DETERMINANTS OF BANK LENDING: A MALAYSIA CASE

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Thesis Submitted to
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia,
In Fulfillment of the Requirement for Degree of Master of Science (Finance)

ABSTRAK

Kajian ini bertujuan untuk menganalisis hubungan antara aktiviti ekonomi dan jumlah pinjaman bank di Malaysia. Kajian ini adalah terhad kepada institusi perbankan Malaysia dalam tempoh 1996 hingga 2010. Jumlah pinjaman merupakan pembolehubah bersandar. Sementara pembolehubah bebas terdiri daripada kadar faedah, inflasi dan indeks pengeluaran perindustrian. Objektif utama kajian ini adalah untuk menentukan sama ada aktiviti-aktiviti ekonomi mempunyai kesan kepada jumlah pinjaman bank di Malaysia.

Hasil kajian menunjukan hanya indeks pengeluaran perindustrian mempunyai hubungan signifikan dengan jumlah pinjaman bank di Malaysia. Ini menunjukkan bahawa setiap peningkatan dalam indeks pengeluaran perindustrian akan meningkatkan pinjaman bank di Malaysia.

ABSTRACT

This study aims to analyze the relationship between the economic activities and bank loans in Malaysia. This empirical analysis of this study is to Malaysian banking institutions during the period of year 1996 until the year 2010. The total loans were used as the dependent variable. The three variables including interest rate, inflation and industrial production index as independent variables. The main objective of this study is to determine whether economic activities have a significant effect of bank lending in Malaysia.

The result indicates that only industrial production index have a significant effect to bank lending in Malaysia. This shows that as increase in industrial production index will increase the bank loans in Malaysia.

ACKNOWLEDGEMENT

Firstly, thank to God at last I managed to complete this Project Paper. Here I would like to take this opportunity to express my sincere appreciation to everyone who have contributed time, energy, ideas and suggestion for me which without any of them this project paper might not be completed.

I am very thankful and grateful to my supervisor Dr. Nora Azureen bt Abdul Rahman for the comments, kindness, encouragement and support throughout the course of my study. I would like to express my thankful to my husband Khairul Ikhwan b Abd Wahab who have been a continuous sources of inspiration and encouragement. Thanks for giving a great support throughout the duration of my studies and unceasing prayers for my success.

Not forgotten, thanks to Norizan bt Samri, who helped, give support and provided insight and useful ideas, constructive comments, criticism and suggestion throughout the duration of completing this research.

Thank you

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CHAPTER ONE

BACKGROUND OF THE STUDY

1.0 Introduction

This chapter provides a brief discussion on the relationship between economic activities and bank loans. The chapter begins with the discussion about the background of the study and followed by the explanation about the problem statement in section 1.2. Section 1.3 explains the objectives of the study. While, section 1.4 discusses the research questions and section 1.5 explains the significance of the study. The scope of the study is discussed in section 1.6 and lastly section 1.7 explain the organization of the study.

1.1 Bank Lending

A bank is a financial institution and a financial intermediary that accepts deposits and channels those deposits into lending activities, either directly by loaning or indirectly through capital markets. A bank is the connection between customers that have capital deficits and customers with capital surpluses (Study mode, 2013). The basic operation of a bank is referred to as asset transformation. The bank uses customer deposits to finance loans to private persons and businesses that need money to borrow. The deposits which are an asset to the depositors are converted to loans which are an asset to the bank (Mishkin & Earkin, 2009). Furthermore, the value of the bank's assets (loans) may drop due to borrower becomes unable or unwilling to

service their debts (credit risks). Loans are the most important assets in banks and contribute the highest income to the banking institutions (Rose & Hudgins, 2013). Loan is also a primary source of revenue for many financial institutions such as banks[1]. If there is an increase in demand for loans every year, this shows that the bank's performance is good (Keeton, 1999).

Bank loans can be highly volatile and is often a function of a variety of factors (Joseph, 2013). When in a strong economy, interest rate is low and consumers enjoy increased spending power. However, in a struggling economy, more people are out of work and consumer confidence dwindles (Bacardi, 2013). As confidence decreases, less money goes back into the economy, less borrowing due to higher interest rate, thus causing banks become less profitable (Joseph, 2013).

As for Malaysia, the total loans for the period over 1996 to 1997 shows highly volatile (as shown in figure 1.0). The volatility of bank loan can affect the bank's profitability and decrease the bank's performance because bank loan contributes 70 percent of the bank's profit.

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[1] Investopedia (2013)
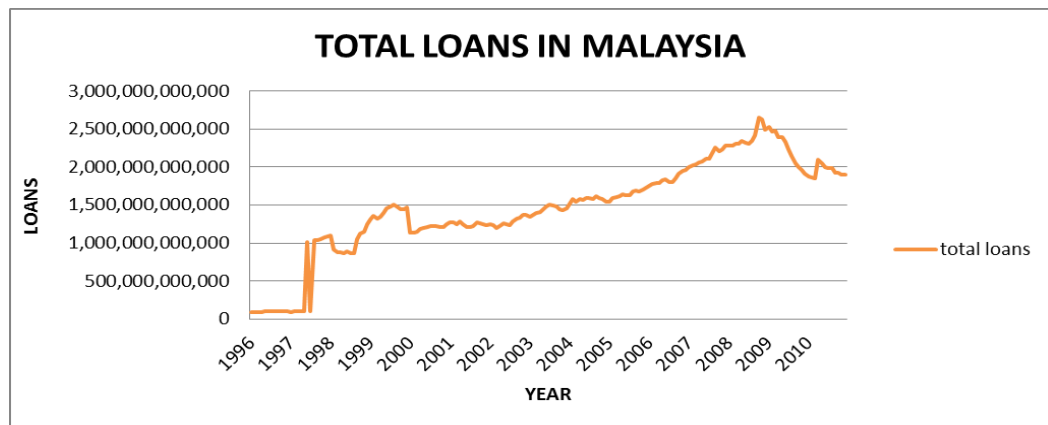
Figure 1.0
Total Loans in Malaysia

Figure 1.0 above presents the volatility of total loans in Malaysia. The figure shows the beginning of year 1996 until May 1997, the movements of total loans are constant. However, the total loan increase in June 1997 but drop significantly in July 1997 and increase back in August 1997. This is because the Malaysian economy was hit by the Asian Financial Crisis. The Asian Financial Crisis was a period of financial crisis that gripped much of Asia (Thailand, Indonesia, South Korea, Singapore and Philippines) beginning in July 1997 (Delhaisse, 1998).

The environment of bank loans was changed drastically in 1997 (Ibrahim, 2006). The sharp fall in the value of the Ringgit beginning in 1997, accompanied by the sharp drop in share prices on the Kuala Lumpur Stock Exchange, strongly affected the bank loans and overall performance of the banking sector[2]. Banking institutions had to accept slower loan growth, rapidly rising interest rates, increasingly tight liquidity conditions, tougher loan provisioning requirements and higher incidence of problematic borrowers (Lambonte, 2013).

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[2] Bank Negara Annual Report (2012)

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Significantly, in the aftermath of 1997, the total loans start increasing at the beginning of 1998. This is because Malaysian's banking sector implemented several initiatives driven from Bank Negara Malaysia. Many of these initiatives, such as the forced merger of smaller banks and finance companies with large, *'anchor'* banks- for example, Malayan Banking with Phileo Allied Berhad saw banks become stronger through consolidated market share and streamlined operations[3].

Although there was an increase in bank loans after the crisis, but concerns have increased due to the volatility of loans. The volatility of total loans would affect the bank's profitability. This is because loans contribute 70 percent of the bank's profitability (Bank Negara Malaysia, 2000). Keeton (1999) founds that the acceleration in loan growth could lead eventually to a surge in loan losses, reducing bank profits and sparking a new round of bank failures. However, Edward (2000) argues that as the economic expansion has continued and memories of past loan losses have faded, banks have become more willing to take risks.

The volatility of loans can be influenced by the economic factors (Joseph, 2013). The economic factors that determined the volatility of loan is crucial to be examined (Hopper, 1997). This is because the economic factors are variables that influence the bank's profitability (Rumler, 2000). The economic factors may be beneficial or detrimental and the same factor can have either positive or negative impact depending on the type of business is affected. Although economic factors create the climate in which a business operates, the success or failure of any company strongly depends on company resourcefulness and ability to adapt to these external economic factors (Joseph, 2013).

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[3] Banking and Financial Service recovery (2013)

1.1.1 Interest rate in Malaysia.

Interest is charged by lenders as compensation for the loss of the asset's use. In the case of lending money, the lender could have invested the funds instead of lending them out. With lending a large asset, the lender may have been able to generate income from the asset should they have decided to use it themselves (Investopedia, 2013). Changes in interest rates by the central bank will have an impact on the bank loan and deposit rates thus creating a flow through effect on their stock return. With official 3 month short term interest rates playing the leading roles as the instruments of monetary policy, the attention paid to money has declined (Mathai, 2002).

In traditional money view, the interest rate plays a crucial role in the monetary transmission mechanism. An expansion monetary policy would increase the money supply and then lead to decline in the interest rate. The lower interest rate thereby causes an increase in investment spending and also increase in loans in order to sustain the economic growth. When interest rates fall, the loans will increase, thus the profitability of banks would increase (Keeton, 1999). One of the most important basic objectives for any countries is to sustain high economic growth together with low inflation and maintain interest rate.

According to the Khan (2013), interest rate for the loan will drop once money supply increase due to more lender (bank) offering different rate. There has been considerable debate on the nature of inflation, interest rate and economic growth relationship over the past few decades. To maintain the economic growth, there must be a connection between economic activities and bank loans (Lamborte, 2013).

1.1.2 Inflation in Malaysia

In economics, inflation is a rise in the general level of prices of goods and services in an economy over a period of time (Investopedia, 2013). When the general price level rises, each unit of currency buys fewer goods and services. Consequently, inflation reflects a reduction in the purchasing power per unit of money. A main measure of price inflation is the inflation rate, the annualized percentage change in a general price index (normally consumer price index) over time (Mankiw, 2002).

Inflation reflects a situation where the demand for goods and services exceeds their supply in the economy (Hall, 1982). Its causes could be triggered by the private sector and the government spending more than their revenues or by shortfalls in output (Gerolamo, 1982). Price increases could also be triggered by increases in costs of production. For example, increases in prices of imported raw materials will cause inflation if not managed.

As for Malaysia, the inflation rate was recorded at 1.80 percent in May of 2013. Inflation rate in Malaysia is reported by the Department of Statistics Malaysia. Historically, from 1973 until 2013, Malaysia inflation rate averaged 3.74 percent and all time high of 23.90 percent in March 1974 and a record low of -2.40 percent in July of 2009. This shows that, the percentage of inflation is up and down and will influence the loans in Malaysia.

The inflation may reduce the bank loans due to the fact that the money is worth more presently than in the future and due to the increasing in price will increase the interest rates (Mankiw, 2002). When the banks impose higher interest rates, people would be more cautious in making loans. The expectation of banks impose higher interest rates would reduce economic growth because the economy needs a certain level of savings to finance investments which boost economic growth. Besides that, inflation can cause uncertainty about future prices, interest rates and the exchange (Gerolamo, 1982). As far as commercial banking is concerned, inflation erodes the value of the depositor's savings as well as that of the bank's loans (Gerolamo, 1982).

The uncertainty associated with inflation increases the risk associated with the investment and production activity of firms and markets[4]. The effect of inflation on investment occurs directly and indirectly (Hall & Robert, 1982). Inflation increases transactions and information costs, which directly inhibits economic development. For instance, when inflation makes nominal values uncertain, investment planning becomes difficult. Individuals may be reluctant to enter into contracts when inflation cannot be predicted to be making relative prices uncertain.

1.1.3 Industrial Production Index in Malaysia.

The industrial sector measures the amount of output from manufacturing, mining and utilities. Although these sectors contribute only a small portion of GDP, they are highly sensitive to interest rate. This makes industrial production an important tool for forecasting future GDP, economic performance and bank loans. The collapse of industrial production index led to slow down in bank lending (Guilio, 2009). This is

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[4] Inflation and its Effect on Investment by Donald Gerolamo (1982)

because when there are increasing in price for utilities, consumers cannot buy as much as they could previously. This was supported by Granger (1969), he found that collapse in industrial production index causes bank loans reduced. Besides that, industrial production figures are also used by central banks to measure inflation as high level of industrial production can lead to uncontrolled consumption and rapid inflation.

1.1.4 Overview of Malaysian Financial System.

The Malaysian financial system comprises a diversified range of institutions that serve the varied and complex needs of the domestic economy. At the heart of Malaysian banking is Bank Negara- the central bank of Malaysia. This is the apex of the monetary and financial structure of the country. The principal objective of the bank is to promote monetary and financial stability that is conducive to the sustainable growth of the Malaysian economy. The banking system, comprising commercial banks, investment banks, and Islamic banks, is the main source of financing that supports economic activities in Malaysia.

Banking institutions operate through a network of more than 2,000 branches across the country. There are also 14 representative offices of foreign banks in Malaysia which do not conduct banking business but undertake research, liaison services and exchange of information. Six Malaysian banking groups have a presence in 19 countries through branches, representative offices, subsidiaries, equity participation and joint ventures. Other than that, the Malaysian banking sector also has played a major role in the indirect financing. Indirect financing is where

borrowers borrow funds from the financial markets through indirect means, such as through a financial intermediary (Wikipedia, 2010).

1.2 Problem Statement

Loans are the most important assets in banks and contribute the highest income in banking institutions. (Rose & Hudgins, 2013). If there is an increase in demand for loans every year, this shows that the bank's performance is good (Keeton, 1999).

In Malaysia, total loans of the banking institutions over the years 1996 to 2010 shows the volatility of loans. The volatility of loans would affect the bank's profitability. This is because loans contribute 70 percent of the bank's profit. Furthermore, concern not only to the volatility of the loan but also to the types of economic factors that contribute to the volatility of bank loans in Malaysia. There are many economic factors that would affect the bank loan (Joseph, 2013).

Khan (2000) found that the interest rate for the loan will drop once money supply increase due to more lender (bank) offering different rate. Every change in interest rate will affect the inflation as well as bank loans (Khan, 2000). Besides, Rousseau and Wachtel (2002) found evidence of an adverse inflation might affect bank loans. Naturally, when inflation rates are very high, the usefulness of bank loans is eroded and there will be uncertainty about future prices. Furthermore, Guilio (2009) found evidence that the collapse of industrial production index led to slow down in bank lending. This is because when there are increasing in price for utilities, consumers cannot buy as much as they could previously.

Although there were previous studied that examine on the economic activities that influenced the bank loans, but the results are inconclusive. Furthermore, previous studies were done in developed countries and very limited in developing countries. The results thus are not applicable to developing countries such as Malaysia due to the different characteristics between developed and developing countries. Therefore, in this context is relevant to a researcher to investigate the relation between interest rate, inflation and the industrial production index and bank loans in Malaysia.

1.3 Objectives of the study

The objectives of this research are divided into two objectives such as follows:

1.3.1 General Objectives

The general objective of this study is to determine whether economic factors have a significant effect to bank lending in Malaysia.

1.3.2 Specific Objective

1. To examine the relationship between interest rate and bank lending

2. To analyze the relationship between the inflation and bank lending

3. To determine the relationship between Industrial Production Index and bank lending.

1.4 Research Questions

In this research, the researcher has come out with three research questions in order to achieve the objectives of the research. The research questions are as follows:

1. Is there any relationship between interest rates and bank lending?

2. Is there any relationship between the inflation rate and bank lending?

3. Is there any relationship between the industrial production index and bank lending?

1.5 Significance of the study

As the main purpose of this study is to identify whether economic factors have a significant effect to bank lending in Malaysia. This study will contribute to the banking literature on the factor that affect bank loan in Malaysia. This study is expected to extend the boundary of knowledge, specifically in the type economic activities that affect bank loans. This study also will explain the relationship between interest rate, inflation and industrial production index toward bank loans in Malaysia. The result of this study will provide insight to the regulator in formulating policies and guidelines.

1.6 Scope of the study

The study attempts to identify whether interest rates, inflation and industrial production index have a significant effect to bank lending in Malaysia. The study is based on time series data consisting of bank loans data. The data has been collected for 15 years from the year 1996 until 2010. The data gathered are from the International Monetary Fund (IMF) and the Monthly Statistically Bulletin of Bank Negara Malaysia. The dependent variable is total loans, and independent variables are interest rate, inflation and the industrial production index in Malaysia.

1.7 Organization of the study

The study is organized into five chapters. Chapter one provides an introduction of Bank Lending in Malaysia which includes content background of the study, the problem definition, and the objectives of the study, the significance of the study and scope of the study.

Chapter two provides literature reviews related to bank lending in developed countries. This chapter review of past research and clear definition of the study. Besides that, the literature review and opinion come from previous researchers related to the topic are presented. The literatures were collected from various sources such as journals, books, articles, internet and others. This chapter provides background in mutual fund research previously done and findings that leads to the existence of the study.

Chapter three explains the methodology which is data description and the method used. In this chapter, researcher briefly explain and discuss the type of

research, the method used in order to conduct the study and the research design used in the study.

Chapter four presents the empirical findings and discussion which are the result of the study. The difference of the result in comparison with the prior empirical evidences are highlighted.

Lastly, Chapter five is a conclusion of the study. This chapter highlight the contribution of the study and also explain the limitations while conducting this study. Further, considerations for future research are also included.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section provides a review of the literature on economic activities and bank lending. The study begins with how some borrowers depend on bank for their financing decision and then discusses on how economic activities affect bank lending.

2.1 Bank Lending

Taos (2000) defines bank loans as a process where a bank or financial house provides a loan or advance to a single borrower or group of individual or client. He found that bank loans contributes significantly to banks' profitability, with its disparities explained by the difference in their lending rates, lending policies and unavoidable competition that may be between banks.

Zagreb (2007) has found since the year 2000, as supply factors influencing credit developments have become more stable, the role of the demand factors has gained greater importance. Stronger IPI has led to an increase in loans via income effect, as increased income can sustain higher loan repayments. In addition, improving overall economic conditions, growing optimism by consumers and enterprises and sharp decline of interest rates have also strongly contributed to the most recent acceleration of loan growth (Keeton, 1999).

Calza *et al*., (2001) estimated loan demand on an aggregate level in the euro area. As explanatory variables, they used real GDP and real weighted short-term and long-term interest rates, and found long-run relationship between loans to the private sector and interest rates and GDP. In the follow-up study, Calza *et al.,* (2003) included a new measure of the cost of loans, obtained as a weighted average of bank lending rates, and extracted the information content of the loan overhang or shortfall on the future inflation, concluding that loans helps predict future changes in inflation.

Similar analyses of aggregate loan demand have been conducted by Hofmann (2001); he developed a similar model, although improved by adding property prices as an additional explanatory variable, following the fact that a rise in housing prices is usually accompanied by an increase in credit to the private sector. Based on a cointegrating VAR analysis, Hofman (2001) identified long-run relationship linking real credit positively to real GDP and real property prices, and negatively to real interest rate.

The study by Kiss, Nagy and Vonnák (2006) estimated a dynamic panel (Pooled Mean Group Estimator) model including GDP per capita, real interest rate and inflation of 11 euro area countries. This is to generate out-of-sample estimates for private sector credit-to-GDP ratios of the three Baltic countries and 5 CEE countries (Czech Republic, Hungary, Poland, Slovakia and Slovenia). They found that only Estonia and Latvia may have recently come close to equilibrium, while the other countries still have credit-to-GDP ratios below the estimated equilibrium levels.

Égert *et al*., (2006) also analyzed the equilibrium level of private credit-to-GDP ratio in 11 CEE countries (including Croatia), expanding the list of explanatory variables (adding the spread between lending and deposit rates, credit registries, government credit, house prices). Regarding overshooting the equilibrium credit growth, their results show that Croatia is the only country which might have reached the equilibrium credit-to-GDP ratio of 2004, with five analyzed countries close to equilibrium (Bulgaria, Estonia, Hungary, Latvia and Slovenia) and others still on the undershooting side in 2004.

Thakor (1995), examined small firms, found that it is more difficult and more costly to obtain loans. In addition, a special feature of banks is that they may have a comparative advantage over other intermediaries in information processing and monitoring that enables banks to lend to smaller firms at lower.

Similarly, Hancock, Wilcox and Peek (2003) found that small business rely on banks for loans more than do large businesses. As a result, small businesses may be more adversely affected when adverse shocks, such as reduced bank capital or higher interest rates, reduces the supply of bank loans. They use annual, state level data for 1990 until 2000 to estimate: 1) how much lower bank capital and higher interest rates affected businesses of various sizes, and (3) whether the effects were larger during recessions and when interest rates were high. They found lower bank capital and higher interest rates reduced bank lending, economic growth, employment and payrolls at businesses of all sizes.

Qayyum and Abdul (2002), use the yearly data of Pakistan from 1960 to 2000 to examine the bank lending by the small business in Pakistan. They were using the Error Correction Method (ECM) and Vector Auto Regressive (VAR) under the Granger causality model. The variables that had been used were industrial output, interest rate and inflation rate. He found that the bank loans are sensitive to the rate of interest. This implies that the monetary authorities can control money stock through the credit channel by varying the interest rates particularly in the short run.

In addition, Mousa (2010) makes a theory states that the bank lending can be determined by interest rates, either the interest rate is by market forces or fixed by the central bank. This is due to the rising of interest rate will tend to slow down loan demand and money supply growth. Mishkin (1995) agreed that the lower interest rate thereby causes an increase in investment spending and then a rise in both aggregate demand and output.

The economy's demand for loan schedule will be negatively sloped; it falls from left to right (Wen, 2009). As the rate of interest falls, more people prefer to become net borrowers. As the interest rate decreases, more households discover that the market rate of interest is below their personal rate of interest. At some very low rate of interest (for some it may be negative), even future-oriented people find that they prefer to consume more in the present and save less. For businesses, lower interest rates mean that more investment projects exist for which they can borrow funds, pay the interest, and keep some net profit. In short, as the rate of interest falls, other things constant, and the quantity demanded for credit rises (Wen, 2009).

2.2 Relationship between interest rates and bank lending;

Borrowing and lending in financial market depend to a significant extent of interest rate (Indiastuti, 2012). In economics, interest is a payment or the price paid for the use of loanable fund. In a real world economy in which money exists, interest is the amount of funds, valued in terms of money that lenders receive when they extend credit; the interest rate is the ratio of interest to the amount lent. Wouter, Steven and Guy (2006) pointed out that during a monetary tightening when interest rates are high and economic activity is low – bank rather invest in 3 months short term assets, such as business loans, that earn a higher return (because 3 months short term interest rates are higher) and are relatively safer, then invest in long term and risky assets such as real estate loans.

In the traditionally money view, interest rate plays an essential role in the monetary transmission mechanism (Mishkin, 1995). This is due to the fact of expansionary monetary policy would increase money supply and declining the interest rate (Mishkin, 1996). However, by the credit view financial intermediaries play the essential role in the monetary transmission mechanism as Bernanke and Blinder (1992) further found that a contractive monetary policy leads to a decline in both aggregate and economic activities with U.S data.

Castro and Santos (2010), study about changes in bank interest rates and credit. Knowledge of how the monetary authority is able to influence bank interest rates is crucial to a proper assessment of the macroeconomic impact of changes in their official intervention rates, both in terms of final magnitude as in respect of the path leading to this adjustment. In turn, loans contributes to a more efficient

allocation of resources in the economy, while assuming particular importance for the activity of banks.

However, Goh and Yong (2007) investigated that the interest rate plays an important role in determining the bank lending using Malaysian data. The, responses of bank lending to interest rate changes were limited after the structural shift which characteristics a period of flow interest rate rule represent the bank lending channel ineffective. They use augmented Dickey- Fuller and Phillips- Perron unit root test to examine the time series properties of the series used in this study. The results suggest that the stochastic error in the interest rate found before implementation of capital controls no longer exits after the measures were put in place. The other series used in this study includes GDP, CPI, aggregate loans and deposits. All these variables exhibited non- stationary behavior in levels but stationary is achieved after taking the first difference.

The traditional finance theory argues that as the size of a loan obtained from a financial institution increases, the interest rate on that loan rises to accommodate the increased risk associated with the loan (Moore & Craigwell, 2000). However, utilizing firm-level data on the Barbadian banking industry, it is observed that for all six banks studied especially the small ones, the smalls the loan's size (assets), the greater the interest rate applied and vice versa.

2.3 Relationship between inflation and bank lending.

The Consumer Price Index is the official measure of inflation (Investopedia, 2013). It is designed to measure the changes in the average level of prices of goods and services that private household's purchase. It is a very important economic indicator as its value use for the measurement of economic growth and economic well being. In practice, most CPIs calculated as weighted averages of the percentage price changes for a specified set, or *'basket'*, of consumer products, the weights reflecting their relative importance in household consumption in some period (Murphy & Garvey, 2008).

Mishkin (1995) suggests that rate of inflation in the demand for credit function had a significant implication as the rate of inflation implies that the policies that are successful in reducing the inflation will lead to decrease in the demand for credit or advances by the business sector. This is due to variation in inflation persistence serve as indicator of evolving central bank preferences suggest by Beechy and Ostelhom (2006).

Boyd (2000) measures bank lending in an economy – total bank lending to the private sector as a ratio to GDP. They found that the median inflation rate is 8.5 percent, with inflation rates ranging from 0.8 percent to 85.9 percent. They see that the amount of bank lending declines with inflation. Moreover, inflation affects bank lending even at relatively low inflation rates, the median ratio of bank lending to GDP in the second quartile is 10 percent smaller than in the first quartile and the median inflation rate in the second quartile is only 6.6 percent. Many people might be surprised that such a 'small' rate of inflation could cause such a fall in credit.

Li (2009) studies about the relationship between inflation, finance and economic growth. They use data from 90 countries between 1961 and 2005, they found evidence of a nonlinear effect of inflation on the link between finance and growth. While finance can stimulate economic growth in a low- inflation environment, it does not to do so when inflation exceeds a certain threshold. The findings are consistent with the hypothesis that when inflation is sufficiently high, financial intermediaries become less efficient in allocating resources and monitoring investment projects and that is turn lowers the productivity of capital.

However, Bakar and Tahir (2009) investigate about globalization and technological advancement has created a highly competitive market in the banking and finance industry. The performance of the industry depends heavily on the accuracy of the decisions made at managerial level. This study uses multiple linear regression technique and feed forward artificial neural network in predicting bank performance. The study aims to predict bank performance using multiple linear regression and neural network. The study then evaluates the performance of the two techniques with a goal to find a powerful tool in predicting the bank performance.

Data of thirteen banks for the period 2001-2006 was used in the study. ROA was used as a measure of bank performance, and hence is a dependent variable for the multiple linear regressions. Seven variables including liquidity, credit risk, cost to income ratio, size, concentration ratio, inflation and GDP were used as independent variables. Under supervised learning, the dependent variable, ROA was used as the target output for the artificial neural network. They found that an artificial neural network is the most powerful tool in predicting bank performance.

One of the most important objectives for any countries is to sustain economic growth together with low inflation. Datta and Mukhopadhyay (2011) found that there is a significant short run relationship between economic growth and inflation. The data are taken from the IFS and they used PP Unit Root Test, Vector Error Correction, and Vector Auto Regression. They found that there is exist short run causality between the variables and the direction of causality is from inflation to economic growth..

Tang (2001) estimates inflation models for Malaysia by considering the influence of bank lending. The unrestricted error- correction model (UECM) proposed in Pesaran *et al.* (2000) was employed as being appropriate for small sample analysis such as the present study which covered annual data from 1973 to 1997. The results of 'bound' tests confirmed a long run equilibrium relationship between inflation and its determinants, namely import price, money supply (M3), bank credit and real income. The estimated UECMs revealed that the important factors in the Malaysian inflation process are import price and real-income variables. It was found that concurrent fiscal policies had a major influence on the impact of the depreciation of the Naira of inflation. The UECMs appear to perform well and to provide an appropriate framework for forecasting the Malaysian inflation behavior.

Boyd, Levine and Smith (2001) describes mechanisms whereby even predictable increases in the rate of inflation interfere with the ability of the financial sector to allocate resources effectively. The evidence indicates that there is a significant, and economically important, negative relationship between inflation and both banking sector development and equity market activity. Further, the relationship is nonlinear. As inflation rises, the marginal impact of inflation on banking lending activity and stock market development diminishes rapidly. Moreover, they found

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evidence of thresholds. For economies with inflation rates exceeding 15 percent, there is a discrete drop in financial sector performance. Thus, while the data indicate that more inflation is not matched by greater nominal equity returns in low-inflation countries, nominal stock returns move essentially one for one with marginal increases in inflation in high-inflation economies.

Richard and Tao (2011) examine the relationship between the two bank survey measures and the stock market during 2004 to 2010 while also incorporating People's Bank survey data on Current Price Satisfaction and Future Price Expectation to take into account inflation concern. Thus, insofar as higher bank lending rates lead to concerns about overheating, they would expect a rising Banking Business Index accompanied by falling Current Price Satisfaction and rising Future Price Satisfaction. They found for this proposition in addition to testing for a causal relationship between the banking measures and stock market performance.

2.4 Relationship between industrial production index and bank lending.

The link between stock market development and financial intermediaries has been increasingly significant to determine economic development. For example, stock market development could influence economic activity through four mechanisms, namely investment spending (Tobin's q theory), household liquidity effects, household wealth effects, and firm balance-sheet effects (Karim, Lih & Zulkifli, 2012). Thus, a healthy economic growth is always accompanied with a healthy financial market as it transmits its influences to the real sectors. Nowadays, the increasingly emerging of financial intermediaries plays an important role in providing financial assistance for the expansion of corporate.

Applying the identification strategy employed by Discoll (2004) for the United States, the paper provides empirical evidence for the existence of a bank lending channel in the euro area. In addition and in contrasts with recent findings for the US, they found that in the euro area changes in the supply of loans, both in terms of volumes and in terms of loan standards applied for loans to enterprises, have significant effects on real economic activity. This highlights the importance of the monitoring of credit development in the toolkit of monetary policy and underpins the reasoning behind giving monetary and loan analysis a prominent role in the monetary policy strategy of the ECB (Cappiello *et al.,* 2001)

Karim, Lih and Zulkifli (2012) re-examines the interaction between bank loans and industrial production index in Malaysia. They use Granger non-causality test proposed by Toda and Yamamoto (1995) in both bivariate and multivariate frameworks and both using monthly and quarterly data in examining the relationship between the two variables. They found that there is strong evidence of no causality running between industrial production index and bank loans in all models and samples. This finding revealed that industrial production index and bank loans are independent. The predictability of industrial production index cannot be enhanced considerably through utilizing information on the bank loans.

Moreover, the role of banks in the economy has attracted enormous attention especially in assessing monetary transmission; however their relations to the health of financial markets have received very limited attention (Ibrahim, 2006). Kim and Moreno (1994) and Ibrahim (2006) are perhaps the only studies addressing the issue of the relationship between bank loans and Industrial Production index. Using a vector autoregressive consisting of five variables, Kim and Moreno (1994) find evidence for positive effects of IPI changes on bank lending in Japan.

However, Ibrahim (2006) evaluates the issue in the case of Malaysia using quarterly data. Employing time series techniques of cointegration, vector autoregression and the impulse response function consisting of six variables, he finds evidence that bank loans react positively to the increase in IPI but there seem to be no influence from bank loans to IPI.

Buyuksalvari (2010) analyzes the effect of seven variables of macroeconomics in the Turkish Stock Exchange Market using the Arbitrage Pricing Theory framework. The method used in processing the data is Multiple Regression with seven variable macroeconomic variables (consumer price index, money market interest rate, gold price, industrial production index, oil price, foreign exchange rate and money supply) as independent variables and Turkish stock market Index (Istanbul Stock Exchange Index-100) as the dependent variable. He found that interest rate, industrial production index, oil price, foreign exchange rate has a negative effect while the money supply has positive impact on ISE-100 Index returns. Moreover, inflation rate and gold price do not have any significant effect on ISE-100 Index returns.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

Research methodology refers to a description of data collection methods, sampling design and statistical technique used for data analysis. This section focuses on the research method and sample design, the subject studied, the administration produce of the questionnaires and measurement used in analyzing data. It shows the flow process of gathering the data start from determining the designing of the research used until the data is successfully gathered.

3.1 Theoretical Framework

Independent variables   Dependent variable

INTEREST

INFLATION

INDUSTRIAL
PRODUCTION
INDEX

BANK LENDING
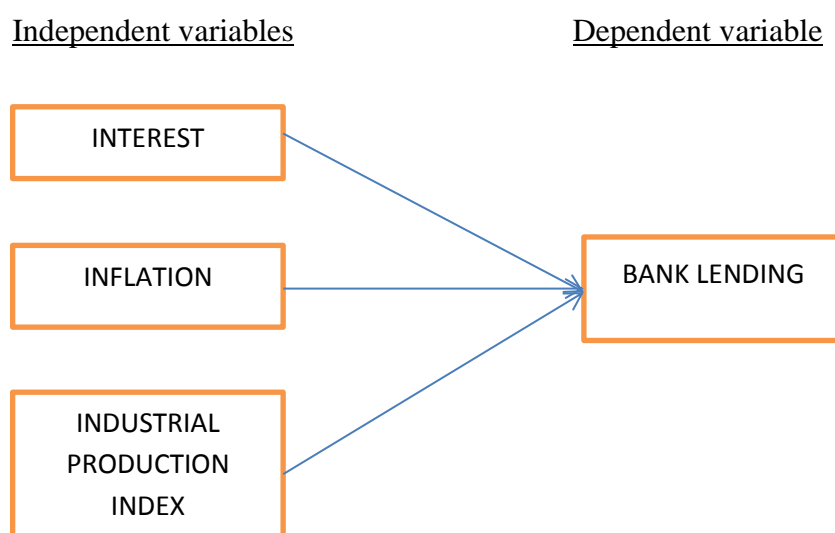
Figure 3.1:
Theoretical Framework

3.2 Hypotheses Development

The researcher is going to examine the relationship between interest rate, inflation and the industrial production index and bank loans in Malaysia.

Hypothesis 1:

H1: There is a significant relationship between interest rate and bank lending.

Hypothesis 2:

H1: There is a significant relationship between inflation and bank lending.

Hypothesis 3:

H1: There is a significant relationship between the industrial production index and bank lending.

3.3 Research Design

According to Malhotra (2007), research design is a framework or blueprint for conducting the marketing research project. It details the procedures necessary for obtaining the information needed to structure or solve marketing research problem.

3.4 Data Collection Method

Collection is the process of gathering, assembling and accumulation of information, there are two methods of data collection generating has been implemented, that is the primary data and secondary data. For the purpose of this study, the researcher used secondary data to complete this study.

3.4.1 Secondary Data

Secondary data are defined as the data collected for some purposes other than the problem in hand (Malhotra, 1999). Secondary data are very useful for the researcher to define the problem of the study and may interpret primary data more meaningful (Sekaran, 2003).

3.5 Data Collection.

The data are collected through Monthly statistical Bulletin Bank Negara Malaysia and International Financial Statistics book. Then the data collected will be keyed in and analyzed through the SPSS and Eviews programs after being coded in.

The present study explores the connection between bank lending and economic activities in Malaysia. Most of the empirical research on the bank lending made use of aggregate time series data (Bernade & Blinder, 1992). However, since the seminal work of Kashap and Sten (2000), the use of bank level data has been preferred in the literature to better deal with the identified problem. The sample of this study uses commercial banks and use time series data covering the period of year 1996 until the year 2010 from the database of Bank Negara Malaysia (Monthly statistical Bulletin Bank Negara Malaysia) and International Financial Statistics or IMF.

However the original time series were initially transformed by taking the logarithms. The data is estimated by ordinary least squares. As according to Granger (1969), all the series were checked for stationary due to the requirement of the Granger Causality test. Engle and Granger (1987) agreed that the Granger theorem and the error correlation mechanism (ECM) are the best method for the testing the data. For model estimation, ordinary least squares (OLS) method is used for two

reasons; to check the goodness of fit and to ensure that the OLS assumptions are not violated.

3.6 Definitions and measurement of variables.

The dependent variable in this study is measured by total loans. The explanatory variables include interest rates (Irate), inflation (Inf) and industrial production index (IPD). The interest rate is 3 months short term interest rate such to measure policy action. Inflation is measured by the monthly variation of the consumer price index calculated by Statistical service, Malaysia. The industrial production index is taken from IPI data, collected from Monthly Statistical Bulletin Bank Negara Malaysia.

Table 3.6.1 presents the summary of the variables, the definition of the variables, the measurement for each variable and previous studies that used same measurement.

Table 3.6.1
Summary of variables and measurements

Variables	Measurement	Previous studies
Bank Loan	Total loans taken from Monthly statistical Bulletin Bank Negara Malaysia	Moore (1988)
Interest rate	Average discount rates in 3 months average interest rates	Steven and Guy (2006)
Inflation	The researcher uses CPI as a proxy for Inflation	Akpansong and Babalola (2000)
Industrial Production Index	The researcher uses the IPI to examine the relationship between IPI and bank loan.	Fulop and Gyomai (2012). Karim, Lih and Zulkifli (2012).

Model Specifications;

Loan = B$_0$ + β$_1$Irate+ β$_2$CPI+ β$_3$IPI + ų

The explanation of the above variables is as follows:

Bank loans: Loans can be defined as an arrangement in which a lender gives money to a borrower, and the borrower agrees to repay the money; usually along with interest at some future points in time (Investors word, 2013). Moore (1988) found that total loans can contribute banks profit and if the prices and output cause bank loans, then it can be classified that the bank loans is an endogenous element that monetary authorities must forecast to control the money supply.

Interest rate: The interest rate can be defined as the amount charged, expressed as a percentage of principal by a lender to a borrower for the use of loans. The interest rate is measured by using 3 months interest rate.

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Inflation: Inflation is a rise in the general level of price of goods and services in an economy over a period of time. When the general price level rises, each unit of currency buys fewer goods and services. The inflation is measured by using the consumer price index as a proxy for inflation. The consumer price index was used as a proxy for inflation and as a perfect for examining the economic and loan growth (Chimobi, 2010).

Industrial Production Index: The industrial production index can be defined as economic indicator that measures the real production output of manufacturing,

mining and utilities. According to Fulop and Gyomai (2012), the industrial production index as a monthly indicator is widely used for assessing total loan in Malaysia.

3.7 Econometrics procedure

For the purpose the analyzing the data, SPSS and Eviews software is used to test the relationship between independent variables and a dependent variable. Moreover, assessing normality is used to describe a symmetrical, bell-shaped curve, which has the greatest frequencies towards the extremes (Gravetter & Wallnau, 2004). Normality can be assessed to some extent by obtaining skewness and kurtosis value. Therefore, in this paper multiple regression model, the coefficient of determination (R^2), T-statistic, F- statistic, Durbin Watson Statistic and Granger Causality were applied to examine and compare the impact of independent variables on the dependent variable.

3.7.1 Normality test

Before analyzing the estimated results using multiple regression models, the researcher begins by assessing normality which is used to describe a symmetrical, bell – shaped curve, which has the greatest frequencies towards the extremes (Gravetter & Wallnau, 2004). Normality can be assessed to some extent by obtaining skewness and kurtosis value. The Z value from skewness and kurtosis of the variables are calculated and compared to a specific critical value; the most commonly used critical values are ±2.58 (0.01 significant levels) and ± 1.96 (0,05 significant levels) (Hair *et al.,* 2006; Tabachnik & Fidell, 2007)

3.7.2 Unit Root Test

The standard unit root test has to be performed first to check the stationarity of data. However, it is often argued that the commonly used unit root tests, such as the augmented Dickey-Fuller test and the Phillips-Perron test, are not very powerful (Madala & Wu, 1999). However, these tests are in essence motivated to increase the power through pooling information across units. It is a test of stationarity or non stationarity that has become widely popular over the past several years. Unit root test considers the most accurate method to determine whether there are any relationship between the independent variables and a dependent variable.

3.7.2.1 Augmented Dickey Fuller (DF) Test

In conducting the Dickey- Fuller test, it was assumed that the error term μ was uncorrelated. But in case the μ_t is correlated, Dickey and Fuller have developed another test, known as augmented Dickey – Fuller (ADF) test. This test is conducted by 'augmenting' the preceding three equations by adding the lagged values of the dependent variable ΔY_t. To be specific, we use the equation. The ADF test here consists of estimating the following regression (Gujarati & Porter, 2009).

3.7.2.2 Phillips-Perron Unit Root test

An important assumption of the Dickey- Fuller test is that the error terms μ are independently and identically distributed. The ADF test adjusts the DF test to take care of the possible serial correlation in the error terms by adding the lagged difference terms of the regressand. Phillips and Perron use non parametric statistical methods to take care of the serial correlation in the error terms without adding lagged difference terms. In addition, Perron argued that the standard tests of the unit root test hypothesis may not be reliable in the presence of the structural changes (Gujarati & Porter, 2009).

3.7.3 Granger Causality Test

The Granger Causality test assumes that the information relevant to the prediction of the respective variables, GDP and M is contained solely in the time series data on these variables. The Granger Causality can be defined as a statistical hypothesis test for determining whether one time series is useful in forecasting another[5]. Normally, regression reflects more correlations but Clive Granger who won the Nobel Prize in Economics (1969) argued that there is an explanation of set tests as revealing something about causality.

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[5] Damodar N. Gujarati and Dawn C. Porter,(2009)5th Ed, *Basic Econometric*,Mc Graw Hill,Singapore;pg 653.

The example of equation by causality test;

Causality Test Industrial Production Index with Total Bank Lending.

$$IPI_t = \sum \alpha_i LOAN_{t-1} + \sum \beta_j IPI_{t-j} + \mu_{1t}$$

$$LOAN_t = \sum \lambda_i LOAN_{t-i} + \sum \delta_j IPI_{t-j} + \mu_{2t}$$

Causality Test Consumer Price Index with Total Bank Lending.

$$CPI_t = \sum \alpha_i LOAN_{t-1} + \sum \beta_j CPI_{t-j} + \mu_{1t}$$

$$LOAN_t = \sum \lambda_i LOAN_{t-i} + \sum \delta_j CPI_{t-j} + \mu_{2t}$$

Causality Test Interest Rates with Total Bank Lending

$$INTEREST_t = \sum \alpha_i LOAN_{t-1} + \sum \beta_j INTEREST_{t-j} + \mu_{1t}$$

$$LOAN_t = \sum \lambda_i LOAN_{t-i} + \sum \delta_j INTEREST_{t-j} + \mu_{2t}$$

It is assumed that the disturbances μ_{1t} and μ_{2t} are uncorrelated to each other. If the variables are two, it can be classified as bilateral causality. However, when dealing with more than two it be considered as multivariable causality and would be using the technique of vector autoregression (VAR).

3.7.4 Multiple regression models.

The multiple regression method is used to develop the analysis that can be described the way in which one variable is related to another. It derives an equation that can be used to estimate the unknown values on the basis of the known value on another variable. The results using this method give the predictable result of a dependent variable and independent variables.

CHAPTER FOUR

EMPIRICAL FINDINGS AND DISCUSSION

4.0 Introduction

In this research study, data were analyzed using the statistical package for Social Science (SPSS) for windows software and Eviews software and all the results are presented in tables. The basic objectives of analyzing the data are to getting a feel for the data, testing the goodness of data and testing the hypotheses developed for the research (Sekaran, 2003).

At this point, the data were analyzed towards identifying the relationship between interest rate and total loans, the relationship between the consumer price index (proxy for inflation) and total loans and lastly the relationship between the industrial production index and total loans in Malaysia. Before analyzing the estimated results using multiple regression models, the researcher begins by assessing normality which is used to describe a symmetrical, bell- shaped curve, which has the greatest frequencies towards the extremes (Gravetter & Wallnau, 2004).

4.1 Normality Test

Table 4.1.1
Normality test

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Loan	.296	180	.000	.626	180	.000
Irate	.222	180	.000	.840	180	.000
CPI	.150	180	.000	.843	180	.000
IPI	.146	180	.000	.887	180	.000

a. Lilliefors Significance Correction

Table 4.1.1 shows the two results after normality is run. The result for Kolmogorov-Smirnov is significant since the value is 0.00, however the sample is not normal. But, since the observations is 180, the violation of normality assumption should not cause any problems. Hair *et al.* (2006) and Pallant (2007) defined large sample size as more than 100 observations. Thus from the definition of large sample size, the sample size of this study is considered as large and hence, normality assumptions could be relaxed. Hair *et al.* (2006), Pallant (2007) and Tabchnik and Fidell (2007) indicate that in a large sample size, violation of normality assumption should not cause any major problems. This is because normality will not affect many of the results obtained in multiple regression analysis and generalizability of the results (Green, 2003).

4.2 Unit root Test

The researcher is investigating the non-stationarity (the presence of unit roots) in all variables by applying the Augmented Dickey–Fuller (ADF) test and Phillips Perron (PP) test. These tests examine the null hypothesis that the considered variable has a unit root versus the alternative hypothesis that the variable is stationary. However, a necessary but not sufficient condition for co-integration is that each of the variables should be integrated of the same order, and the order must be greater than or equal to one (Gujarati & Porter, 2009). The ADF tests results presented in table (5) clearly reveals that all the economic activities are integrated in order 1, 1 (1), i.e., they become stationary after first differencing.

Table 4.2.1
Testing for Unit Roots (Augmented Dickey-Fuller)

Variables	Level	First difference
Total loans	-3.3094	-14.413***
Interest rate	-1.7606	-13.4626***
CPI	-4.335	-22.2600***
IPI	-2.453	-8.7862***

***indicates that null hypothesis is rejected at the 1% level

Table 4.2.2
Testing for Unit Roots (Phillips- Perron)

Variables	Level	First difference
Total loans	-3.3094	-30.3202***
Interest rate	-0.9353	-8.7099***
CPI	-4.3357	-23.109***
IPI	-1.623	-13.493***

*** indicate the null hypothesis can be rejected at the 1 % level

Table 4.2.2 above show the rejection of a Unit Root hypothesis based on Mackinon's critical value of 1 percent . The result shows that Unit Root test can be rejected for all the variables, indicating that these variables have achieved stationary. The first column indicates; The null hypothesis of unit root can be rejected for all the series at the 1 percent of significant level whereas the second column indicates the first difference; run the regression from not on the original variables but on the differences of successive values of the variable.

The equation of level and first difference can be;

$$\Delta Yt = \beta_2 \Delta Xt + \Delta \mu t \quad \text{(equation 1)}$$

$$\Delta Yt = \beta_2 \Delta Xt + V t \quad \text{(equation 2)}[6]$$

Table 4.2.1 and Table 4.2.2 show the variables available for this study which had been analyzed by using Augmented Dickey-Fuller (ADF) and Philips- Perron (PP). If the unit root hypothesis cannot be rejected, then the trending series is a random walk with drift (Dickey & Miller, 1981). The inspection of the first difference of interest rates (Irate); industrial production index (IPI), and consumer price index (CPI) revealed that the presence of unit root was unlikely, since the mean and variance did not exhibit a trend. Thus, all these variables appear to be stationary at the first difference. As the unit root test were run to determine whether the series contained more than one unit root. The result shows that the null hypothesis of a unit root can be rejected for all the variables, indicating that these variables have achieved stationarity.

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[6]Equation 1 is known as level form and equation 2 is known as the first difference form

This is further supported by the Phillips Perron test results which show that the null hypothesis of a unit root can be rejected for all the series at the 1% of significant level. As a group, since all the variables achieved stationary after first difference, the researcher concludes that these variables are I (1) processed.[7] The result may allow the researcher to continue with the causality analysis. The ordinary least squares and the Granger causality test will only be conducted if the requirement of all series showing trends and all the data were transformed to induce stationary.

4.3 Granger Causality Test

Table 4.3.1
Pairwise Granger Causality tests for lags 1

Direction of causality	F-statistics	Probability	Lag
Loan → CPI	3.57998*	0.0607	1
Loan → IPI	3.22552*	0.0749	1
CPI → Interest	4.79750**	0.0303	1
Interest↔ CPI	3.05656*	0.0828	
Interest ← IPI	2.90641*	0.0907	1

**** indicate that the null hypothesis can be rejected at the 5% level*
**indicate that the null hypothesis can be rejected at the 10% level*

→	one way causality
↔	two way causality

---

[7] I = Integrated 1st difference

Table 4.3.1 shows that loan causes the CPI. It shows the result only one causality where the p- value gives small value and indicate that null hypothesis can be rejected at the 10 percent level. Besides that, the loan also causes IPI as the result shows only one causality where the p-value give small value and indicate that null hypothesis can be rejected at the 10 percent level. From the third column, it shows that there are two causality where CPI cause interest and interest also cause CPI. It is indicated that null hypothesis can be rejected at the 5 percent and 10 percent level. Lastly, interest also causes IPI where the result shows one causality between interest and IPI and it is indicating the null hypothesis can be rejected at the 10 percent level.

Table 4.3.2
Pairwise Granger Causality tests for lags 2

Direction of causality	F-statistics	Probability	Lag
CPI → Interest	2.66423*	0.0736	2

* indicate that the null hypothesis can be rejected at the 10% level

Table 4.3.2 shows that CPI cause interest. It is indicated that one causality where the p-value gives small value and the null hypothesis can be rejected at the 10 percent level.

Table 4.3.3
Pairwise Granger Causality tests for lags 3

Direction of causality	F-statistics	Probability	Lags
CPI → Interest	2.34001*	0.0767	3
IPI → Loan	2.43628*	0.0680	3

*indicate that the null hypothesis can be rejected at the 10 % level

Table 4.3.3 indicates that CPI cause interest. This is indicating that one causality where the p-value gives small value and the null hypothesis can be rejected at the 10 percent level. Whereas, for the second column, it is indicated that IPI cause loan and only one causality and the null hypothesis can be rejected at the 10 percent level. From the results, the researcher can make a relation that the overall causality predominant runs from the bank lending to all the remaining variables. It is the important finding as show which variables are independent.

4.4 Multiple Regression Analysis

The multiple regression analysis is conducted to examine the simultaneous effect of several independent variables on a dependent variable. It is to know which predictors are most important.

Table 4.4.1 shows the regression result of this study. The results described based on beta coefficient, T-statistic and probability value.

Table 4.4.1
Ordinary least square

Variable	Beta Coefficient	t-statistics	p-value
INTEREST	-0.149298	-0.995583	0.3250
CPI	-1.918598	-1.102783	0.2763
IPI	8.138411	3.831572	0.0004
R-squared	0.7989		
Adjusted R-squared	0.7849		
F-statistic	56.97		
Durbin- Watson	3.05		

Based on the result presented in Table 4.5.1, the result indicates the relationship between interest rate, inflation and industrial production index toward bank lending.)

The R^2 measure the degree of fitness of the regression line. R^2 can be measured as the proportion of variation independent variable is explained in the explanatory variables. It shows that 79.89 percent of the dependent variable is explained by the independent variable. For that reason, estimated coefficient can be accepted as a forecasting purpose.

The adjusted R^2 is often used to summarize the fit as it takes into account the number of variables in the model. Therefore, the results show the value is lower

(78.49 percent) than the R^2 value, it is an indication than the regression equation is fitted to the sample, and of limited generalizability. The overall significant or F-test gives the result of 56.97 which is good and significant as compared to the rule of thumb of 4. The probability value (p-value) of all variables show only the Industrial Production Index is statistically significant since the value is very low, which at 0.0004. From the result, it is clearly indicated that the researcher have passed the Durbin- Watson Test since the value is 3.05 above than the rule of thumb 2 and shows that the variable series no autocorrelation problem.

4.5 Discussion of Results

4.5.1 Industrial Production Index and Bank Lending

The Industrial Production Index (IPI) is significant to bank lending where the p- value give small value (p-value; 0.004) and significant at the 1 percent level. The industrial production index shows positive sign which is consistent with the economic theory. One unit increase in the industrial production index will increase bank loan by 8.138 units. Thus, the null hypothesis is rejected. This was supported by Granger (1969), where he found that the increase in the industrial production index will increase the bank loans.

The industrial production index also the economic indicator for the investor to make any investment because it is showing the growth and stability of the financial situation. When there are many investments, the financial system becomes strong and Levine (1998) convincing that the functionality and sound financial system can sustain the economic growth.

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This result is consistent with empirical evidence where the bank is prepared to extend loan when the economic growth (Bernake & Blinder, 1999).

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter summarizes according to the objectives of the study. The chapter begins with the overview of the research process in section 5.2. While, section 5.2 summarizes the conclusion of the study and followed by considerations for future research in section 5.3.

5.1 Overview of the Research Process

In examining the determinants of bank lending in Malaysia for the period 1996 until the year 2010, the present paper employs three independent variables which are Interest rate, Consumer Price Index and Industrial Production Index. Ordinary Least Square method and Unit root test were run for the dependent variable and independent variables.

This study use interest rate, inflation and industrial production index as independent variables and total loans as the dependent variable. For the purpose of analyzing the data, the normality test, unit root test, granger causality test and multiple regression analysis were used in order to analyze the relationship between economic activities and a bank loan in Malaysia.

5.2 Conclusion

Generally, loans are bank assets and are a primary source of revenue for many financial institutions such as banks. . If there is an increase in bank loans every year, this shows that the bank's performance is good (Keeton, 1999). This is because the loan is an asset to the bank and it can inject revenue interest to the bank. However, the loans in Malaysia may volatile or fall significantly. The volatility of bank loan can affect the bank's profitability because bank loan contributes 70 percent of the bank's profit. Bank loans can be highly volatile and is often a function of a variety of factors (Joseph, 2013).

Thus, in conclusion; the general objectives of this study are to examine the relationship between economic activities and bank lending in Malaysia. The regression result shows that only industrial production index is significant to bank lending where the probability value give small value. One unit increased in the industrial production index will increase the bank loans by 8.138 units.

Table 5.2.1
Summary of findings

Variables	Expected sign	Sign from finding	Results	p-value	Follow economic theory/not
Interest rate	-	-	-0.149298	0.3250	YES
CPI	+/-	-	-1.918598	0.2763	YES
IPI	+	+	8.138411	0.0004	YES

5.3 Contribution

5.3.1 Body of Knowledge

A bank loan is important to banking institutions because the loans contribute 70 percent of the bank's profit. However, the bank loans can be influenced by the economic factors (Joseph, 2013). The economic factors that determine the bank loans is crucial to be examined (Gul, Irshad and Zaman, 2011). This is because the economic factors are variables that influenced the bank's profitability. (Lewis, 2000).

According to Qayyum and Abdul (2002), they examine the demand for bank loan by the small business in Pakistan. They use industrial output, interest rate and inflation as the variables. They found that bank loans are highly sensitive to interest rate. Mishkin, (1995) agreed that the lower interest rate thereby causes an increase in bank loans.

Tang (2001) found that countries with high inflation rates have inefficiently small banking sector. Similar finding by Li (2009), the results are consistent with the hypothesis that when inflation is sufficiently high, the bank loans is reduced.

5.3.2 Policy Recommendations

Based on the findings, the following policy recommendations are made. Firstly, the interest rate must be allowed to operate through market mechanism to ensure that the interest rate is determined by demand for loanable fund and the supply of loanable fund. Secondly the industrial sector needs to spend heavily on research an development in order to discover the new way. Lastly, stabilization policy should be put in place by the monetary authority to control the inflation. Besides, the result of this study will also provide insight to the policy maker in formulating policies and guidelines on bank loans in Malaysia.

5.4 Limitations

However, there are limitations when conducting this study. Firstly, sources of literature on economic factors that affect bank loans are very limited. Many of the literature are from developed countries and the results also not relevant to the developed countries since there are different characteristics between developed and developing countries. Secondly, due to the data availability; the data for interest rate is not available for the period 1995 and below.

5.5 Consideration for future research

For future research, firstly the researcher can extend the period of study from 1996 until the year 2012; the longer the period can make the results more significant (Mishkin, 1995). Besides that, the study also can be done in an Asian country and not only focus in Malaysia. Furthermore, for the future research, the researcher can use a dummy variable to make the findings more practically significant.

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