

FACTORS AFFECTING PERSONAL FINANCING IN
MALAYSIA

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We hereby declare that:

- (1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.
- (2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.
- (3) Equal contribution has been made by each group member in completing the research project.
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LIST OF ABBREVIATIONS

AKPK	Credit Counselling and Debt Management Agency
ANOVA	Analysis of Variance
ARCH	Autoregressive Conditional Heteroscedasticity
BLUE	Best Linear Unbiased Estimator
BNM	Bank Negara Malaysia
C	Intercept
CC	Credit Card
CNLRM	Classical Normal Linear Regression Model
CPI	Consumer Price Index
E-View 9.0	Econometric View 9.0
GDP	Gross Domestic Product
GIL	Gross Impaired Loans
INF	Inflation
IR	Interest Rate
JB	Jarque-Bera
LM	Lagrange Multiplier
OLS	Ordinary Least Square
PF	Personal Financing
PIT	Personal Income Taxation
PR1MA	1 Malaysia People Housing Programme
RESET	Regression Specification Error Test
RM	Ringgit Malaysia
TEA	Tax- Exemption Amount
TOL	Tolerance
TX	Tax
VIF	Variance Inflation Factor
WDI	World Development Indicator

PREFACE

In this 21st century, most of the people start to care about their personal financing and this topic has become more popular for the researchers. The factors affecting personal financing in Malaysia is examined by using the most popular and common method which is Ordinary Least Square Regression (OLS).

This study may give a clearer view for those parties who has involved in it such as policy makers, Bank Negara Malaysia, Credit Counselling and Debt Management Agency (AKPK) and borrowers. This research is important to everyone as they will face their difficulty in personal financing.

ABSTRACT

The research attempts to identify the factors affecting the personal financing in Malaysia by studying the long run relationship from year 2006 to 2015, which consists of 120 observations for each independent variable. The secondary data was obtained from Bank Negara Malaysia (BNM) and World Development Indicator (WDI). The factors such as interest rate, inflation, tax and credit card loans are brought into discussion. In the research, Ordinary Least Square (OLS) methodology was used to determine the relationship between personal loans and independent variables. The result proved that interest rate and credit card is significant in affecting the personal loan while the other two variables have an insignificant relationship. Interest rate is the only variable with a negative relationship in this research. Besides, diagnostic checking is carried out to detect whether multicollinearity, heteroscedasticity and autocorrelation problem occurs in the model. Normality test have also been conducted and the result showed that error term is normally distributed in the model. The results would be beneficial for various parties such as policy makers, Bank Negara Malaysia, Credit Counselling and Debt Management Agency and the borrowers. There were some limitations throughout the study and recommendations have been suggested to the future researchers.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

Personal financing is a decision making of an individual to manage their financial resources (Personal Finance and Debt Management, 2018). When an individual decide his or her own personal financial plan, he or she will take into account like make investment, buying insurance and consumer loan (Personal Finance and Debt Management, 2018). There are several factors that will affect an individual financial plan. The study on this research is mainly focus on the factors affecting personal financing in Malaysia.

The study of relationship between interest rate and demand of personal loans is carried out by Acquah, Amonoo and Asmah (2003). They justified that in rural area imposed of higher interest rate on loan by lender will affect the demand of credit by borrower. Higher interest rate leads to higher cost charged on the fund borrowed and hence decrease individual demand on loan due to the ability to repay the higher cost of loan. Therefore, borrower should study the interest rate that charged on loan so that they can choose a loan package that suit themselves.

Labonte (2011) stated that inflation is a macroeconomic problem that faced by a country whenever there is an increasing in the price level of goods in that country. Inflation will decrease the purchasing power of an individual, the value of currency will become smaller and hence individual need to pay more money to make consumption. Bett (2013) has examined 10 commercial banks in Kenya and stated that there is a decreasing of demand of housing loan during financial crisis where the inflation occurred. Higher inflation rate may lead to higher probability

of non-performing loan. The potential borrower should think carefully before they demand for credit.

According to Kuper and Schmidt (2016), they stated that when the tax payable by an individual decreases, the dependency on personal loans will also decrease. Taxes imposed by government in order to accumulate fund for better development of country. This would be a burden for an individual as they need to spend a portion of their income to paid tax. The money on hand which they can spend will decrease. Hence, it is necessary to test the relationship of tax and personal loan demand.

Several studies have been done by previous researchers on the credit cards loan and personal financing. Ratha (1997) found that credit card provide short term fund to an individual to solve their financial problem. They may face financial difficulties in long run as they lack of budgets to recover back the credit card loans. Therefore, study on the effect of using credit card on demand personal loan financing is crucial.

This chapter will give the overview of the relationship between personal financing and regressors like interest rate, inflation, tax together with credit card loans in Malaysia. Specifically, this chapter will highlight research background of personal financing in Malaysia. Problem statement and research objectives will be discussed as well as match with the core objective clearly in this research. After outlining of research questions and hypotheses, significance in this study is discussed by identifying target audience and explaining the beneficial obtained. Each chapter is outlined followed up with a conclusion.

1.1 Research Background

Financial system of Malaysia has become more integrated with the international financial system through consolidation (Malaysia Country Commercial Guide, 2017). There are numerous types of loan in banking system like mortgage loans, personal loans and business loans. Personal loans or in another term called personal financing, is a way which an individual or a family unit borrow money from a bank or other financial institutions over a certain period at a specific rate of interest. Individual or household borrow personal loan to buy goods for personal needs on a credit basis.

Recently, there is a significant increase for personal loan segment in Malaysia. The personal loan debts have risen from RM36.8 billion at the start of 2015 to RM40.9 billion at May 2017 (Nathan, 2017). Household debt levels at Malaysia have remain elevated in young people aging 25 to 39 years old that making up 26% of the population and their numbers grow even faster than overall population growth (Dhesi,2017).

There are 68%of Malaysians having their personal financial problems with the highest proportion of all eight markets surveyed in Asia and more than double the regional average of 33% (Malaysians have the most debt in Asia, 2016). Their personal debt is nearly ten times of the average monthly individual's income. The cause of debt is due to daily cost of expenses followed by rental and education fees for children (Malaysians have the most debt in Asia, 2016). Poor personal financing were shown on Malaysians as they are overspending in their monthly income. Therefore, individuals borrow personal loans to solve their overspending problem.

Furthermore, higher loan limits for civil servants and an introduction of home buyer scheme like 1 Malaysia People's Housing Programme (PR1MA) under Budget Malaysia 2017 that leads to a higher consumption in personal loan (Dhesi, 2017). Individuals especially civil servants tend to borrow more from banks to cover their rising daily expenses. The banking system is getting more profits through lending personal loans.

However, many civil servants are left almost nothing after paying repayments for several loan debts at the end of the month (Ramlan, 2017). Based on economic perspective, the rapid growth of Gross Impaired Loans (GIL) in personal loans is not a healthy sign in banking system because lower income group is most vulnerable to default in an environment with slower economic growth and rising cost of living (Raj, 2016). This would lead bankruptcy cases occur among individuals. Based on State Insolvency Office director in The Borneo Post, there were total 322 out of 688 bankruptcy cases recorded due to personal loans (Personal loans behind most bankruptcy cases, 2017).

As a result, personal financing is a rising issue in Malaysia. It plays a crucial part in banking system and economic growth of Malaysia.

1.2 Problem Statement

There is a steady growth of personal loans in the banking system despite the weaker economy (Raj, 2016). Increasing signs of stress bubbling in personal loans is alarming in Malaysia (Raj, 2016). More and more people is lending from the banks to solve their needs. When the debt of an individual is rising, an individual have to pay more than the amount that they borrowed. If the borrower is lack of the knowledge to manage their debt, their income will not be sufficient to cover

their debt. Therefore, they will have lower standard of living as they have less money for spending. According to Lane (2016), unmanageable debt may lead to family breakdown, financial exclusion and poor mental and physical health. High level of debt will cause argues and stress in the family along with negative impacts to the family. Furthermore, the borrower will suffer from depression and feel stress as they always worry about their repayment on loans. When the borrowers are not able to repay the loan, the borrower will become bankrupt. An individual with large amount of personal debts may lead the individual fall into despair and taking his or her life easily (Gerson, 2008).

In order to overcome the high level of debt facing by individuals, Bank Negara Malaysia has established an agency called Credit Counselling and Debt Management Agency (AKPK) to help individuals to manage their financial problems (Debts Among Us: Young Malaysians Are Going Bankrupt, 2014). However, the factors that affect the personal loan should be determined first. There are many determinants that may influence the personal loan. This study focuses on examining the factors that significantly affect the personal financing in Malaysia.

Interest rate is one of the factors that will affect the personal loan. Interest rate is a rate that charged on the borrowers as profit for the banks. The interest rate of the loans is set by the banks itself and will be varied from time to time. Each bank will have different interest rate for the personal loans which means higher interest rate could lead the borrowers to repay more to the banks. Acquah, Amonoo and Asmah (2003) have proved a negative relationship between interest rate and the personal loans. Competition in the banking system, economic environment and the profitability of the banks will affect the interest rate (Georgievska, Kabashi, Manova-Trajkovska, Mitreska & Vaskov, 2011). Most of the researches have proved that the interest rate is negative related to demand of credit. According to the consumer group in Malaysia, the lower interest rate is conducive for them to repay the loan (Jamaluddin & Adilah, 2016). The relationship among interest rate and personal financing is further to confirm and examine in this research.

Inflation is a rate at which the overall prices of the goods and services rise over a given time period (Oner, 2017). When inflation rises, demand on borrowing personal loans decreases. Malaysia recorded inflation for November 2017 rose 3.4% from a year ago due to the higher transportation costs in fuel price and prices of food and non-alcoholic beverages (Chin, 2017). Alliance Bank Malaysia Berhad chief economist, Manokaran Mottain said that higher inflation in 2017 could cause the cost of borrowing to increase (Dhesi, 2017). Due to the growing of the borrowing cost, people need to pay back more on their loans. People will feel stress and burden when borrowing loans. Thus, consumption for personal loans will decrease due to an increase in borrowing cost. However, some of the researchers found that inflation will not affect the personal loans in their studies. Nomatye and Phiri (2017) had concluded that inflation is insignificant to the personal loans. This result is also supported by Zimunya and Raboloko (2015). They found out that inflation will not affect the personal loans in the long run and short run. Thus, the significance of the inflation to personal loans is inconclusive. The actual relationship of the inflation to the personal loans is needed to be further explained in this research.

Tax is defined as compulsory and unrequited payments to general government (OECD, 1996). The tax payment that is received by the government will be used to fund public works and services. There are a few types of tax inclusive of sales tax, income tax, property tax and tariff. According to Myers (1984), debt usage should increase with tax rates. When the tax rate increases, the individual will have to pay more for the government and affect their amount of money to spend. Thus, individuals will borrow more personal loans for financing to cover their daily expenses. Most of the studies proved that there is a positive relationship between tax rate and the personal loans such as Robinson and McGoun (1998), Smith (1980), and Bikas, Subačienė, Astrauskaitė and Keliuotytė-Staniulėnienė (2014). Robinson and McGoun (1998) mentioned that the income amount after deduction of tax payment will decrease further when the tax rate increases. Therefore, the increases of tax rate will lead to the increases of personal loans so that individuals

could reduce their expenses burden. Smith (1980) also proved the positive relationship with the similar result and concept. He found that the increases of tax and insurance expenditures will reduce the savings of the borrower. The borrower will need to increase their amount of personal financing to cover the expenditure. However, there are some studies found that the tax rate is negatively affecting the personal loan such as Warren (1975), Kuper and Schmidt (2016) and Zhang (2017). Warren (1975) explained that the taxpayers may behave differently based on the tax rate. When the tax rate charged is high, the taxpayer will reduce their consumption to avoid high tax payment. Hence, the increases of tax rate will leads to decreases of personal financing. The actual relationship between tax rate and personal loans should be examined in this research.

The number of the credit card users is growing rapidly in the recent years. There is about 8.4 million credit cards circulation in the market up to May 2017 compared to 8.2 million credit cards at January 2017 (Nathan, 2017). Credit card is one the products that issued by the banks. It means a plastic card which allows cardholders to purchase goods and services on credit and payback in a later date (Market Business News, 2018). Credit card is used for short term financing in the market. It allowed the users to borrow funds and make basic transactions (Caldwell, 2017). The repayment of the credit card will affect the credit rating of the users and thus influence the decision of the bank to approve their loans. Bach, Zoroja and Skok (2014) have proved a positive relationship between credit cards and the personal loans. This is because the available credit spending limit is higher than before. Thus, the consumer has more credit to spend and lead to increase in their personal finance. Due to the high living cost in Malaysia, the convenience of credit card has caused household to use for personal consumption and thus increase household debt (Azman, Shari, Gazali, Abdullah, & Khalil, 2015). Although there is a relationship between debt and attitude towards credit card but the relationship are still unclear as it is difficult to measure things that is complicated. Thus, the actual relationship between credit card and personal loans should be examined in this research.

1.3 Research Objectives

1.3.1 General Objective

The primary objective is to study the determinants that will affect personal financing in Malaysia.

1.3.2 Specific Objectives

- 1) To test the relationship among interest rate and personal financing in Malaysia.
- 2) To test the relationship among inflation and personal financing in Malaysia.
- 3) To test the relationship among tax and personal financing in Malaysia.
- 4) To test the relationship among credit card and personal financing in Malaysia.
- 5) To test the overall significant relationship among interest rate, inflation, tax, credit card and personal financing.

1.4 Research Questions

- 1) Is there any significant relationship among interest rate and personal financing in Malaysia?

- 2) Is there any significant relationship among inflation and personal financing in Malaysia?

- 3) Is there any significant relationship among tax and personal financing in Malaysia?

- 4) Is there any significant relationship among credit card and personal financing in Malaysia?

- 5) Is there any overall significant relationship among interest rate, inflation, tax, credit card and personal financing?

1.5 Hypotheses of the Study

1.5.1 Interest Rate

H₀: The relationship among personal financing and interest rate in Malaysia is insignificant.

1.5.2 Inflation

H₀: The relationship among personal financing and inflation in Malaysia is insignificant.

1.5.3 Tax

H₀: The relationship among personal financing and tax in Malaysia is insignificant.

1.5.4 Credit Card

H₀: The relationship among personal financing and credit card in Malaysia is insignificant.

1.6 Significance of the Study

Personal financing could give a big impact to the economy growth of a country. It could either be a benefit or a threat to economy growth of a country when consumption of personal loan increases. This paper studies the factors affect the personal financing in Malaysia that would mainly contributed to policy makers, Bank Negara Malaysia (BNM), Credit Counselling and Debt Management Agency (AKPK) and borrowers.

Based on policy makers' perspective, this research would benefit them in making decision by formulating the fiscal policy through adjusting tax determinant. An increase in tax leads to an increase in government revenue and thus brings positive impact to the economy. It may also help policy makers to improve the world economic recovery of our country and reduce harm of country before next financial crisis happens.

Moreover, this study would benefit BNM in improving the efficiency of monetary policy by adjusting money supply to control the inflation and economic growth. When BNM want to reduce the high inflation rate, BNM reduce monetary flow in market and thus interest rate for loans will increases. This may end up individuals will borrow less personal loans from banks and lead to lower economic growth and inflation. BNM controls the inflation more effectively especially during recession period.

This research also tends to provide beneficial information to AKPK by helping the individuals who are having financial stress. Many credit card users are facing bankruptcy because of overspending the limit in credit card due to lack of financial literacy. AKPK could refer the consumption in personal loans and credit cards and thus provide customized education programs such as talk on how to manage their debt effectively especially for personal loan borrowers and credit card users. This could help the individuals manage their income well and thus reduce the bankruptcy rate in Malaysia with the aid of AKPK. According to Zakaria (2018), debts of RM617.4 million in total of 15,439 cases were resolved by the aid of AKPK as of December 2017.

Lastly, this research would benefit to borrowers. Borrowers could make better decision when borrowing loans by knowing the fluctuation in interest rates. Borrowers could decide to borrow loan when the interest rate is low. This could save the cost of borrowing for borrowers. Borrowers also tend to manage their debt more effectively by analyzing economic condition like inflation.

1.7 Chapter Layout

This study contains of five chapters. In chapter one, it will briefly explain overview of whole study. It comprises research background, problem statement, research objective along with research questions in this study. Hypotheses, significant of study, chapter layout together with conclusion is also included.

In chapter two, it will discuss the literature review which consists of documentation of published information from secondary sources of data that relate to our research topic. Thus, the literature review gives a clear idea based on the findings of research from the previous researchers.

In chapter three, it will explain about the methodology. This chapter explains on the ways of conducting this research in terms of research design, data collection methods together with sampling design. Scale of measurements and methods for data analysis will analyze in this study. Basically, this chapter provides the clear picture on how this study is performed.

In chapter four, it will present about the data analysis. This chapter will talk about the results that have been obtained from the research in terms of descriptive analysis, measurement scales along with inferential analyses.

In chapter five, it will summarize and conclude all the chapters and main findings throughout the whole research. The sub-topics for this chapter are introduction, summary of statistical analysis, discussion in major findings, implications together

with limitations of the study. Recommendations for future research will be stated in this study.

1.8 Conclusion

In conclusion, this chapter had explained a synopsis of personal financing in Malaysia. The main purpose of this research is to study the impact of independent variables (interest rate, inflation, tax and credit card) given to dependent variable (personal financing) in Malaysia. Research questions and objectives had been formulated in this study. This chapter also discussed about significance of this research. Literature reviews along with findings from previous studies will be discussed further in consecutive chapter.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

There are many past researches and studies done by former researchers to study the determinants affecting the personal financing. Literature will be reviewed and findings are summarized from these studies. Several common theoretical models will be implemented to examine the results of the variables in this study. Lastly, a theoretical framework and hypotheses has been developed in this study.

2.1 Review of the Literature

2.1.1 Interest Rate

Interest rate is always referring to the annual percentage charge by the lender to the borrower on the principle. From the borrowers' point of view, interest rate defined as the cost of borrowing that may incur in obtaining a loan. The borrowers will take into account the level of interest rate when they make borrow decision. Therefore, interest rate is taken as an indicator to investigate the effect of interest on demand of loan.

There are several studies on the relationship between the personal demand of loan and interest rate. According to Acquah, Amonoo and Asmah

(2003), they stated that there interest rate and demand for credit negatively related. This study mentioned thought of the interest rate which stated that interest rate and demand for credit is negatively related because there are fewer borrowers who have ability to cover high borrowing cost as they may not have a higher income level. They stated that borrowing cost are strongly affected the loan demand for poor people.

Moreover, Adams and Nehman (1979) also discovered that interest rate obtain direct negative relationship to large borrowers while weak relationship to small and new borrowers. Larger borrowers in the rural have high sensitivity towards interest rate. They stated that the large borrowers will decrease the loan demand when the interest rate is high. Small and new borrowers are sensitive towards the expenses when applying a loan such as time, transport expenses and the documentation fees associated for loan applications. This journal explained that effect of the interest rate on the demand of loan by small and new borrowers is weak. This is due to the applicants knows that the opportunity of getting the loan approved is very small. They may end up spending all the cost and get the application rejected. Hence, they will make a decision not to borrow from the formal lender.

Akowuah (2011) stated that there is positive relationship between the personal loan demand and interest rate in short run and negative relationship in long run. The author applied the McKinnon and Shaw hypothesis to explain this relationship which stated that low real interest rate will decrease the saving. Hence, it will decrease the ability of credit. This hypothesis justified that the interest rate should determine by the supply and demand forces in the market so that the savings will increase and hence increase the availability of credit. Besides, the author also stated that lack of alternative borrowing scheme also will cause the demand of loan decrease when there is an increase in interest rate.

DeFusco and Paciorek (2017) investigated that the response of the demand of loan is small whenever there is a change in the interest rate. They justified that this phenomenon can be explained by the factor such as down payment constraints and time frame over which households are able to adjust.

Apart from that, Quashigah and Kwashigah (2017) also found that the relationship between interest rate and demand of personal loan is significant in Ghana. The researcher claimed that the interest rate and demand of credit is negatively related. When the interest rate increases, it may not affect the demand of credit immediately but it would decrease the credit demand in long run and short run in Ghana.

2.1.2 Inflation

According to Labonte (2011), inflation is the overall price of goods and services keep increasing the value of money keep decreasing over a period of time. When the price of goods and services rises, the buyers have to pay more to purchase. Therefore, the purchasing power of the consumers will become lower. Inflation may lead to an economic recession and unemployment will occur. When inflation happens, the central bank will change the interest rate to encourage the investments.

From the previous study of Bett (2013), a strong significant relationship for inflation and mortgage financing can be observed. The study applied a descriptive-correlation research design and 10 commercial banks in Kenya were chosen. Mortgage financing had fell sharply whenever there was a

financial crisis during period 2008 to 2010 where the highest inflation is occurred. This is because the inflation will raise the interest rate for the loans and thus the borrowing will become lesser. This is consistent with the study of Mutezo (2014). According to Mutezo (2014), in short run, household debt and inflation have a significant deterministic relationship. Furthermore, household debt has a long run relationship with inflation. The inflation rate had directly affected the household debt.

From the research of Omondi (2014), a positive relationship is occurred between inflation rate and base lending rate of the banks. When the base lending rate rises, the repayment defaulting risk also increases. The borrowers are not able to repay the loans thus leading to a decrease in the loan in the future.

Buyers can choose whether to use credit in their transactions. Buyers will prefer to use credit during low inflation rate while high inflation rate is discouraging the use of credit by the buyers (Dong, 2008). When there is high inflation rate, the buyers will buy goods and services by cash due to the high interest rate. Dong (2008) also stated that the money demand decline to moderate the inflation rate while the money demand increase when high inflation rate happened.

The macroeconomic factors which are the inflation will impact more to the developing countries such as Thailand, Indonesia and Philippines (Catherine, Yusof & Mainal, 2016). On the other hand, the developed countries like Taiwan, South Korea and Japan, the level of debt will be more likely affected by the household characteristics. Inflation will negatively influence the household debt. The ability to borrow by the household reduces when the inflation rises, therefore, the household debt will fall.

Debelle (2004) stated that household debts will be affected by decreasing of inflation in two ways. Firstly, the decline of inflation will reduce the borrowing costs and therefore rising amount of the household debts. Next, the declining of interest rate also retards the erodibility of the real value of debt. With the lower inflation, the nominal borrowing rates will also become lower. Therefore, household will borrow more debts and increase the amount of debts.

However, Nomatye and Phiri (2017) had found that inflation is insignificant to the household debt levels. They concluded that inflation is an irrelevant variable in affecting the household debts. This result is supported by Zimunya and Raboloko (2015). Zimunya and Raboloko (2015) found that there is an insignificant relationship for inflation and the household debts. The inflation will not affect the household debt in long run. There is also no short run relationship between inflation and household debts due to the weakly exogenous of the short-run inflation.

2.1.3 Tax

Tax is the financial charges that imposed by government on taxpayers such as individual or legal entities. The main purpose of tax charges is to provide funds to government so that government has the ability to cover various public expenditures and improve the development of the country. However, the high amount of tax charges will become burden of taxpayers and affect the personal financing.

According to Robinson and McGoun (1998), they also assumed pure market money that excluded the involvement of tax cost that will affect the personal finance. They mentioned that there is part of society that need to pay more tax than it receives in welfare income. Besides, the income amount earned by household will be decreased after the tax deductions. It will lead to shortage funds for living expenses and other expenses. Hence, the individual will need to increase their personal financing to support their living expenses.

Furthermore, Smith (1980) investigated the nature of personal finance contracts that typical complex. He found that contractual provisions can control the incentive conflict between borrowers and lenders efficiently. He also stated that there will be no transaction costs or tax charges assumed in a perfect market. Therefore, the asset will be perfectly liquid and no tax costs will affect the personal loan market. Based on the study, savings reduction is one of the incentive conflicts. When expenditures like tax and insurance increase, the net service flow will also decrease. It will leads to the savings reduction of borrower and decrease value of lender's claim. Thus, the high tax rate will leads to the increases of personal financing.

According to Bikas, Subačienė, Astrauskaitė and Keliuotytė-Staniulėnienė (2014), the personal income taxation (PIT) will leads to a change of tax-exemption amount (TEA). Besides that, the greater the PIT rate, the greater the total amount of PIT revenues collected. The tax payers in upper income groups will be required to bear huge amount of tax charges based on their higher amount of income than people in lower income groups. Thus, the taxpayers will try to reduce the high tax burden by increasing their personal financing.

However, there are some researches that studied the negative relationship between tax rate and personal financing. Warren (1975) stated that general revenue-raising tax is used to decrease the private consumption of economic resources and to free the resources for public use such as redistribution to the poor. He suggested that the tax burden should be allocated based on the consumption levels. In the research, the accretion-type tax to consumption-type tax option was preferred because it may reduce the disparities in wealth and personal financing. Warren also mentioned that the taxpayers may behave differently based on the tax rate. When the tax rate charged is high, the taxpayer will reduce their consumption to avoid high tax payment. In other words, the increases of tax rate will leads to decreases of personal financing.

In the study of Kuper and Schmidt (2016), they investigated the impact of tax-based savings incentives to the contribution behaviour. Due to the purpose of development and improvement of economic growth in a county, the government need to collect funds by charging tax payment on the individuals as the contributions. In order to reduce the tax burden, government has provided tax incentives to the taxpayers that managed to fulfil the savings requirements set by government. Kuper and Schmidt (2016) also stated that the increases of income will leads to the increases of tax price charge on the individual. When the tax charged is high, the taxpayers will claim the tax incentives to reduce their burden. Thus, the taxpayers will not need to bear high tax payment and it will reduce the personal financing.

Zhang (2017) explained that the personal income tax will affect the consumption expenditure of the residents. In his study, Engel's coefficient is conducted to analyse the relationship of average tax rate and the food consumption expenditure. When the average personal income tax rate increases, the consumption expenditure of residents will decreases. The high income tax rate manifests the taxpayers need to use more income to

pay the tax payment and it will reduce their purchasing power. Thus, the taxpayers will reduce their consumption expenditure and it will leads to decreases of personal financing.

2.1.4 Credit Card

A person's capacity to manage own personal finance has become an important point in the world as nowadays they will no longer focus on short-term financial such as borrowing from banks but also long-term affairs such as retirement plans, children education and similar items (Ibrahim & Alqaydi, 2013). In the 21st century, most of the consumer has credit cards as credit cards are easy to access in the society. The credit card is issued to cardholder to pay for the goods and services that they have agreed to pay for the amounts charge (Bach, Zoroja, & Skok, 2014). Besides, credit cards are very convenient to consumer as it is also based on electronic commerce and internet commerce.

In the study of Bach, Zoroja and Skok (2014), they have investigated the relationship between credit card spending limit and personal financing through a system dynamic approach. Therefore, there is a positive relationship between personal finance and credit card spending limit. Besides, they have found that those who are in lower classes use credit cards more frequently as they mostly are based on installment purpose and necessity goods while upper classes used for convenience to purchase luxury goods. According to Ratha (1997), he has found that credit cards user leads to short term improvement in the budget available for spending while in the long run, it reduces the budget available for spending. Based on the result, when an individual borrows money from the credit cards, he or she will have a higher budget available spending for some period as

they have more money to spend. Thus, they will have difficulty in repay their debt in the long run. When the available spending limit is low, they have to be very careful in the long run. It will be hard to achieve as individuals are not highly-disciplines when it comes to personal finance. Furthermore, Ratha (1997) also stated that when a personal financial is indiscipline, it will have lower available spending on credit card usage.

In the study of Duca and Whitesell (1991), they have investigated those who carrying a credit card and the household demands for few monetary assets. When there is a higher probability of credit card ownership, this indicated that there will have a lower claim on monetary balances with zero effect on small-time deposit balances. Based on the result, demand and supply are the factor to indicate those who carry a credit card with personal household attitude towards debt are significant.

As Malaysia living cost is increasing, most of the household uses credit card as a tool for their consumption (Hussin, Kassim & Jamal, 2013). Although there is a relationship between debt and attitude towards credit card, but the relationship are still unclear as it is difficult to measure.

2.2 Review of Relevant Theoretical Model

2.2.1 Ordinary Least Square Regression (OLS)

Ordinary Least Square Regression (OLS) is used to minimize the sum of square differences between the observed and predicted values. OLS is more commonly used and OLS method corresponds in order to minimize the difference

sum of square between the observed and predicted value. Omondi (2014) has used OLS to establish the effect of inflation based on base lending rate.

2.2.2 Descriptive Model

Descriptive model is also one of the most common methods used among the past researchers to analyze the relationship between personal financing and the determinants. Descriptive model is used to predict and identify a relationship but does not indicate any course of action. By using the model, hypothesis testing was done to identify the effect of interest rate, inflation, tax and credit cards on personal financing. In the study of Bett (2013), descriptive analysis model has been applied to analyze the impact of inflation and interest rate on mortgage financing. Based on the study of Bikas, Subačienė, Astrauskaitė and Keliuotytė-Staniulėnienė (2014) in the personal income taxation and tax exemption, descriptive analysis model also has been applied to analyze the size of fiscal effect and PIT (personal income taxation) system.

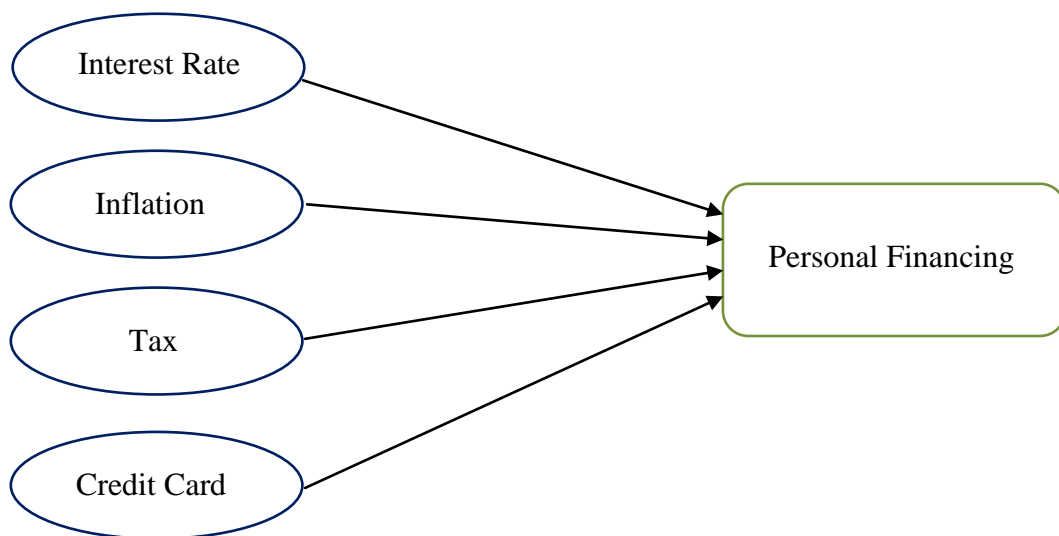
2.2.3 Diagnostic test

According to Zhang (2016), in order to determine the significance of an econometric model, the model should go through a diagnostic test to detect whether there is any misspecification of the model. In the study of Akowuah (2011), he has examined the several factor that affect the credit demand in Ghana. He suggested that a series of test such as homoscedasticity test, autocorrelation test and normality test should be

carried out. He found that the result of the test is robust. By using this test, we can ensure that our model is correctly specified.

2.3 Proposed of Theoretical/ Conceptual Framework

Figure 2.3 Theoretical Framework



2.3.1 Interest rate

Borrower is subject to cost of borrowing when they obtaining a loan from lender Akowuah (2011). Interest rate is the premium that charge to the borrower by the lender. Basically, the interest rate is influenced by government policy such as monetary and fiscal policy (Friedman, 1968). When the interest rate change, the premium need to pay by the borrower will also different.

2.3.2 Inflation

Inflation is the overall increasing prices of the goods and services in a given time (Labonte, 2011). This means that the consumers have to pay more in order to purchase the goods and services. Inflation also will change the interest rate of the loans, and thus the cost of borrowing will increase (Bett, 2013). Inflation usually will be caused by the rapid growth of the money supply as it will increase the consumptions of the consumers and drive the price of the goods and services.

2.3.3 Tax

Generally, tax is one of the systems imposed by government to collect funds and cover the country's debts and expenditures spending. In other way, the tax payment is an expenditure that needs to bear by individuals and businesses. There are few common types of tax charged to individuals such as personal income tax, property tax, goods and services tax and so on. According to Yong (2012), personal income tax is a tax imposed based on the income earned by the individual. An increase in individual expenditure spending would lead the individual to spend more money in paying high amount of tax.

2.3.4 Credit Card

Credit card is an electronic card that allows you to borrow money from bank to make purchases of goods and services. Besides, credit cards will charge interest on the amount you have used and are primarily used in short-term financing. Furthermore, credit cards have maximum credit limit that a user can borrow for a certain period usually one month. The credit limit is based on the user credit history and their financial status to justify (Caldwell, 2017).

2.4 Hypotheses Development

2.4.1 Interest Rate

Interest rate is negatively related to personal financing demand. According to Amonoo, Acquah, and Asmah (2003), borrower believes that interest rate is correlated with their cost of borrowing. When the interest rate decreases, the cost of borrowing will also tend to decrease. Hence, it will attract more people to make loan.

H₀: The relationship between personal financing and interest rate in Malaysia is insignificant.

2.4.2 Inflation

A negative relationship between inflation and personal financing in Malaysia is predicted in this study. According to Bett (2013), inflation will increase the interest rate and raising the cost of borrowing. Therefore, borrowers have to pay more to pay back the loans. The personal financing will decline when the cost of borrowing is high.

H₀: The relationship between personal financing and inflation in Malaysia is insignificant.

2.4.3 Tax

In this study, tax rate has a positive relationship with personal financing in Malaysia. Anderson and Park (2016) mentioned that the government could raise funds from local tax collection. When the tax payment that required to be paid by the individual is high, the individual will tend to increase their personal financing activities so that they can reduce their tax expenses burden by receiving loans to cover the taxation debt.

H₀: The relationship between personal financing and tax in Malaysia is insignificant.

2.4.4 Credit Card

There is a positive relationship between borrowing through a credit card and personal financing in Malaysia. Bach, Zoroja and Skok (2014) has stated that high credit limit on credit card spending will increase the budget available for spending. Thus, it will increase their personal financial.

H₀ : The relationship between personal financing and credit card in Malaysia is insignificant.

2.5 Conclusion

In conclusion, literature review relate to the field of study was done in this chapter. The analyzing and interpreting of findings from past studies is done to test relationship among personal financing and chosen variables. Theoretical framework is proposed in this study. Lastly, methodologies that are used to conduct this research are discussed on the consecutive chapter.

CHAPTER 3: METHODOLOGY

3.0 Introduction

This chapter emphasizes on the methodology and ways to carry out this research. This chapter is crucial to identify the relationship among independent variables (interest rate, inflation, taxes and credit card) and dependent variable (personal financing) by using several approaches. Secondary data from World Bank and Bank Negara Malaysia are collected and used in this research. Next session is data preparation processes of the study. The following section is the data analysis which mainly discuss about the methods used in this study.

3.1 Research Design

Data from year 2006 to year 2015 is collected for this research to examine the influence of interest rate, inflation, tax and credit card on personal financing in Malaysia. The data is obtained from World Development Indicator and Bank Negara Malaysia. Secondary data has been used for this research because it is time saving as the data is readily available. Quantitative data is used to conduct the research. Ordinary Least Square, T-test and F-test has been used for this research to examine the strength of the relationship. Log has been added in order to make the parameter linear.

3.2 Data Collection Method

Data used in conducting this research is secondary data. The dataset is obtained from World Development Indicator and Bank Negara Malaysia. Monthly time series data from year 2006 to year 2015 which consist of 120 observations are tested. Below is the detail of data source for each variable.

Table 3.2: Sources of Data

Variables	Proxy	Unit Measurement	Description	Data source
Personal Financing	PF	Million in RM	Total amount of personal loan in Malaysia banking system.	Bank Negara Malaysia (BNM)
Interest rate	IR	Percentage (%)	Base lending rate that bank offers in Malaysia.	Bank Negara Malaysia (BNM)
Inflation	INF	Percentage (%)	Percentage change in Consumer Price Index (CPI) by taking 2006 as base year. (Base rate 2006 = 100)	Bank Negara Malaysia (BNM)
Tax	TX	Percentage (%)	The tax rates on income, capital and profit gains.	World Development Indicator (WDI)
Credit Card	CC	Million in RM	Total amount of credit card loans in Malaysia banking system.	Bank Negara Malaysia (BNM)

3.3 Sampling Design

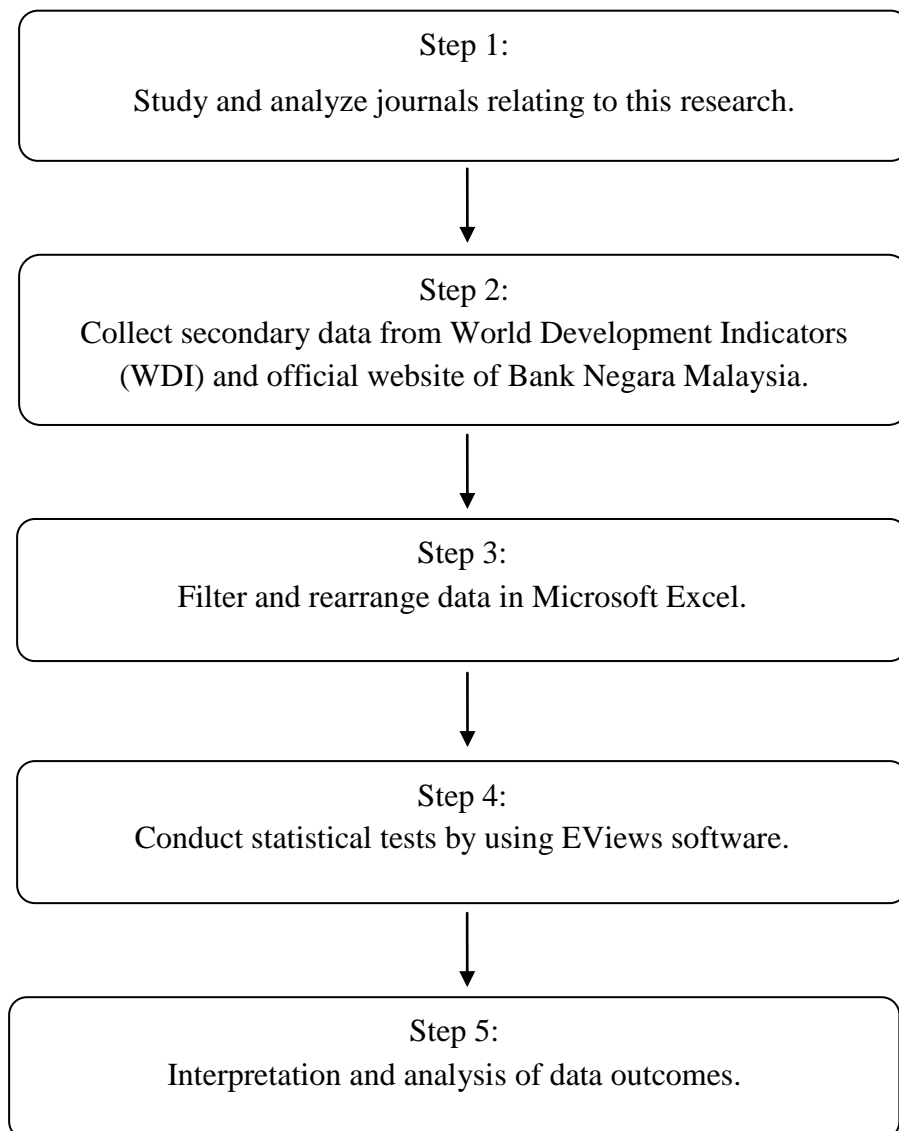
3.3.1 Target Population

This research targets on Malaysia by examining the relationship of the dependent variable which is personal financing and the independent variables such as interest rate, inflation, tax and credit card. The data sampling for this research are based on monthly basis from year 2006 until year 2015. The data can be obtained from World Development Indicator. Those data obtained from World Development Indicator are used to run the test in the following chapter. The population of Malaysia is approximately 32.04 billion in 2018 (World Population Review, 2017).

3.4 Data Processing

Throughout the study, more than 30 journals are reviewed and analysed related to determinants of personal financing in Malaysia. After that, secondary data for all the independent variables were collected from different sources such as World Development Indicators (WDI) and the official website of Bank Negara Malaysia for our data analysis purposes. The secondary data started from year 2006 to year 2015 and prepared 120 observations for each independent variable. After all the data collected were filtered and rearranged in Microsoft Excel, statistical tests are conducted adopting EViews software. Results obtained will be analyzed and further explained with the comparison of predicted and actual results of the data analysis.

Figure 3.4: Diagram of Data Processing



3.5 Data Analysis

3.5.1 Descriptive Analysis

Descriptive analysis is an appropriate method to show the data and results. It can present some useful information and have some summarization of all the data (Freeman & Julious, n.d.). Graphs, tables and charts can be displayed in descriptive analysis. Large amount of data can be summarized by using descriptive analysis. Mean, median, variance and standard deviation will be calculated to summarize the data.

3.5.2 Regression Analysis

3.5.2.1 Multiple Linear Regression Model

According to Uyanik and Güler (2013), interrelation for dependent variable and the independent variable can be determined using regression analysis with reason and result relation. Multiple linear regression model appears when there is one dependent variable and exceed one independent variables. To achieve Best Linear Unbiased Estimator (BLUE) of the model, there are some assumptions that underlie in the multiple linear regression model. The assumptions are normally distributed, linearity, homoscedasticity, no outliers and no multicollinearity (Tranmer & Elliot, 2008). The multiple linear regression model will be formulated as following:

Economic Function:

$\ln PF_t = f \{ \text{Interest Rate (IR}_t), \text{Inflation (INF}_t), \text{Tax (TX}_t), \text{Credit Card (lnCC}_t) \}$

Economic Model in Logarithm Form:

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu$$

$$\ln PF_t = \beta_0 + \beta_1 IR_t + \beta_2 INF_t + \beta_3 TX_t + \beta_4 \ln CC_t + \mu$$

Where,

$\ln PF_t$ = the natural logarithm form of total amount of personal loans (Millions of RM) at year t

IR_t = the percentage of interest rate at year t

INF_t = the inflation rate measured by percentage change in consumer price index at year t

TX_t = the percentage of tax rate at year t

$\ln CC_t$ = the natural logarithm form of total amount of credit card loans (Millions of RM) at year t

μ = error term

3.5.2.2 Ordinary Least Squares Regression (OLS)

Ordinary Least Squares Regression is frequently applied in the researches to analyze data and organize the basis of ANOVA, Generalized Linear Models and more (Hutcheson, 2011). Ordinary Least Squares is the Best Linear Unbiased Estimator because they are unbiased, consistent, efficient estimator and also have minimum variance. The ten assumptions of the Classical Normal Linear Regression Model (CNLRM) must be achieved to apply OLS (Gujarati & Porter, 2009).

3.5.3 Inferential Analysis

3.5.3.1 T- Test

T-test is one of the types of inferential statistics. There are a few types of T-test such as dependent samples t-test and independent samples T-test (Hole, 2009). In dependent samples, the means of the two conditions which participated by the same participants are compared. While in the independent samples, means are compared between two groups of participants. Difference of the means of the two samples can be reflected by using T-test. The T-test is implemented for each of the independent variables which are interest rate, inflation rate, tax and the usage of credit cards to the dependent variable which is the personal financing to test the significance between the dependent variable and the independent variables. Before applying T-test, dependent variable is assumed to be normally distributed (Gujarati & Porter,

2009). Next, the samples must be randomly selected from the respective population. E-views will be used in obtaining the estimation output and significance between each independent variable and the dependent variables are studied.

The hypothesis of T-test is conducted as follow:

$$\mathbf{H_0: } \beta_i=0$$

$$\mathbf{H_1: } \beta_i \neq 0, \text{ where } i=1,2,3,4$$

In the null hypothesis, there is no significant relationship between dependent variable and independent variables. On the other hand, the other hypothesis expresses that there is significant relationship between dependent variable and independent variable.

Significant level: $\alpha = 0.01, 0.05, 0.10$

Decision rule: Reject H_0 if P-value of t-statistic $< \alpha$. Otherwise, do not reject H_0 .

3.5.3.2 F- Test

F-test is a test that using F-distribution under null hypothesis. F-test is applied to compare more than two statistical models. The function of F-test is to test overall significance of model to dependent variable. However, F-test is unable to identify the most significant variables to the dependent variable. There is assumption needed to achieve when F test is used. The assumption that has to meet is the sample must normally distribute and the samples are independent. F-test is easy to

compute and the amount of the basic function need not to be worried (Shen & Faraway, 2004). The F-test is usually correlated with the analysis of variance (ANOVA) (Lavrakas, 2008).

The hypothesis for the test is shown:

$$\mathbf{H}_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$$

\mathbf{H}_1 : At least one of the $\beta_i \neq 0$, $i = 1, 2, 3, 4$

The overall model is not significant in the null hypothesis while the overall model is significant in the alternative hypothesis.

Significant level: $\alpha = 0.01, 0.05, 0.10$

Decision rule: Reject H_0 if P-value of F-statistic $< \alpha$. Otherwise, do not reject H_0 .

3.5.4 Diagnostic Checking

3.5.4.1 Multicollinearity

Multicollinearity will happen when the correlations between the independent variables are high. Multicollinearity can be detected through some symptoms. One of the symptoms is parameter estimators has huge changes with a small changes in the data. Next is the high R^2 and also high standard errors and low significant of the coefficient. “Wrong” sign or implausible magnitude may appear to the coefficients. A perfect multicollinearity is occurred when there is completely overlap between two or more independent variables and will violate the assumptions in CNLRM

(Voss, 2004). Multicollinearity problem can be detected by using variance inflation factor (VIF) and tolerance value (TOL). There is no multicollinearity problem when the VIF equals to one or less than one. But if the VIF exceed 10, serious multicollinearity problem is happening.

Formula:

$$\mathbf{VIF} = \frac{\mathbf{1}}{\mathbf{(1-R^2)}}$$

$$\mathbf{TOL} = \frac{\mathbf{1}}{\mathbf{VIF}}$$

3.5.4.2 Autocorrelation

Time series data often lead to autocorrelation while autocorrelation seldom occurs when cross-sectional data is used. Autocorrelation is the correlation between the error term of any observation and the error term of other observation (Gujarati & Porter, 2009). Autocorrelation can be categorized into pure serial correlation and impure serial correlation. Pure autocorrelation is caused by the underlying error term of the specification of the model. On the other hand, impure autocorrelation is caused by specification bias, for example, omission of important variables, incorrect functional form and wrong model specification (Gujarati & Porter, 2009). The OLS estimator will remain unbiased and consistent even autocorrelation happens in the model. However, OLS estimator is no longer BLUE as it become inefficient. The estimated variances also will become biased and inconsistent. Durbin-Watson test,

Durbin's h test and Breusch-Godfrey LM test can be applied to test autocorrelation.

Breusch-Godfrey LM test is conducted as follow:

H₀: There is no autocorrelation problem.

H₁: There is autocorrelation problem.

Significant level: $\alpha = 0.01, 0.05, 0.10$

Decision rule: Reject H₀ if P-value of Chi-squared $< \alpha$. Otherwise, do not reject H₀.

3.5.4.3 Heteroscedasticity

Heteroscedasticity usually exist when the variance of the error terms vary from the observations (Williams, 2015). OLS estimator will become inefficient when the variance of the distribution become larger that lead by the increasing of distribution of coefficients. F-test statistic and T-test statistic are no longer reliable as the statistics also will become higher. Heteroscedasticity will not affect the consistency and will keep the OLS estimator unbiased (Gujarati & Porter, 2009). Autoregressive Conditional Heteroscedasticity (ARCH) test will be applied in this research because of adopting time series data.

ARCH test is conducted as follow:

H₀: There is no heteroscedasticity problem.

H₁: There is a heteroscedasticity problem.

Significant level: $\alpha = 0.01, 0.05, 0.10$

Decision rule: Reject the null hypothesis when the p-value is lower than the significant level. Otherwise do not reject the null hypothesis.

3.5.4.4 Model Specification

Model specification can identify the importance of each variable in the model. Independent variables will be examined and determined whether the variable should be consisted in the model or eliminated from the model (Allen, 1997). There are a few problems that will lead to misspecification of model which are omitting of relevant variables, including irrelevant variables and using incorrect functional form. Therefore, independent variables should be choose wisely and only apply the most relevant variables to avoid misspecification of the model. In order to sense the misspecification problem, Regression Specification Error Test (RESET) can be applied. RESET test was founded by Ramsey to detect any nonlinearity in the model (Ramsey, 1969). If Ramsey RESET test reveal a model misspecification problem, autocorrelation and heteroscedasticity cannot be settled. Therefore, the model needed to be modified.

Ramsey RESET test will be applied as follow:

H₀: The model specification is correct.

H₁: The model specification is incorrect.

Significant level: $\alpha = 0.01, 0.05, 0.10$

Decision rule: Reject H₀ if P-value of F-statistic $< \alpha$. Otherwise, do not reject H₀.

3.5.5 Normality Test

3.5.5.1 Jarque-Bera Test (JB Test)

JB test will be applied to test the normality of the sample. The sample must be identified whether it is normally distributed by using JB test as the assumption for T-test and F-test is the samples must be distributed normally. JB test was founded by Jarque and Bera and is named after them (Jarque & Bera, 1980). JB test applied skewness and kurtosis measurement to check the normality. Skewness is the measure of the symmetric of the observations to the mean while in kurtosis, the thickness in the tails of probability density is measured (Gujarati & Porter, 2009). In order to get a normally distributed sample, skewness coefficient must be equal to 0 and the kurtosis coefficient must be equal to 3. A likely chi-square distribution will be archived in JB statistic along with two degrees of freedom (Mantolos, 2010). The advantage of JB test is that JB test is very simple to be conducted compared to other tests.

JB test will be conducted as follow:

H₀: The error term is normally distributed.

H₁: The error term is not normally distributed.

Significant level: $\alpha = 0.01, 0.05, 0.10$

Decision rule: Reject H₀ if P-value of JB-statistic $< \alpha$. Otherwise, do not reject H₀.

3.6 Conclusion

This chapter provides a clearer explanation on research design and data collection methods. Secondary data was adopted in this study with a sampling size of 120. Data processing was discussed in this chapter. Data analysis was done through statistical tests and econometric methods. The following chapter will discuss about the empirical results done in this research.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

This chapter will analyze and interpret empirical results from former chapter of methodology. The empirical results in this study are obtained from Ordinary Least Square (OLS) analysis, inferential analysis, diagnostic checking and normality test.

4.1 Descriptive Analysis

Table 4.1: Summary Descriptive Statistics

	LNPF	IR	INF	TX	LNCC
Mean	7.050025	6.462583	0.213750	68.20900	10.22286
Median	7.147052	6.530000	0.180000	68.33500	10.30816
Maximum	7.671758	6.790000	3.940000	71.35000	10.49248
Minimum	5.797768	5.510000	-1.250000	61.39000	9.729027
Std. Dev.	0.422419	0.378086	0.490291	2.929045	0.221698
Skewness	-0.862862	-1.575140	3.391497	-0.977733	-0.653342
Kurtosis	3.124955	4.385503	30.47715	3.375255	2.232953
Observations	120	120	120	120	120

Sources: Developed from Eviews 9.5 SV

Descriptive statistics is the summarized data about the model and provide some useful information. Table 4.1 show the summarized data of personal loans and the determinants for the personal loans. Mean of personal loans is 7.050025 with a median of 7.147052. This shows that personal loans have an average value of 7.050025. The maximum value of the personal loans is 7.671758 while the minimum value is 5.797768. Next, a standard deviation of 0.422419 is observed. A standard deviation is the average difference within the mean and volatility of the determinants. Personal loans also have a skewness of -0.862862 and a kurtosis of 3.124955. Personal loans are a little high volatile as the kurtosis is exceed the value of 3. The data also shows that personal loans have a negative skewness as it has a negative value.

As for the interest rate, it has an average value of 6.462583 and a median of 6.530000. The maximum and minimum value for the interest rate is 6.790000 and 5.51000 respectively. Standard deviation for interest rate is 0.378086. The value of skewness is -1.575140 and kurtosis of 4.385503. It is negative skewness with little high volatile.

Besides, the mean for inflation is 0.213750 while median is 0.180000. The maximum inflation is 3.940000 while minimum value is -1.250000. Standard deviation for inflation rate is 0.490291. It is a positive skewness with value of 3.391497 and a kurtosis of 30.47715.

Moreover, tax has an average value of 68.20900 and a median of 68.33500. The maximum and minimum value for tax is 71.35000 and 61.39000 respectively. Standard deviation for tax is 2.929045. The value of skewness is -0.977733 and kurtosis of 3.375255. It is negative skewness with little high volatile.

Lastly, credit card has a mean value of 10.22286 while median is 10.30816. The maximum credit card value is 10.49248 while minimum value is 9.729027.

Standard deviation for credit card is 0.221698. It is a negative skewness with value of -0.653342 and a kurtosis of 2.232953.

4.2 Multiple Regression Model

$$\ln PF_t = \beta_0 + \beta_1 IR_t + \beta_2 INF_t + \beta_3 TX_t + \beta_4 \ln CC_t + \mu \quad (1)$$

$$\widehat{\ln PF}_t = -8.642241 - 0.204659 IR_t + 0.042969 INF_t + 0.006524 TX_t + 1.619970 \ln CC_t \quad (2)$$

Where,

$\ln PF_t$ = the natural logarithm form of total amount of personal loans (Millions of RM) at year t

IR_t = the percentage of interest rate at year t

INF_t = the inflation rate measured by percentage change in consumer price index at year t

TX_t = the percentage of tax rate at year t

$\ln CC_t$ = the natural logarithm form of total amount of credit card loans (Millions of RM) at year t

Table 4.2: Regression Result

Component	Intercept (C)	Interest rate (IR)	Inflation (INF)	Tax (TX)	Credit Card (lnCC)
Coefficient	-8.642241	-0.204659	0.042969	0.006524	1.619970
Standard error	1.000672	0.053061	0.040440	0.006937	0.091357
t-Statistic	-8.636441	-3.857075	1.062555	0.940382	17.73232
P-value	0.0000	0.0002	0.2902	0.3490	0.0000
Expected Sign	-	Negative	Negative	Positive	Positive
Actual Sign	-	Negative	Positive	Positive	Positive

$R^2 = 0.749721$

Adjusted $R^2 = 0.741016$

F-statistic = 86.12177

Prob(F-statistic) = 0.000000

Number of observations = 120

Significance level = 1%, 5%, 10%

Sources: Developed from Eviews 9.5 SV

4.2.1 Interpretation on Intercept Coefficient and Independent Variables

$\widehat{\beta}_0 = -8.642241$. The total amount of personal loans in Malaysia is -8.64% that could not be explained by the independent variables of interest rate, inflation, tax and credit card.

$\widehat{\beta}_1 = -0.204659$. If the interest rate increases by one percentage point, the total amount of personal loans in Malaysia will decline by 0.204659 percentage point, while other regressors fixed.

$\widehat{\beta}_2 = 0.042969$. If the inflation measured by percentage change in consumer price index increases by one percentage point, the total amount of personal loans in Malaysia will increase by 0.042969 percentage point, while other regressors fixed.

$\widehat{\beta}_3 = 0.006524$. If the tax increases by one percentage point, the total amount of personal loans in Malaysia will increase by 0.006524 percentage point, while other regressors fixed.

$\widehat{\beta}_4 = 1.619970$. If the credit card increases by one percentage point, the total amount of personal loans in Malaysia will increase by 1.619970 percentage point, while other regressors fixed.

4.2.2 Interpretation of R^2 and \overline{R}^2

Refer to Table 4.2, R-squared for the model is 0.749721. It implied that there is approximately 74.97% of the variation in the personal financing could be interpreted by the variation in interest rate, inflation, tax and credit cards. Meanwhile, the adjusted R-squared is 0.741016, which means there is approximately 74.10% of the variation in the personal financing could be interpreted by the variation in interest rate, inflation, tax and credit cards after taking into account the degree of freedom.

4.3 Inferential Analysis

4.3.1 T-test

4.3.1.1 Interest Rate

H₀: $\beta_1 = 0$

H₁: $\beta_1 \neq 0$

Decision rule: Reject H₀ if P-value of t-statistic $< \alpha$ (0.01, 0.05, 0.10). Otherwise, do not reject H₀.

Result: Reject H₀ since P-value of t-statistic (0.0002) $< \alpha$ (0.01, 0.05, 0.10). Therefore, there is adequate proof to justify relationship among interest rate and personal financing is significant at significant level of 0.01, 0.05 and 0.10 in this study.

4.3.1.2 Inflation

H₀: $\beta_2 = 0$

H₁: $\beta_2 \neq 0$

Decision rule: Reject H₀ if P-value of t-statistic $< \alpha$ (0.01, 0.05, 0.10). Otherwise, do not reject H₀.

Result: Do not reject H₀ since P-value of t-statistic (0.2902) $> \alpha$ (0.01, 0.05, 0.10). Therefore, there is inadequate proof to justify

relationship among inflation and personal financing is significant at significant level of 0.01, 0.05 and 0.10 in this study.

4.3.1.3 Tax

H₀: $\beta_3 = 0$

H₁: $\beta_3 \neq 0$

Decision rule: Reject H₀ if P-value of t-statistic $< \alpha$ (0.01, 0.05, 0.10). Otherwise, do not reject H₀.

Result: Do not reject H₀ since P-value of t-statistic (0.3490) $> \alpha$ (0.01, 0.05, 0.10). Therefore, there is inadequate proof to justify relationship among tax and personal financing is significant at significant level of 0.01, 0.05 and 0.10 in this study.

4.3.1.4 Credit Card

H₀: $\beta_4 = 0$

H₁: $\beta_4 \neq 0$

Decision rule: Reject H₀ if P-value of t-statistic $< \alpha$ (0.01, 0.05, 0.10). Otherwise, do not reject H₀.

Result: Reject H₀ since P-value of t-statistic (0.0000) $< \alpha$ (0.01, 0.05, 0.10). Therefore, there is adequate proof to justify relationship among credit card and personal financing is significant at significant level of 0.01, 0.05 and 0.10 in this study.

Based on Table 4.2, researchers can conclude that the t-test for both interest rate and credit card are significantly influence the personal financing. However, both inflation and tax are insignificant affect the personal financing.

4.3.2 F-test

H₀: $\beta_1=\beta_2=\beta_3=\beta_4=0$

H₁: At least one of the $\beta_i \neq 0$, $i=1,2,3,4$.

Decision rule: Reject H_0 if P-value of F-statistic $< \alpha$ (0.01, 0.05, 0.10). Otherwise, do not reject H_0 .

Result: Reject H_0 since P-value of F-statistic (0.0000) $< \alpha$ (0.01, 0.05, 0.10). Therefore, there is adequate proof to justify that at least one of the independent variables is significant to personal financing at significant level of 0.01, 0.05 and 0.10 in this study.

Based on Table 4.2, the important of economic model is proved by researchers using F-test in explaining the personal financing in Malaysia.

4.4 Diagnostic Checking

4.4.1 Multicollinearity

4.4.1.1 Pair-wise correlation coefficient

Table 4.4.1 (a): Pair-wise Correlation Coefficient Analysis

	IR	INF	TX	LNCC
IR	1.000000	-	-	-
INF	0.100005	1.000000	-	-
TX	-0.119573	-0.017353	1.000000	-
LNCC	0.075884	-0.038387	0.202756	1.000000

Sources: Developed from Eviews 9.5 SV

Based on the Table 4.4.1 (a), there is a weak correlation between LNCC and TX. This is because the correlation coefficient result shown is 0.202756, which is in the range of 0.2 to 0.4. Meanwhile, INF and LNCC have a very weak or no relationship between each other as the correlation coefficient is within the range of 0.0 to 0.2 in a negative form. Hence, the model has no multicollinearity problem.

4.4.1.2 Variance Inflation Factor (VIF) / Tolerance (TOL)

Table 4.4.1 (b): VIF / TOL Results

	R^2	$VIF = 1/(1-R^2)$	$TOL = 1/VIF$	Conclusion
IR	0.035086	1.0364	0.9649	No serious multicollinearity
INF	0.012148	1.0123	0.9878	No serious multicollinearity
TX	0.059449	1.0632	0.9406	No serious multicollinearity
LNCC	0.053310	1.0563	0.9467	No serious multicollinearity

In research, formal testing such as VIF and TOL is applied to identify the presence of multicollinearity problem in the model. Based on Table 4.4.1 (b), all the VIF results are less than 10 and the TOL results are more than 0. The results manifest the model has no serious multicollinearity problem among the regressors.

4.4.2 Autocorrelation

4.4.2.1 Breusch-Godfrey LM Test

Table 4.4.2: Breusch-Godfrey LM Test Result

F-statistic	36.59954	Prob. F (2,113)	0.0000
Obs*R-squared	47.1747	Prob. Chi-Square (2)	0.0000

Sources: Developed from Eviews 9.5 SV

Hypothesis:

H₀: There is no autocorrelation problem.

H₁: There is an autocorrelation problem.

Decision rule: Reject H₀ if P-value of Chi-squared < α (0.01, 0.05, 0.10). Otherwise, do not reject H₀.

Result: Reject H₀ since P-value (0.0000) < α (0.01, 0.05, 0.10). Thus, there is adequate proof to justify the model has autocorrelation problem at significance level of 0.01, 0.05 and 0.10.

Since the model has autocorrelation problem, Newey-west Test will be adopted to overcome the problem.

4.4.3 Heteroscedasticity

4.4.3.1 Autoregressive Conditional Heteroscedasticity (ARCH) Test

Table 4.4.3: ARCH Test Result

F-statistic	32.20483	Prob. F (1,117)	0.0000
Obs*R-squared	25.6853	Prob. Chi-Square (1)	0.0000

Sources: Developed from Eviews 9.5 SV

Hypothesis:

H₀: There is no heteroscedasticity problem.

H₁: There is a heteroscedasticity problem.

Decision rule: Reject H₀ if P-value of F-statistic < α (0.01, 0.05, 0.10). Otherwise, do not reject H₀.

Result: Reject H₀ since P-value (0.0000) < α (0.01, 0.05, 0.10). Thus, there is adequate proof to justify the model has heteroscedasticity problem at significance level of 0.01, 0.05 and 0.10.

Since there is a heteroscedasticity problem detected from the ARCH Test in this study, White Test will be adopted to overcome the problem.

4.4.4 Model Specification

4.4.4.1 Ramsey RESET Test

Table 4.4.4: Ramsey RESET Test Result

F-statistic	14.73373	Prob. F (1,114)	0.0002
Likelihood ratio	14.58573	Prob. Likelihood ratio (1)	0.0001

Sources: Developed from Eviews 9.5 SV

Hypothesis:

H₀: There is no model misspecification problem.

H₁: There is model misspecification problem.

Decision rule: Reject H₀ if P-value of F-statistic < α (0.01, 0.05, 0.10). Otherwise, do not reject H₀.

Result: Reject H₀ since P-value (0.0002) < α (0.01, 0.05, 0.10). Thus, there is adequate proof to justify the model specification is incorrect at the significance level of 0.01, 0.05 and 0.10.

According MacKenzie, Podsakoff and Jarvis (2005), the presence of model misspecification problem indicates that the functional form of model may incorrect or some independent variables are missing. Swamy, Tavlak, Hall and Hondroyannis (2008) suggested the application of Bayesian statistics to reduce the effect of model misspecification by fixing all states of nature into the same.

4.5 Normality Test

Table 4.5: Jarque-Bera Test Result

Jarque-Bera Test	
Probability = 0.178885	$\alpha = 0.01, 0.05, 0.10$

Sources: Developed from Eviews 9.5 SV

Hypothesis:

H₀: The error term is normally distributed.

H₁: The error term is not normally distributed.

Decision rule: Reject H_0 if P-value of JB-statistic $< \alpha$ (0.01, 0.05, 0.10). Otherwise, do not reject H_0 .

Result: Do not reject H_0 since P-value (0.178885) $> \alpha$ (0.01, 0.05, 0.10). Thus, there is inadequate proof to justify the error term is not normally distributed at the significance level of 0.01, 0.05 and 0.10.

4.6 Conclusion

Ordinary Least Square (OLS) approach, inferential analysis, diagnostic checking and normality test had run in this chapter. The empirical results had been presented clearly in figure or table form. All results had explained precisely and clearly. The last chapter will summarize on the entire research.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

This chapter will provide a synopsis of all statistical analysis from former chapter. Major findings are discussed in details followed up by the implications of this study. Limitations are determined when conducting this study and recommendations for future researchers are discussed before the conclusion is made.

5.1 Summary of Statistical Analyses

The purpose of this study is to investigate the relationship between independent variables (interest rate, inflation, tax and credit card) and dependent variable (personal financing) in Malaysia. All empirical tests are conducted by using 1%, 5% and 10% significance level.

Based on the results, this study found out that interest rate and credit card are significantly influence the personal financing based on P-value of t-statistic at 1%, 5% and 10% significance level. The overall relationship of the model is significant based on P-value of F-statistic.

Besides, the model did not contain serious multicollinearity problem in independent variables based on results of diagnostic checking. However, autocorrelation and heteroscedasticity problems occurred in the model. Autocorrelation problem implied the error term was correlated in the model while heteroscedasticity problem implied same variance of error term. Autocorrelation problem was solved by Newey-West Test while heteroscedasticity problem was solved by White Test.

Model specification bias was detected in the model based on Ramsey RESET Test. Swamy, Tavlas, Hall and Hondroyannis (2008) suggested by fixing all states of nature into the same through Bayesian statistics to reduce the effect of model misspecification problem. Error term was normally distributed in this model based on Jacque-Bera Test.

5.2 Discussions of Major Findings

5.2.1 Interest rate

The study showed that a negative relationship among interest rate and personal financing in Malaysia. The results were in line with the study of Acquah, Amonoo and Asmah (2003), who also justified that interest rate and credit demand is negatively related in rural area due to the ability to repaying the loan. Adams and Nehman (1979) stated that the borrower in rural area who demand large amount of loan is sensitive to the interest rate because they need to pay more extra cost in order to obtain the loan. According to Akowuah (2011), in long run the relationship between interest rate and loan demand tends to be negatively related as borrower

need some times to adapt with it in short run. It may leads to decrease in the demand of loans in long run.

Apart from that, interest rate is the premium that charge on the borrowed loan, therefore it may cause burden to the borrower to repay the loan. Furthermore, Quashigah and Kwashigah (2017) also found that the relationship between interest rate and demand of personal loan is significant in Ghana. The interest rate and demand of credit is negatively related in both long run and short run.

5.2.2 Inflation

Through the tests, inflation is found positively related to personal financing which mean that personal financing will increase when inflation increase while decrease when inflation decrease. Inflation is found to be insignificant to the personal financing in this research. This result can be supported by the research of Nomatye and Phiri (2017). Furthermore, Zimunya and Raboloko (2015) also found that there is an insignificant relationship for inflation and the household debts. The inflation will not affect the household debt in both long run and short run.

5.2.3 Tax

In the research, it is concluded that the tax is insignificant in affecting the personal financing in Malaysia. According to the empirical results in

chapter 4, there is a positive significant correlation between tax and amount of personal financing. The result also supported by Robinson and McGoun (1998) who mentioned that the income amount after deduction of tax payment will decrease further when the tax increases. Thus, the increase of tax rate will lead to the increase of personal financing and individual could reduce their expenses burden. In the research of Smith (1980), he found that the increase of tax and insurance expenditures will reduce the savings of the borrowers. The borrowers will need to increase their amount of personal financing to cover the expenditure. Bikas, Subačienė, Astrauskaitė and Keliuotytė-Staniulėnienė (2014) stated that the taxpayers in upper income groups will be required to bear huge amount of tax charges based on their higher amount of income than people in lower income groups. When the tax rate increases, the amount of personal financing will also increase so that the taxpayers can reduce their tax burden.

5.2.4 Credit card

Based on the results in Chapter 4, it is consistent with the hypotheses in the earlier chapter. Result showed that a positive relationship among personal financing in Malaysia and credit card. This result is supported by previous researches. According to Bach, Zoroja and Skok (2014) has stated that high credit limit on credit card spending will increase the budget available for spending. Thus, it will increase their personal financing. Besides, Duca and Whitesell (1991) states that demand and supply are the factor to indicate those who carry a credit card with personal household attitude towards debt are significant. The convenience use of credit card will caused household to use for personal consumption and lead to increase in household debt.

5.3 Implications of Study

5.3.1 Policy makers

Government could make better decision by analyzing the tax determinant and implementing the appropriate policies based on this study. Fiscal policy could implement by government because it can affect the economic growth of a country. Expansionary fiscal policy could be used by government to boost the economic growth. This policy could reduce tax and prevent inflation. Tax reduction can reduce consumer burden to obtain an asset and encourage people to work more as low income tax charged. Besides, tax reduction could encourage firm to make investment and expand their business. This provides working opportunity and lead to increase the consumer wealth. The dependency of consumer to loans will decrease as their ability to earn cost of living increases.

5.3.2 Bank Negara Malaysia

BNM could make better decision by implementing the appropriate monetary policies through this study to control the money supply in the market. This would bring impact to interest rate and consumption in personal loans. BNM could implement contractionary monetary policy to increase the interest rate. Increase in interest rate may increase the consumer saving and encourage bank to make loan but this may discourage borrower to obtain a loan due to high cost of borrowing. On the other hand, decrease of interest rate by implementing expansionary

monetary policy may cause the reduction in consumer saving. This causes the fund available for loan to decrease but it can increase the demand of loan due to lower cost of borrowing. Hence, BNM should implement the monetary policy efficiently so that the demand and supply of loan could reach the equilibrium which can satisfy both parties.

5.3.3 Credit Counselling and Debt Management Agency (AKPK)

By referring to this study, AKPK would have better understanding on the impact of credit cards to personal loans in both short run and long run. AKPK could provide better quality of counselling and financial planning services for individuals to monitor their consumption behavior and avoid overspending their monthly income for unnecessary products. AKPK could also provide more information to educate the individuals in managing their personal finance based on current economic conditions like inflation. AKPK may educate the individuals to manage their credit with the concern on the effect of interest rate to personal loans. Through the information provided by AKPK, individuals would understand the volatility of current economy well and thus make better decision in speculating the future economy condition. This may result in decrease in demand of personal financing for individuals.

5.3.4 Borrowers

By referring to the interest rate factor in this study, borrowers would have a clearer picture on how interest rate affects personal financing. Borrowers could also analyse the economic condition like inflation in order to take their personal financing. Thus, borrowers would make better decision by taking personal financing in an appropriate time.

5.4 Limitations of the study

There are some limitations and shortcomings in the study. One of the limitations was the data collection method. At the beginning, this study needs a large sample size in order to have more accurate result. However, the data available in World Development Indicators is incomplete as some of the data have the old period of data and do not have the latest data. Thus, this study needs to recalculate again the data in order to have the correct data to run the test.

Besides, this research does not include any primary data like individual spending behavior. The process for taking primary data may take time for researchers to carry out the research. Primary data may also provide useful information and increase accuracy of the results in this research topic. This is because public may have different views for the determinants affecting personal financing in Malaysia.

Furthermore, this study lacks on the accessibility on some websites. Since most of the journals need to be subscribed and only applicable for certain university, this study faced the problem of obtaining the possible related journals to support the research.

Lastly, this research also lack of budgetary problem. This is due to some of the websites and data need to be paid in order to get the full version of information in the articles. This has restricted the researchers to get complete information and to access some journals which is useful to the research.

5.5 Recommendations for Future Research

According to Marley (2014), large sample size should be taken because it will affect the confidence levels and margins of error, power and effect sizes. She has also stated that the larger the sample size, more information could obtain and thus reduce the uncertainty with more accurate result. Thus, when the sample size is small, the uncertainty will be higher, and the result will not be accurate as the possible outcome is bigger. Hence, future researchers should obtain more sample size by using monthly data and also obtain the complete data by calculating the actual data.

Besides, future researchers are recommended to use both primary and secondary data to run the empirical tests. This is because including both primary and secondary data could provide more accurate result to this research. Future researchers may also able to test the efficacy of the research by using both data.

Furthermore, future researchers should include other determinants that may influence the personal financing and should focus other than in Malaysia. They can study the other factors that affect personal financing such as their knowledge towards personal financing, their behavioral and also importance of personal financing to individuals. Future researchers are also recommended to select the

variable wisely and include those important variables. The knowledge on choosing variables helps to collect the correct data and thus indicate the suitable regression equation without running any test. The result of the statistical analysis must also be matched with the econometric theory. If the result is still biased, future researchers need to modify the model or explain the inconsistency results supported by previous studies.

Lastly, future researchers are recommended to obtain some funds before access to certain websites in order to get the full version of journals and data that are important to support the research.

5.6 Conclusion

To conclude, this study strives to explore the effects of independent variables towards the personal financing. Total of 10 years data from year 2006-2015 and it is based on monthly basis. Based on diagnostic checking in OLS model of this study, both interest rate and credit cards are significant while inflation and tax are insignificant affect the personal financing. Interest rate is the only variable that has negative relationship to personal financing while inflation, tax and credit cards have shown positive relationship to personal financing in the study. Limitations are identified and recommendations are given to future researchers. Practical implications are outlined for policy makers, Bank Negara Malaysia and investors to let them implement the suitable policies and investment strategies. Thus, this study has achieved the objectives in examining the factors affecting personal financing in Malaysia.

REFERENCES

- Adams, D.W., & Nehman, G. I. (1979). Borrowing costs and the demand for rural credit. *The Journal of Development Studies*, 15(2).
- Acquah, P.K., Amonoo, E., & Asmah, E.E. (2003). The impact of interest rates on demand for credit and loan repayment by the poor and SMEs in Ghana. *The Impact of Financial Sector Liberalization on the Poor*, 03-10.
- Allen, M. P. (1997). Model specification in regression analysis in: Understanding regression analysis. Springer, Boston, MA.
- Anderson, L. E., & Park, W. (2016). International contributions to Nicaraguan democracy: The role of foreign municipal donations for social development. *Foreign Policy Analysis*, 1-22.
- Akowuah, G. (2011, May). *Interest rate and the demand for credit in Ghana*. Unpublished master's thesis, Kwame Nkrumah University of Science and Technology, Ghana. Retrieve March 07, 2018, from <http://ir.knust.edu.gh/bitstream/123456789/4339/1/Godslove%20Akowuah.pdf>
- Azman, N. S., Shari, A., Gazali, H. M., Abdullah, M. A., & Khalil, N. M. (2015). Urban household credit card debt behaviour in East Malaysia: A conceptual framework. *Prosiding Persidangan Kebangsaan Ekonomi Malaysia Ke10*, 519-528.
- Bach, M. P., Zoroja, J., & Skok, M. M. (2014). Credit card spending limit and personal finance: system dynamics approach. *Croatian Operational Research Review*, 35-47.
- Bett, M. (2013). Effects of inflation and interest rates on mortgage finance offered by commercial banks in Kenya. Unpublished master's thesis, University of Nairobi.
- Bikas, E., Subačienė, R., Astrauskaitė, I., & Keliuotytė-Staniulėnienė, G. (2014). Evaluation of the personal income progressive taxation and the size of tax-exempt amount in Lithuania. *Ekonomika*, 93(3), 84-101.
- Caldwell, M. (2017, September 21). What is the difference between credit card and a debit card? *The Balance*. Retrieved March 07, 2018, from <https://www.thebalance.com/difference-between-a-credit-card-and-a-debit-card-2385972>

- Catherine, S. F. H., Yusof, J. M., & Mainal, S. A. (2016). Household debt, macroeconomic fundamentals and household characteristics in Asian developed and developing countries. *The Social Science*, 11(18), 4358-4362.
- Chin, J. (2017, December 20). Higher food, fuel costs push up November inflation. *The Star Online*. Retrieved March 07, 2018, from <https://www.thestar.com.my/business/business-news/2017/12/20/higher-food-fuel-costs-push-up-november-inflation/>
- Debelle, G. (2004). Household debt and the macroeconomy. *BIS Quarterly Review*, 51-64.
- Debts among us: Young Malaysians are going bankrupt*. (2014, February 20). Retrieved March 07, 2018, from <http://www.malysiandigest.com/opinion/488936-debts-among-us-young-malaysians-are-going-bankrupt.html>
- DeFusco, A. A., & Paciorek, A. (2017). The interest rate elasticity of mortgage demand: Evidence from bunching at the conforming loan limit. *American Economic Journal: Economic Policy*, 9(1), 210–240.
- Dhesi, D. (2017, Feb 13). Household debt may increase, warn economists. *The Star Online*. Retrieved March 07, 2018, from <https://www.thestar.com.my/business/business-news/2017/02/13/household-debt-may-increase-warn-economists/>
- Dong, M. (2011). Money and costly credit (Bank of Canada Working Paper 2011-7). *Bank of Canada*. Retrieved March 07, 2018, from <https://www.bankofcanada.ca/wp-content/uploads/2011/02/wp11-7.pdf>
- Duca, J. V., & Whitesell, W. C. (1991). Credit cards and honey demand: A cross-sectional study. *Federal Reserve Bank of Dallas*.
- Freeman, J. V., & Julious, S. A. (n.d.). Descriptive Analysis of Quantitative Data. Retrieved March 07, 2018, from https://www.sheffield.ac.uk/polopoly_fs/1.104345!/file/Scope_tutorial_manual.pdf
- Friedman, M. (1968). The role of monetary policy. *The American Economic Review*, 58(1).

- Georgievska, L., Kabashi, R., Manova-Trajkovska, N., Mitreska, A., & Vaskov, M. (2011). *Determinants of lending interest rates and interest rate spreads*. Paper presented at the 3rd South-Eastern European Economic Research Workshop, Bank of Greece, Athens, 19-21 November 2009.
- Gerson, E. S. (2008, September 8). *Severe debt can cause depression and even suicide*. Retrieved March 07, 2018, from <https://www.creditcards.com/credit-card-news/debt-depression-and-suicide-1264.php>
- Gujarati, P. N., & Porter, D. C. (2009). *Basic econometrics*. (5th ed.). Boston, MA: McGraw-Hill/Irwin.
- Hole, G. (2009). T-Tests. *Research Skills*.
- Hussin, S. R., Kassim, S., & Jamal, N. (2013). Credit card holders in Malaysia: Customer characteristics and credit card usage. *International Journal of Economics and Management*, 7(1), 108-122.
- Hutcheson, G. D. (2011). Ordinary least-squares regression. *The SAGE dictionary of quantitative management research*, 224-228.
- Ibrahim, M. E., & Alqaydi, F. R. (2013). Financial literacy, personal financial attitude, and forms of personal debt among residents of the UAE. *International Journal of Economics and Finance*.
- Jamaluddin, N. H., & Adilah, A. (2016, July 14). Consumers rejoice as interest rates lowered. *Malay Mail Online*. Retrieved March 07, 2018, from <http://www.themalaymailonline.com/malaysia/article/consumers-rejoice-as-interest-rates-lowered#Zc3WhwDEHIX4Gqg.97>
- Jarque, C. M., & Bera, A. K. (1980). Efficient tests for normality, homoscedasticity and serial independence of regression. *Economics Letters*, 6, 255-259.
- Kuper, S., & Schmidt, T. P. (2016). Effects of tax-based saving incentives on contribution behavior: Lessons from the introduction of the Riester scheme in Germany. *Modern Economy*, 7, 1198-1222.
- Labonte, M. (2011). Inflation: Causes, costs, and current status. *Congressional Research Service*.

- Lane, J. (2016, July). A debt effect? How is unmanageable debt related to other problems in people's lives? *Citizens Advice*. Retrieved March 07, 2018, from <https://www.citizensadvice.org.uk/Global/CitizensAdvice/Debt%20and%20Money%20Publications/The%20Debt%20Effect.pdf>
- Lavrakas, P. (2008). F-Test. *Encyclopedia of Survey Research Methods*.
- MacKenzie, S. B., Podsakoff, P. M., & Jarvis, C. B. (2005). The problem of measurement model misspecification in behavioral and organizational research and some recommended solutions. *Journal of Applied Psychology*, 90(4), 710-730.
- Malaysia Country Commercial Guide. (2017, June 18). *Malaysia-Banking Systems*. Retrieved March 07, 2018, from <https://www.export.gov/article?id=Malaysia-Banking-Systems>
- Malaysians have the most debt in Asia. (2016, March 3). *The Star Online*. Retrieved March 07, 2018, from <https://www.thestar.com.my/business/business-news/2016/03/03/malaysians-have-the-most-debt-in-asia/>
- Mantalos, P. (2010). *Robust critical values for the Jarque-Bera test for normality (JIBS Working Papers No. 2010-8)*. Jönköping International Business School. Retrieved March 07, 2018, from http://web.ipac.caltech.edu/staff/fmasci/home/astro_refs/NormalityTests.pdf
- Market Business News. (2018). Credit card- definition and meaning. Retrieved March 07, 2018, from <http://marketbusinessnews.com/financial-glossary/credit-card/>
- Marley, S. (2014, January 27). The importance and effect of sample size (Web log post). Retrieved March 07, 2018, from <https://select-statistics.co.uk/blog/importance-effect-sample-size/>
- Mutezo, A. (2014). Household debt and consumption spending in South Africa: An ARDL-bounds testing approach. *Banks and Bank Systems*, 9(4), 73-81.
- Myers, S. C. (1984, July). Capital structure puzzle. *Journal of Finance*, 39(3), 575-592.
- Nathan, L. (2017, July 17). Credit card spending on the rise. *The Malaysian Reserve*. Retrieved March 07, 2018, from <https://themalaysianreserve.com/2017/07/17/credit-card-spending-rise/>

- Nomatye, A., & Phiri, A. (2017). Investigating the macroeconomic determinants of household debt in South Africa. *MPRA Paper 8330*. Retrieved March 07, 2018, from <https://mpra.ub.uni-muenchen.de/83303/>
- OECD. (1996, April 19). *Definition of taxes*. Retrieved March 07, 2018, from <http://www1.oecd.org/daf/mai/pdf/eg2/eg2963e.pdf>
- Omondi, O. G. (2014). Effects of inflation on commercial banks' lending: A case of Kenya commercial bank limited. Unpublished master's thesis, United States International University Africa.
- Oner, C. (2017, July 29). Inflation: Prices on the rise. *International Monetary Fund*. Retrieved March 07, 2018, from <http://www.imf.org/external/pubs/ft/fandd/basics/inflat.htm>
- Personal finance and debt management*. (2018). Retrieved March 07, 2018, from <http://sfs.gsu.edu/the-financial-aid-process/financial-resources/financial-literacy/personal-finance-and-debt-management/>
- Personal loans behind most bankruptcy cases. (2017, January 8). *Borneo Post Online*. Retrieved March 07, 2018, from <http://www.theborneopost.com/2017/01/08/personal-loans-behind-most-bankruptcy-cases/>
- Quashigah, P. O., & Kwashigah, N. K. (2017). Analysis of demand for credit and interest rate in Ghana. *Asian Journal of Economics, Business and Accounting*, 4(4), 1-9.
- Raj, A.P. (2016, November 20). Cover story: Rising stress in personal loan space. *Edge Weekly*. Retrieved March 07, 2018, from <http://www.theedgemarkets.com/article/cover-story-rising-stress-personal-loan-space>
- Ramlan, Y. (2017, May 8). Low pay, poor financial literacy drive civil servants into debt. *The Malaysian Insight*. Retrieved March 07, 2018, from <https://www.themalaysianinsight.com/s/2693/>
- Ramsey, J. B. (1969). Tests for specification errors in classical linear least-squares regression analysis. *Journal of the Royal Statistical Society. Series B (Methodological)*, 31(2), 350-371.

- Ratha, M. (1997). *The credit card model*. Massachusetts Institute of Technology. Retrieved March 07, 2018, from <http://clexchange.org/ftp/documents/Roadmaps/RM9/D-4683-2.pdf>
- Robinson, C., & McGoun, E. G. (1998). The sociology of personal finance. *Financial Services Review*, 7(3), 161-173.
- Shen, Q., & Faraway, J. (2004). An F Test for linear models with functional responses. *Statistica Sinica*, 14, 1239-1257.
- Smith, C. W. (1980). On the theory of financial contracting: The personal loan market. *Journal of Monetary Economics*, 6(3), 333-357.
- Swamy, P. A. V. B., Tavlas, G. S., Hall, S. G., & Hondroyiannis, G. (2008). *Estimation of parameters in the presence of model misspecification and measurement error*. University of Leicester, Leicester, England.
- Tranmer, M., & Elliot, M. (2008). Multiple linear regression. *Cathie Marsh Centre for Census and Survey Research (CCSR)*. Retrieved March 07, 2018, from <http://hummedia.manchester.ac.uk/institutes/cmist/archive-publications/working-papers/2008/2008-19-multiple-linear-regression.pdf>
- Uyanik, G. K., & Güler, N. (2013). A study on multiple linear regression analysis. *Procedia-Social and Behavioral Sciences*, 106, 234-240.
- Voss, D. S. (2004). *Multicollinearity*. Encyclopedia of Social Measurement.
- Warren, A. C. (1975). Fairness and a consumption-type or cash flow personal income tax. *Harvard Law Review*, 88, 931-946.
- Williams, R. (2015). *Heteroskedasticity*. Retrieved March 07, 2018, from <https://www3.nd.edu/~rwilliam/stats2/125.pdf>
- World Population Review. (2017). Retrieved March 07, 2018, from <http://worldpopulationreview.com/countries/malaysia-population/>
- Yong, K. C. (2012). The progressivity of the Malaysian personal income tax system. *Kajian Malaysia*, 30(2), 27-43.

- Zakaria, W. L. (2018, January 29). AKPK ready to come to rescue of debtors on brink of bankruptcy. *The Sun Daily*. Retrieved March 17, 2018, from <http://www.thesundaily.my/news/2018/01/29/akpk-ready-come-rescue-debtors-brink-bankruptcy>
- Zhang, D. L. (2017). Research on personal income tax affecting structure of resident consumption expenditure in China. *Modern Economy*, 8, 161-171.
- Zhang, X.Y. (2016). White noise testing and model diagnostic checking for functional time series. *Journal of Econometrics*, 194, 76-95.
- Zimunya, F. M., & Raboloko, M. (2015). Determinants of household debt in Botswana: 1994-2012. *Journal of Economics and Public Finance*, 1(1), 14-36.

APPENDICES

Appendix 1: Descriptive Statistics

	LNPF	IR	INF	TX	LNCC
Mean	7.050025	6.462583	0.213750	68.20900	10.22286
Median	7.147052	6.530000	0.180000	68.33500	10.30816
Maximum	7.671758	6.790000	3.940000	71.35000	10.49248
Minimum	5.797768	5.510000	-1.250000	61.39000	9.729027
Std. Dev.	0.422419	0.378086	0.490291	2.929045	0.221698
Skewness	-0.862862	-1.575140	3.391497	-0.977733	-0.653342
Kurtosis	3.124955	4.385503	30.47715	3.375255	2.232953
Observations	120	120	120	120	120

Appendix 2: Regression Results

Dependent Variable: LNPF
 Method: Least Squares
 Date: 02/28/18 Time: 22:37
 Sample: 2006M01 2015M12
 Included observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8.642241	1.000672	-8.636441	0.0000
IR	-0.204659	0.053061	-3.857075	0.0002
INF	0.042969	0.040440	1.062555	0.2902
TX	0.006524	0.006937	0.940382	0.3490
LNCC	1.619970	0.091357	17.73232	0.0000
R-squared	0.749721	Mean dependent var	7.050025	
Adjusted R-squared	0.741016	S.D. dependent var	0.422419	
S.E. of regression	0.214971	Akaike info criterion	-0.195853	
Sum squared resid	5.314446	Schwarz criterion	-0.079707	
Log likelihood	16.75115	Hannan-Quinn criter.	-0.148685	
F-statistic	86.12177	Durbin-Watson stat	0.710820	
Prob(F-statistic)	0.000000			

Appendix 3: Multicollinearity**Pair-wise Correlation Analysis**

	IR	INF	TX	LNCC
IR	1.000000	0.100005	-0.119573	0.075884
INF	0.100005	1.000000	-0.017353	-0.038387
TX	-0.119573	-0.017353	1.000000	0.202756
LNCC	0.075884	-0.038387	0.202756	1.000000

Variance Inflation Factor (VIF) / Tolerance (TOL) Results

	R²	VIF = 1/(1-R²)	TOL = 1/VIF	Conclusion
IR	0.035086	1.0364	0.9649	No serious multicollinearity
INF	0.012148	1.0123	0.9878	No serious multicollinearity
TX	0.059449	1.0632	0.9406	No serious multicollinearity
LNCC	0.053310	1.0563	0.9467	No serious multicollinearity

Appendix 4: Autocorrelation**Breusch-Godfrey Serial Correlation LM Test**

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	36.59954	Prob. F(2,113)	0.0000
Obs*R-squared	47.17472	Prob. Chi-Square(2)	0.0000

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 02/28/18 Time: 22:59

Sample: 2006M01 2015M12

Included observations: 120

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.150016	0.787078	0.190598	0.8492
IR	-0.004264	0.041703	-0.102246	0.9187
INF	0.008754	0.032041	0.273203	0.7852
TX	-0.000820	0.005460	-0.150119	0.8809
LNCC	-0.006660	0.071803	-0.092753	0.9263
RESID(-1)	0.598097	0.094473	6.330855	0.0000
RESID(-2)	0.045787	0.094860	0.482679	0.6303
R-squared	0.393123	Mean dependent var	-2.10E-15	
Adjusted R-squared	0.360899	S.D. dependent var	0.211327	
S.E. of regression	0.168943	Akaike info criterion	-0.661948	
Sum squared resid	3.225217	Schwarz criterion	-0.499344	
Log likelihood	46.71687	Hannan-Quinn criter.	-0.595914	
F-statistic	12.19985	Durbin-Watson stat	1.947622	
Prob(F-statistic)	0.000000			

Newey-West Test

Dependent Variable: LNPF

Method: Least Squares

Date: 02/28/18 Time: 23:02

Sample: 2006M01 2015M12

Included observations: 120

HAC standard errors & covariance (Bartlett kernel, Newey-West fixed
bandwidth = 5.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8.642241	1.783086	-4.846788	0.0000
IR	-0.204659	0.049979	-4.094872	0.0001
INF	0.042969	0.020866	2.059305	0.0417
TX	0.006524	0.009828	0.663810	0.5081
LNCC	1.619970	0.140574	11.52398	0.0000
R-squared	0.749721	Mean dependent var	7.050025	
Adjusted R-squared	0.741016	S.D. dependent var	0.422419	
S.E. of regression	0.214971	Akaike info criterion	-0.195853	
Sum squared resid	5.314446	Schwarz criterion	-0.079707	
Log likelihood	16.75115	Hannan-Quinn criter.	-0.148685	
F-statistic	86.12177	Durbin-Watson stat	0.710820	
Prob(F-statistic)	0.000000	Wald F-statistic	37.60037	
Prob(Wald F-statistic)	0.000000			

Appendix 5: Heteroscedasticity Test**Autoregressive Conditional Heteroscedasticity (ARCH) Test**

Heteroskedasticity Test: ARCH

F-statistic	32.20483	Prob. F(1,117)	0.0000
Obs*R-squared	25.68532	Prob. Chi-Square(1)	0.0000

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 02/28/18 Time: 22:51

Sample (adjusted): 2006M02 2015M12

Included observations: 119 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.022866	0.005733	3.988592	0.0001
RESID^2(-1)	0.450015	0.079299	5.674930	0.0000
R-squared	0.215843	Mean dependent var		0.042951
Adjusted R-squared	0.209141	S.D. dependent var		0.055319
S.E. of regression	0.049196	Akaike info criterion		-3.169357
Sum squared resid	0.283166	Schwarz criterion		-3.122649
Log likelihood	190.5767	Hannan-Quinn criter.		-3.150390
F-statistic	32.20483	Durbin-Watson stat		2.142091
Prob(F-statistic)	0.000000			

White Test

Dependent Variable: LNPF

Method: Least Squares

Date: 02/28/18 Time: 22:53

Sample: 2006M01 2015M12

Included observations: 120

White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8.642241	1.147201	-7.533330	0.0000
IR	-0.204659	0.041402	-4.943190	0.0000
INF	0.042969	0.023148	1.856303	0.0660
TX	0.006524	0.006015	1.084650	0.2803
LNCC	1.619970	0.094938	17.06338	0.0000
R-squared	0.749721	Mean dependent var	7.050025	
Adjusted R-squared	0.741016	S.D. dependent var	0.422419	
S.E. of regression	0.214971	Akaike info criterion	-0.195853	
Sum squared resid	5.314446	Schwarz criterion	-0.079707	
Log likelihood	16.75115	Hannan-Quinn criter.	-0.148685	
F-statistic	86.12177	Durbin-Watson stat	0.710820	
Prob(F-statistic)	0.000000	Wald F-statistic	75.84956	
Prob(Wald F-statistic)	0.000000			

Appendix 6: Model Specification**Ramsey Regression Equation Specification Error Test (RESET) Test**

Ramsey RESET Test
 Equation: UNTITLED
 Specification: LNPF C IR INF TX LNCC
 Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	3.838454	114	0.0002
F-statistic	14.73373	(1, 114)	0.0002
Likelihood ratio	14.58573	1	0.0001

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.608245	1	0.608245
Restricted SSR	5.314446	115	0.046213
Unrestricted SSR	4.706201	114	0.041282

LR test summary:

	Value	df
Restricted LogL	16.75115	115
Unrestricted LogL	24.04402	114

Unrestricted Test Equation:
 Dependent Variable: LNPF
 Method: Least Squares
 Date: 02/28/18 Time: 23:05
 Sample: 2006M01 2015M12
 Included observations: 120
 HAC standard errors & covariance (Bartlett kernel, Newey-West fixed
 bandwidth = 5.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-135.2759	63.03754	-2.145957	0.0340
IR	-2.255585	1.037533	-2.173989	0.0318
INF	0.490374	0.219889	2.230102	0.0277
TX	0.076374	0.034408	2.219648	0.0284
LNCC	18.52015	8.423509	2.198627	0.0299
FITTED^2	-0.757299	0.375435	-2.017123	0.0460

R-squared	0.778366	Mean dependent var	7.050025
Adjusted R-squared	0.768645	S.D. dependent var	0.422419
S.E. of regression	0.203181	Akaike info criterion	-0.300734
Sum squared resid	4.706201	Schwarz criterion	-0.161359
Log likelihood	24.04402	Hannan-Quinn criter.	-0.244133
F-statistic	80.07215	Durbin-Watson stat	0.802278
Prob(F-statistic)	0.000000	Wald F-statistic	25.39349
Prob(Wald F-statistic)	0.000000		

Appendix 7: Normality Test**Jarque-Bera Test**