural banks in Indonesia. These findings have a significant bearing on the ability of Islamic rural banks to avoid going bankrupt. Besides that, Smaoui et al. (2020) conducted a study on the impact of the development of the Sukuk market on bank insolvency risk.

They discovered that inflation hurts the likelihood of banks going bankrupt. A higher likelihood of inflation in the future would increase the lending interest rate that is charged on loans to customers, with the additional cost being transferred wholly or partially to the bank's customers. Inflation that was not anticipated, on the other hand, causes an increase in the cost of financing for banks, which in turn lowers their intermediation margins and increases their risks. Similarly, Akbar et al. (2019) discovered that the rate of inflation has an inverse and statistically significant association with the propensity of companies to file for bankruptcy. As a result, this lends substantial support to the theory that the degree to which the life-cycle stage an organization is in affects the company's ability to maintain its financial stability. The same conclusion was reached by Boukhatem and Moussa (2018), indicating that inflation hurts bank solvency and can even lead to bank failure. The high inflation or hyperinflation that some panel countries may have experienced during the study period may explain, at least in part, why inflation has such a negative effect on economic growth.
H1: There is a significant relationship between the inflation rate and personal bankruptcy among Malaysians.

Unemployment Rate: The definition of unemployment according to The World Bank (2022) refers to individuals that capable of working actively in seeking jobs but are unsuccessful in finding one. Several views about personal bankruptcy and the unemployment rate have been discussed in past studies. According to Kubálek et al. (2018), they stated that the unemployment rate does not have a significant relationship with personal bankruptcies. Although this macroeconomic variable seems reasonable, it was not statistically confirmed as other crucial reasons worsening an unemployed individual's move toward bankruptcy. Ahmad et al. (2022) also stated that the unemployment rate is seen as a non-significant determination of personal bankruptcy for Malaysia and Singapore. However, the unemployment rate should have a statistically significant and positive impact on personal bankruptcy. This is because the COVID-19 recession has been seen to affect Malaysia's higher unemployment rate and income difficulties that possibly can contribute to personal bankruptcy, especially for Malaysian youth (Lee & Zhang, 2021).

This is because they are unable to bear the cost of living and personal spending in the long run as they do not have a source of income and slowly moving toward bankruptcy in the future. This matter also mentioned Hassan et al. (2021), stated that unemployed individuals will default on payments as there is no income gain, high dependency on emergency savings and end up filing for bankruptcy. Alias et al. (2018) also stated that there is a long-run cointegration relationship between unemployment on secured financing. This is because

unemployed individuals seem to have a higher risk of having financial difficulties due to the regional economic collapse. Based on this hypothetical point of view, there is a relevant reason to include the unemployment rate as one of the independent variables to study the relationship with personal bankruptcy in Malaysia. Therefore, this study expected there is a relationship between the unemployment rate and personal bankruptcy.

H2: There is a significant relationship between the unemployment rate and personal bankruptcy among Malaysians.

Lending Interest Rate: The amount that a lender charges a borrower as a proportion of the principal or the amount loaned, is known as the interest rate. The length of time the amount is deposited or lent determines how much interest is accrued on the principal amount. Loans with minimal risk typically have low interest rates, while loans with high risk typically have higher interest rates. By looking at the borrower's credit score, the risk is assessed. To obtain the finest loans, the borrower must have a decent credit score. Banks are generally free to choose the interest rates, they will provide on deposits and charge on loans, but they must consider the competition, market levels for various interest rates and the Central Bank policies (Furhmann, 2022). The policy interest rate, usually known as the overnight policy rate (OPR), is how the bank affects domestic interest rates and is an essential component of Malaysia's monetary policy that can affect a wide range of significant financial metrics, including interest rates on house loans, lending rates, foreign exchange rates, and deposit rates. The lending interest rate has a connection with personal bankruptcy because it influences the amount of the loan. The higher the lending interest rate is, the higher the amount of loan the borrower needs to pay, and it can lead to personal bankruptcy because there is a chance borrower incapable of that accountability.

Also, those loans such as car loans, credit card debt and mortgage debt can be a burden to the borrowers and lead them to file for personal bankruptcy. Moreover, households with a lower average income use more credit cards despite their incapability to pay them in later days (Brygała, 2022). Past studies such as Isa et al. (2021), Korol (2022), and Elvery and Schweitzer (2020) show a positive relationship between lending interest rates and personal bankruptcy. An article from Korol (2022) investigates how the macroeconomic environment affects the lending interest rate, the availability of loans and their cost to households, the degree of consumer prosperity, and the stability of the labor market, all of which have an impact on consumers' earnings prospects. The result of their studies by the Fuzzy logic model, an increase in the lending interest rate has a negative influence on consumers' degree of solvency. According to the author, this happens because of the effects as it has a greater negative influence on the volume of non-performing loans (NPL). Besides that, Elvery & Schweitzer (2020) conclude their research that the combination of a lower GDP and a lower lending interest rate will have a positive impact on the number of businesses that fail following a financial crisis. The author states that the decline has caused a decline in the debt service ratio nationally. This implies that households are now better able to allocate resources to savings and other forms of consumption, which should result in fewer bankruptcies.

However, there are several past studies such as Ahmad et al. (2022) and Haw et al. (2019) find that lending interest rate significantly and negatively affects personal bankruptcy. This finding implies that as lending interest rates rise, borrowing costs also rise, which makes it more challenging to approve loans for borrowers with lower credit scores. Because banks will only approve loans to customers with excellent creditworthiness, the number of personal bankruptcy cases tends to decline (Ahmad et al., 2022). The studies from Dahne and Steege (2020) also stated that low lending interest rates will invite more people to take a loan and increase the chance of personal bankruptcy. This theory also corresponds to the monetary policy in which the central bank responds to economic decline by relaxing borrowing constraints. Based on these findings from past studies and their hypothetical point of view, it makes sense to consider lending interest rate as one of the independent factors while examining the association between personal bankruptcy and Malaysia. As a result, this study predicted that there is a connection between personal bankruptcy and lending interest rates.

H3: There is a significant relationship between lending interest rates and personal bankruptcy among Malaysians.

Gross Domestic Product per Capita: A past study suggests that growth in gross domestic product has a

relation and can influence several personal bankruptcies. Thus, this study decides to include GDP per capita as the independent variable (IV) which is an indirect indicator of per capita income as it provides a basic measure of the value of output per person according to The World Bank (2023). Based on a study conducted by Khan et al. (2018), growth in the income level of the people within an economy boosts a borrower's ability to repay a loan. As a result, the amount of NPL in the banking sector of that economy subsequently decreased which also led to a decrease in bankruptcies and vice versa. Surely, their study results in the significance of GDP growth rate and its negative relationship with NPL. A study by Zainol et al. (2018) also shows a negative relationship between GDP and NPL. Auto-Regressive Distributed Lag (ARDL) technique was used in a study that looked at the macroeconomic factors that influence NPLs in the Malaysian context. For a collection of time series data from Q12006 to Q42015 in Malaysia, the ARDL approach was used to examine the significant correlations between dependent and independent variables in long-run and short-run elasticity. The study concludes that macroeconomic factors like GDP have an impact on Malaysia's level of non-performing loans. A study of Factors Affecting Bad Debt in Vietnam Commercial Banks by Hang et al. (2020) similarly gives the negative relationship between GPD and bad debt after the observation of the study.

The authors noted here that when the economy expands steadily and sustainably, it will benefit firms' production, business, and import-export operations, boosting profits and enhancing their capacity to pay back loans from commercial banks. According to Schuh et al. (2019), the relationship between the default rate and the GDP, which showed a negative correlation, further supported the notion that income and the economic environment are crucial factors in agents' capacity to repay their loans. According to a study by Amine and Predelus (2009), personal insolvency filings significantly increased as the real GDP started to decline during the fourth quarter of 2008, reaching 40,589 files during the third quarter of 2009, which is the highest number of personal insolvencies ever filed in Canada in a single quarter. When the real GDP continued to increase, personal insolvency filings began to decline in the first quarter of 2010. This depicts there is a negative relationship between GDP and personal insolvency. To conclude, it is clear from the past study that conducts research circling the influence of GDP in particular that there is evidence to lead to the existence of a connection between GDP per capita and personal bankruptcy. Thus, this study chooses this variable in hopes it gives a significant result whether it is the same as past studies which is a negative relationship or in opposite ways.
H4: There is a significant relationship between GDP per capita and personal bankruptcy among Malaysians.

Household Final Consumption Expenditure: HFCE formerly known as private consumption is the market value for the goods and services which consist of expenditure that indirectly measured its estimation value, incurred by households on individual consumption goods and services, including the ones which has sold at prices that are not economically significant as well as consumption goods and services that has been acquired abroad. HFCE also includes durable goods (such as cars, laptops, and refrigerators) purchased by the household, as well as all cash or credit-related expenditures such as taxes paid for goods and services. Any goods and services that were received, free or concession will be considered as expenditure if it is for personal use of the household. However, HFCE would not consider an expenditure that is partially or fully covered by another social transfer. As proposed by Mien and Said (2018), household consumption or expenditure can be indirectly linked to personal bankruptcy which can influence personal bankruptcy filings. The result shows that there is a positive relationship between the HFCE and personal bankruptcy cases due to the high spending on necessity goods and luxury goods. Moreover, they found that household consumption of certain goods such as transportation and housing caused more individuals to file a bankruptcy case as they were unable to repay the debts from the incurred expenditure (Gallagher et al., 2020). Asserts that household consumption especially at the risk of bankruptcy will decrease their consumption to bear the constrained financial state. However, the HFCE in the context of health insurance and other related health spending still needs to incur the costs.

They found that the household consumption in health expenditure aspect has a significant relationship with personal bankruptcy. Meanwhile, Legal-Cañisá (2019) in his research stated that there is a significant relationship between household consumption and personal bankruptcy. He found that the introduction of personal bankruptcy in their general equilibrium model shows a positive perspective on consumption where the more they spend on household expenditure, the higher the possibility for the personal bankruptcy rate to increase. The study of Yunchao et al. (2020) discovered that there is no significant relationship between

HFCE. In their research, they also hypothesized that indebtedness indicates that households are not burdened by debt and are instead more inclined toward financial wellness. Thus, this can be assumed that the piling debts are less likely to have an impact on household consumption of their goods and services unless they have overspent their fortunes and may exceed their income limitation spending resulting in filing a bankruptcy. However, Othman et al. (2020) reaffirmed this that they found HFCE based on the total expenditure of the Bottom 40%, Middle 40% and Top 20% income groups where any exceeded amount of expenditure will fall into overspending. This will cause personal bankruptcy as they exceed their capability in spending on necessary goods as well as other durable or non-durable goods. Thus, this shows a significant relationship between household consumption expenditure and personal bankruptcy. To summarize, based on this hypothetical point of view, it is a relevant factor to include HFCE as the determinant of personal bankruptcy in Malaysia by examining the relationship between HFCE and personal bankruptcy.

H5: There is a significant relationship between household final consumption expenditure and personal bankruptcy in Malaysia.

3. Research Methodology

In this study, a multiple linear regression analysis is one of the analysis techniques to be used to evaluate the relationship between personal bankruptcy cases and selected independent variables which are the inflation rate, unemployment rate, lending interest rate, GDP per capita and household final consumption expenditure. This multiple regression model is a statistical technique that uses one or more independent variables to predict the linear association of a dependent variable (Yusoff et al., 2022). To achieve the reliability and validity of the model, the adequacy of the data will be checked by correlation coefficients analysis to analyze the strength of the relationship between dependent variable and independent variables, the Variance Inflation Factors (VIF) procedure to check for multicollinearity of the data, Jarque-Bera method to perform a normality test on residuals and Durbin Watson for the serial correlation test. Lastly, the regression analysis is discussed based on the Ordinary Least Squares (OLS) method. This time-series-oriented econometric analysis model is mainly conducted by EViews software. Furthermore, the sources of data collection that will be discussed in this study are based on secondary data only and the main sources to get quantitative data from a data stream. This research study will conduct time-series yearly data from 1985 to 2021 with a total of 37 years of observations. The reason the data of observations starts from the year 1985 is because the year 1985 is the maximum historical annual data available for all variables that can be obtained in this study.

Meanwhile, the gathered data that opted in this study ended in the year 2021 because that is the most recent data that can be evaluated to ensure the findings of this study are relevant and up to date. The list of variables data within the selected time frame is retrieved and extracted from the Malaysian Department of Insolvency (MDI), Refinitiv Eikon, the Department of Statistics Malaysia (DOSM), the World Bank Data, and Bank Negara Malaysia (BNM). In this study, the researchers want to look at the relationship between the five independent variables, which are the inflation rate, unemployment rate, lending interest rate, GDP per capita, household final consumption expenditure, and personal bankruptcy in Malaysia, to answer the research objectives outlined in the model below. $Bankruptcy = f(Inflation\ Rate, Unemployment\ Rate, Lending\ Interest\ Rate, GDP\ Per\ Capita, HFCE)$. Thus, the hypothesized economic model is constructed as follows:

$$LOGBANKRUPTCY = \beta_1 + \beta_2 IR + \beta_3 UE + \beta_4 LR + \beta_5 LOGGDP + \beta_6 HFCE$$

Where LOGBANKRUPTCY is the logarithms of personal bankruptcy cases, IR is the inflation rate, UE is the unemployment rate, LR is the lending interest rate, LOGGDP is the logarithms of Gross Domestic Products per capita and HFCE is household final consumption expenditure (% of GDP). To note, data on personal bankruptcy cases and GDP per capita are presented in log form mainly to reduce the noise in the big value variation and to standardize it for a higher reliability of regression results.

Table 1: Measurement of Independent Variables

Variable	Proxies	Notations	Measurements	Sources of Measurement
Inflation	Interest Rate (%)	CPI	$\frac{CPI\ current\ year - CPI\ past\ year}{CPI\ past\ year} \times 100$	Srivastav and Vaidya (2023)
Unemployment	Unemployment Rate (%)	UE	$\frac{Number\ of\ unemployed\ persons}{Number\ of\ persons\ in\ the\ labour\ force} \times 100$	DOSM (2023)
Lending Interest Rate	Lending Interest Rate (%)	IR	$Average\ (Reference\ rate + Spread\ rate)$	Bank Negara Malaysia (2022a)
GDP per capita	GDP per capita (RM)	GDP	$\frac{\text{Real GDP}}{\text{Population}}$	The World Bank (2023)
Household Final Consumption Expenditure	Household Final Consumption Expenditure (% of GDP)	POES	$C = Y - I + G + (X - M)$	The World Bank (2023)

4. Results

This study employed the OLS method to form a Multiple Linear Regression Model to study the relationship of personal bankruptcy in Malaysia with the determinants of inflation rate, unemployment rate, lending interest rate, GDP per capita and household final consumption expenditures. The result is shown in the table below:

Table 2: Descriptive Statistics Analysis

Variable	Mean	Standard Deviation	Minimum	Maximum
Bankruptcy	11 395.81	5,915.635	1 888.00	22 305.00
IR (%)	2.38	1.46	-1.14	5.44
UE (%)	3.85	1.24	2.40	7.4
LR (%)	7.27	2.59	3.44	12.55
GDP per capita (RM'000)	27 696.98	9 449.126	1 213.45	44 579.64
HFCE (%)	49.30	4.91	41.56	60.83

This study runs descriptive statistics for 37 observations from 1985 to 2021 with six variables which are personal bankruptcy, inflation rate, unemployment rate, lending interest rate, GDP per capita, and household final consumption expenditures. According to the descriptive statistics results, the highest data for standard deviation is GDP per capita at RM 9 449 126. This indicates that GDP per capita data are more spread out over a wide range of values. This deviation can be seen from the huge difference in GDP per capita value for mean, minimum and maximum. These findings could be explained further by the raw data unit obtained by the researchers in RM Million, as opposed to the other independent variable (inflation rate, unemployment rate, lending rate and household final consumption expenditures), which has raw data in percentages. Next, the lowest data for standard deviation is the unemployment rate at 1.24. This indicates that the unemployment rate is clustered closely around the mean, or it can be said that the data are more reliable.

This deviation can be seen from the value of mean, minimum and maximum data which reflect more clustered data and less extreme values. These findings could be explained further by the raw data unit obtained for this study is in percentage (%) with one decimal point, as opposed to other independent variables. Following that, this study shows that the maximum and minimum inflation rate values were 5.44 percent in 2008 and 1.14 percent in 2020, respectively. This is because the inflation rate was high in 2008 due to the sharp rise in crude oil price to US$140 per barrel in 2008, which increased petrol and diesel prices (Dahlan, 2017), whereas the inflation rate was low in 2020 due to the COVID-19 pandemic, which has indirectly reflected as

Malaysia recorded a negative inflation rate of 1.14% (Department of Statistics Malaysia, 2021). Malaysia's inflation rate for 2020 was -1.14 percent, a 1.8 percent decline from 2019 (World Bank, 2023). In addition, this study reveals that the maximum value of the unemployment rate was 7.4 percent in 1986 and the minimum value was 2.4 percent in 1997. The gross domestic product of Malaysia decreased by 1% in 1985, marking the start of a recession in the country. The unemployment rate increased to 5.6% in 1985 and 7.4% in 1986.

This is happening because of the 1985 to 1986 economic crisis that was triggered by the high interest rates in the United States which led to a fall in world commodity trade. Malaysia suffered since it is an exporter country, as the price of primary commodities fell and the demand for manufactured goods decreased. Tin and palm oil prices plummeted, causing a 30% decline in Malaysia's overall export price index (Lee, 2020). On the other hand, with 214,900 people employed in the year 1997, the unemployment rate managed to hit an all-time low of 2.4%. This was a response to the 1997 to 1998 Asian Financial Crisis, which caused the economy down by 7.3% (Khan, & Layali, 2020). The statistical analysis also shows a maximum lending interest rate, of 12.55%, which is in the year 1985. The high lending interest rate may happen because Malaysia went through a severe disequilibrium phase, reflected its first massive current account deficit as Malaysia launched numerous new firms, expanded its scope of activities, and introduced several rural development programs during that time, which caused Malaysia to have a significant deficit (Athukorala, 2010). Furthermore, the commodity prices fell from 1985 through 1986 worsening the situation as the program's expenditure was partly paid with petroleum revenue, but it was insufficient, and the government began borrowing against future oil revenues (Lee, 2020). Under the traditional Keynesian theory, government spending stimulates the economy, which will result in the money demand rising, and lending interest rates will increase (Pettinger, 2022).

While the minimum lending interest rate is in 2021, 3.44% the low lending interest rate is considered vital and natural to support the recovering economy. Furthermore, the maximum value of GDP per capita in this study was RM44,579,000 in 2019 due to the influence of production performance and price factors on GDP per capita value. Moreover, prices for the country's major commodities, particularly palm oil, crude oil, and natural gas, decreased in 2019 (Bank Negara Malaysia, 2019). In 1986, the minimum value of GDP per capita was RM13,213,000. This occurred as a result of the year 1985 to 1986 commodities shock, which Malaysia suffered from as an exporter country as primary commodity prices fell and demand for manufactured goods decreased. Tin and palm oil prices plummeted, causing a 30% decline in Malaysia's overall export price index. Malaysia had a recession in 1985, with a 1% decline in GDP that year and a further decline the next year (Lee, 2020). Lastly, this study reveals that the maximum value of household final consumption expenditures is 60.83 percent (2020) and the minimum value is 41.56 percent (1998). In the aftermath of the COVID-19 crisis, there will be a large number of HFCEs in 2020 due to tax exemptions and the ability to take out more loans, especially for individuals with lower incomes (Zainul, 2021). Meanwhile, the minimum value of HFCE was in 1998 which can be explained by the repercussions of the Asian financial crisis in 1997 as household consumption has decreased purchasing power, which is reflected in lower consumption expenditures.

Table 3: Correlation Table 1

	Bankruptcy	IR	UE	LR	LOG_GDP	HFCE
Bankruptcy	1.000000	0.085843	-0.716044	-0.805367	0.828330	-0.004113
IR	0.085843	1.000000	-0.326411	0.225132	-0.099644	-0.361115
UE	-0.716044	-0.326411	1.000000	0.426001	-0.651825	0.182349
LR	-0.805367	0.225132	0.426001	1.000000	-0.882671	-0.392049
LOG_GDP	0.828330	-0.099644	-0.651825	-0.882671	1.000000	0.359930
HFCE	-0.004113	-0.361115	0.182349	-0.392049	0.359930	1.000000

According to Table 3, the researchers found that the inflation rate, unemployment rate and household final consumption expenditure are lower than the threshold of the correlation analysis at 0.9. Thus, this indicates that the mentioned independent variables are free from correlation issues. However, the lending interest rate and GDP per capita have a correlation issue as the values exceeded the threshold of 0.9. Thus, the model

needs to make another further diagnostic check regarding the exceeded values for additional confirmation, so the researchers decided to run the VIF.

Table 4: VIF Result

Variables	Coefficient Variance	Uncentered VIF	Centered VIF
IR	0.000216	5.226033	1.403132
UE	0.000764	39.25755	3.619158
LR	0.000274	51.01418	5.615538
LOG_GDP	0.127495	7815.255	9.785286
HFCE	2.43E-05	187.5960	1.790177
C	2.780141	8729.118	NA

Based on the VIF result, inflation rate, unemployment rate and household final consumption expenditure VIF scores below 5. Since the VIF for both lending interest rate and GDP per capita exceed 5 (Rogerson, 2001), the researchers suspected it would have a problem of severe multicollinearity. Hence one of these IVs must be withdrawn from the model due to the high correlation among them. Therefore, the researchers decided to withdraw GDP per capita from the model because the VIF score was 9.785286, which is higher as compared to lending interest rate (5.615538).

Table 5: Correlation

	Bankruptcy	IR	UE	LR	HFCE
Bankruptcy	1.000000	0.085843	-0.716044	-0.805367	-0.004113
IR	0.085843	1.000000	-0.326411	0.225132	-0.361115
UE	-0.716044	-0.326411	1.000000	0.426001	0.182349
LR	-0.805367	0.225132	0.426001	1.000000	-0.392049
HFCE	-0.004113	-0.361115	0.182349	-0.392049	1.000000

After dropping the logarithms of GDP per capita, there are no variables that have an issue in this study.

Table 6: The Results of Rerun VIF

Variables	Coefficient Variance	Uncentered VIF	Centered VIF
IR	0.000216	5.179302	1.390585
UE	0.000379	19.26799	1.776318
LR	9.26E-05	17.10723	1.883130
HFCE	2.00E-05	152.8781	1.458874
C	0.060179	187.2023	NA

After dropping the GDP, the researchers rerun VIF and get the above result. Now the UE, IR, LR, and HFCE all score below 6. Since the Centered VIF for all four independent variables is less than 5, it is evidence of no severe multicollinearity, and they are valid to remain in the time series model and the researchers can proceed with the serial correlation test.

Table 7: Normality test (Jarques Bera)

Jarque – Bera	6.713977
Probability	0.034840

From this normality test, there is enough evidence to reject H_0 as the probability value (0.0348) is below 5% (0.05). Thus, the residuals are not normally distributed for the sample of the time-series model. Although the residuals are not normally distributed, the violation can be tolerated. This is because the use of financial data

often comprises outliers that deviate significantly from other residuals. Hence, it is a normal situation in research that uses financial data to be non-normal distributed.

Table 8: Durbin Watson test (LM test)

Prob. F (2,30)	**0.0249**
Prob. Chi-square (2)	0.0177

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

Based on the result of the Durbin-Watson test, the F. probability (0.0249) indicates a high correlation issue where it is below the threshold at 0.05. Thus, the data needed to be independent and the regression result needed to be corrected by using the Newey-West test to make sure the model is significant and fit for the multiple regression analysis. Therefore, the diagnostic check has been done and is ready to be analyzed by using the OLS regression method. Hence, the results were estimated as provided in the table below.

Table 9: Multiple Linear Regression Model

Dependent Variables	**Log Bankruptcy**		
Independent Variables	**Coefficient**	**t-statistics**	**Prob.**
Inflation Rate (IR) (%)	0.013957	1.049028	0.3020
Unemployment (UE) (%)	-0.071213	-3.030305	0.0048
Lending Interest Rate (LR) (%)	-0.081602	-7.440379	0.0000
Household Final Consumption Expenditure (HFCE) (%)	-0.012337	-2.766906	0.0093
R-squared	*0.859544*		
Adjusted R-squared	*0.841986*		
F-statistics	*48.95716*		
Prob (F-statistic)	*0.000000*		
Number of observations	*37*		
Durbin-Watson Statistics	*1.053756*		

Based on the result above, the F-statistic shows 48.96 with a probability lower than 0.05 (0.0000) indicating that the model is significant and fit. This model is good for interpretation and free from autocorrelation issues which have been corrected by the Newey-West test. The model is mainly to analyze whether the relationship between the dependent variable and independent variables is significant or insignificant. Thus, the researchers applied hypothesis statements where the null hypothesis indicates that there is no relationship between the independent variable and dependent variables, meaning that if the value is lower than 0.05, the probability value is significant, thus the null hypothesis (H_0) is rejected and accept the alternative hypothesis (H_1) instead which there is a relationship between independent variables and dependent variable. Based on the R-squared in the table above, there is approximately 85.95% variation in the personal bankruptcy cases among individuals in Malaysia which could be explained by the variation in independent variables. Which are the inflation rate, unemployment rate, lending interest rate and household final consumption expenditure?

Meanwhile, the adjusted R-squared has shown an approximately 84.20% variation in the personal bankruptcy cases that can be interpreted by the variation in independent variables which are inflation rate, unemployment rate, lending interest rate and household final consumption expenditure after taking these measurements into account. The remaining 16% in the model is yet to be explained and the researchers may

suggest further research regarding personal bankruptcy that possibly affects the individuals to be declared as bankrupt. The dependent variable for this study is personal bankruptcy where the researchers have regressed the result by computing log data for any RM sign while the percentages are kept as it is within the independent variables and dependent variable which has been gathered by the researchers beforehand. The independent variables that have been accepted and had no correlation issues for this analysis are inflation rate, unemployment rate, lending interest rate and household final consumption expenditure.

The researchers applied the ordinary least squares method with the 37 observations within the analysis. Based on the results presented in Table 7, it shows that the independent variable for IR or inflation rate has 1.049028 t-statistic which indicates a less significant as the probability is more than 0.05 at 0.3020 with a significantly lower than 99% confidence level from the threshold value at 0.1. Therefore, IR has a positive relation with personal bankruptcy with an effect of 0.013957 for each unit of change on IR. This value can be seen from the coefficient section. Hence, the null hypothesis (H0) is accepted and rejected by the alternative hypothesis (H1). Unlike the previous studies, this study focused on a lower significance level for its p-value which is at a 1% significance level compared to the study by Ahmad et al. (2022) that used a 5% significance level resulting in a significantly positive relationship between the consumer price index or inflation rate and personal bankruptcy which the researchers acknowledged the result as significantly related between these two variables. However, the result of this study is aligned with the study from Ninh et al. (2018) where they concluded that there is a positively insignificant relationship exists between the inflation rate and personal bankruptcy as well as the findings by Devi and Firmansyah (2018) that has supported to this hypothesis.

Based on these past studies, an increase in the inflation rate would cause an increment in OPR which then leads to unmanageable debt. So, it indirectly influences personal bankruptcy cases as an individual cannot settle their debt payment. Thus, in this study, the null hypothesis is supported. UE or unemployment rate has shown an indication of -3.030305 for its t-statistic with a probability value that is lower than 0.05 (0.0048) which means that the confidence level is at 99% where it indicates that there is a significant influence on personal bankruptcy where each one unit of change on unemployment rate, personal bankruptcy will have an inverse effect at -0.07113 based on the correlation section. Therefore, there is a significant relationship between the unemployment rate and personal bankruptcy the study rejected the null hypothesis (H0) and the alternative hypothesis (H_1) is accepted. The negative sign indicates that there is an inverse relationship between UE and personal bankruptcy if the unemployment rate increases, possibly due to the forced to quit their jobs position as most business operations are on hold, thus the personal bankruptcy is decreased. However, the unemployment rate should supposedly have a statistically positive correlation impact on bankruptcy amongst individuals.

According to Lee and Zhang (2021), the reason why the unemployment rate reacts in this way is due to the recent recession caused by the COVID-19 pandemic where people faced difficulties in their sources of income to the point of dismissing job positions to cut down the overbearing cost in business with low labor productivity as people are lockdown in their home. This can also be supported by Lloyd (2021) where the author determined the cause of the fallen bankruptcies despite the high unemployment that rose after the COVID-19-related recession. There were few new adopted policies in the sake of pandemic situation in which the creditors loosened the payment period for the debtors and bankruptcy relief was provided for the debtors to support those who are unemployed. Therefore, the alternative hypothesis is supported by this analysis. Furthermore, the result of the independent variable for LR or lending interest rate is highly significant where the t-statistic is at -7.440379 with a probability value lower than 0.05 (0.0000) which indicates there is a 99% confidence level and thus it is a significant relationship as the coefficient is in an inverse relationship for personal bankruptcy at 0.081602 for each one unit change on lending rate, where if the lending rate is drop, the borrowing rate will decrease as well, causing the individuals to make the loan easier and produce a higher number of borrowers.

Thus, personal bankruptcy cases tend to increase as banks will put a lower rating of creditworthiness for their borrowers. This also proves the negative sign shown in the model for the negative relationship between lending rate and personal bankruptcy. Hence, the researchers rejected the null hypothesis (H0) and the alternative hypothesis (H_1) was accepted. According to past studies such as Korol (2022), the result shows that an increase in the lending interest rate has a negative influence on consumers' degree of solvency. The

author suggested that the volume of non-performing loans (NPL) causes a negative effect. The study by Elvery and Schweitzer (2020) also drew a similar conclusion from their research where a lower lending interest rate will have a significant impact on the number of personal bankruptcy cases. The inverse relationship can be further supported by the study from Dahne and Steege (2020) where the researchers concluded that the low lending interest rate will invite more people to take a loan which later increases the chance of declaring bankruptcy.

This also corresponds to the monetary policy in which the central bank responds to economic decline by relaxing borrowing constraints. Therefore, the alternative hypothesis where there is a significant relationship between the lending interest rate and personal bankruptcy is now supported. HFCE or household final consumption expenditure indicates the t-statistic (-2.766906) slightly lower with a probability value that is lower than 0.05 (0.0093) at a 99% confidence level which means there is a significant influence on personal bankruptcy where each unit of change on household final consumption expenditure, personal bankruptcy will have an inverse effect at 0.012337 based on the correlation section. The negative sign indicates there is a negative relationship between HFCE and personal bankruptcy in which if household final consumption expenditure increases, the households may be less dependent on making loans and go for their savings to bear the expenditure despite the increase of household consumption, therefore the personal bankruptcy cases will decrease.

Thus, the null hypothesis (H0) is rejected and the alternative hypothesis (H_1) can be supported. Gallagher et al. (2020) found that consumption expenditure has a significant negative relationship with personal bankruptcy in which households will decrease their expenditure to bear the financial constraint, especially for those at high risk of filing a bankruptcy. The findings by Othman et al. (2020) also hypothesized that households that overspent on consumption expenditure may be less likely to file a personal bankruptcy unless they exceed their income limitation however, the households can't cut down their consumption expenditure as they need to buy the necessities and other relevant spending. Moreover, households may have withdrawn their savings for their consumption expenditure to be able to financially survive especially during the Covid-19 situation, which results in a lower risk of becoming bankrupt (Editor, 2021). Therefore, there is a significant relationship between HFCE and personal bankruptcy in which the alternative hypothesis is supported.

5. Managerial Implications and Recommendations

When conducting research in the future, researchers should try to find data covering a longer period, preferably from a database with a higher credibility rating, such as the ones maintained by Thomson Reuters, the International Monetary Fund (IMF), and other organizations. In addition, future research may try using different types of data, such as panel data or cross-sectional data, rather than the same data categories as this study did, to generate a greater number of potential outcomes. Next, it is recommended that future researchers use different data frequencies, such as annually, weekly, and daily, because the changes in each data set will vary depending on the frequency. For example, annual data changes will be different from weekly data changes from daily data changes. For instance, the exchange rate, which might be used in further research, is more susceptible to change and shifts more frequently than other variables. To ensure that the reliability of the test is maintained, it is necessary to take into consideration additional factors whenever there are multiple types of variables present.

Lastly, some more variables can be included in future studies such as card credit usage, income per capita, household debt and divorce cases. Card credit usage or credit utilization ratio refers to the proportion of the available credit that is used. Past studies from the United States have done research on divorce cases about personal bankruptcy cases. Also, the income per capita may produce further explanation on how a person can file bankruptcy as there may be a potential link between an individual income and personal bankruptcy as well as the burden of household debt which could cause a higher potential in declaring the personal bankruptcy amongst the households in Malaysia. Thus, it is interesting for future studies to try further research on this to know whether this variable is rational or not in Malaysia. Future researchers should also try to investigate the implications of changes in rules and regulations in the countries. For example, the outcomes of bankruptcy cases are due to the changes in the personal bankruptcy threshold.

Conclusion: In summarizing the researcher's empirical results, they firstly note that the inflation rate produces an insignificant coefficient hence indicating the irrelevance of these macroeconomic variables in influencing personal bankruptcy cases. On the other hand, they also observe the rest of the variables are negative and significant in influencing personal bankruptcy. The government policy in promoting economic growth may be the reason why the unemployment rate has a negative relationship with personal bankruptcy cases. A high lending interest rate can reduce people's desire to apply for a loan which explains the decrease in personal bankruptcy cases. Last but not least, household final consumption expenditure has a negative relationship with personal bankruptcy because the higher the household spends on their expenses, the lower the loan they will make which results the lower personal bankruptcy. In conclusion, this study ran into the problem of having limited accessibility to data. As a result of the fact that the majority of the most recent journals require a subscription to access, this study encountered the challenge of acquiring the most recent journals to provide support for the findings. In addition, as a result of financial constraints, this investigation was only able to collect data up until the year 2021 because the majority of the most recent data can only be obtained by subscribing to a variety of data sources.

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