

Effectiveness of Credit Channel of Monetary Policy Transmission Mechanism on Commercial Banks in Malaysia

Mohammad Farajnezhad, Suresh A/L Ramakrishnan

Abstract--- *This investigation efforts to prepare empirical indication on the significance of the monetary policy transmission mechanism particularly credit channel in a small open economy, based on the Malaysian information. This study would just analyse the commercial banking in Malaysia. Also, static panel data method will be using to evaluate the monetary policy. Yearly data will be using from the year 2008 until 2017. The sources of cross-sectional are liquidity, capital and bank size in various between banks. It discovers the fundamental relations between the bank loan and monetary policy variable using two major tests OLS, random effect model and fixed effect model. The results of the study represent there is a credit channel in the case of Malaysia. Therefore, as policymakers, they could apply the monetary policy in command to modification the credit supply to overcome inflation in the economy.*

Key Words: *Monetary policy transmission mechanism; Credit channel; Amount loan; Static panel data; Malaysia*

I. INTRODUCTION

One of the economic issues is the monetary policy transmission mechanism that all scholars have been paid consideration by numerous academics. This might be since of the matter and the self-motivated of the subject itself. Comprehension the monetary policy transmission mechanism may give the central bank the greatest efficient channel in showing monetary policy and in influencing economic activities. This is possibly the incentive mission for various central banks then there are several channels that can be channels for the monetary policy transmission mechanism. The aims of monetary policy transmission mechanism are to realize its goals, for example, supportable economic growth and introducing a steady price. It is significant for policymakers to comprehend the monetary transmission mechanism component with an impact of economic factors. The monetary policy transmission mechanism channel has been well recognized at least in theory.

The theory of transmission mechanism presented that the monetary policy transmission mechanism could affect real part activity through some channels, specifically interest rates channel, asset price channel, and credit channels[1][2]. Nevertheless, the part of bank loan has been given a unique consideration via the previous scholars in investigative how monetary policy transferred to the economic activity through the credit channel. Bernanke and Gertler [3] define dual conceivable subchannels of the credit channel theory,

explicitly balance-sheet channel (BSC), and bank-lending channel (BLC). The balance-sheet channel (BSC) has highlighted on the influence of the shift in monetary policy on the borrower's balance sheet, while, the bank lending channel (BLC) has concentrated on the probably impact of monetary policy activities on the loan supply via the banking structure.

The bank lending channel is relying upon sight that the bank action a critical part in the monetary structure for example, external sources of financing for the companies. Since the role of bank's confident borrower will extremely pertain on the credit of the bank and will not have admission into the loan markets except, the bank borrows for them. For example, claimed by Bernanke and Gertler [4], monetary policy could impact the bank portfolio behaviour over the bank asset in loan term, bank reserves and securities. Then, it is supposed that in the economic activity bank lending channel has a vital part in influencing. This is due to slightly fluctuations in the transmission mechanism of monetary policy situation will impact the bank action in both asset, and liabilities side. For example, a tight monetary policy will drag the reserves from the banking structure, which in turn the bank will limit the supply of loan, important to a decreasing in investment spending, and reduction in economic activity [5].

Banks role a vital part in the emerging economies of a country. They are the financial intermediaries which prepare a variety of monetary facilities the clientele. Historically, the purposes of commercial banks are receiving deposit and creation business loan [6]. Commercial banks have become powerful and provide a variety of investment goods services, for example, saving accounts, deposit accounts, and fixed deposit accounts.

Commercial banks are applying the funds deposited with depositors to make credits to borrowers and credit. Essentially, credits could be separated into three groups which are the short, medium and long-term. Short term loan typically has a maturity up to one year; the medium-term loan is one to three years, and the long-term loan has a maturity of three to ten years. In making credits to borrowers, banks could receive income from charging customers interests and services fees.

In this vision, recognizing the related channels via the influence of monetary policy transmission mechanism is transferred into the real economy has been one of the

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Mohammad Farajnezhad, AzmanHashim International Business School, UniversitiTeknologi Malaysia, Kuala Lumpur, Malaysia.

Dr Suresh A/LRamakrishnan, AzmanHashim International Business School, UniversitiTeknologi Malaysia, Kuala Lumpur, Malaysia

greatest interesting and critical duties in the manner of monetary policy transmission. A reasonable comprehension of the monetary policy channel could assistance to guaranteeing a viable impressive and performance of monetary policy transmission. Also, the post-Keynesian economists have highlighted the part of banking loans for example the important monetary policy. This feature has yet been really considered, and the one study that occurs in an emerging country is that of Malaysia.

The banking system in Malaysia is methods an essential share of a greater financial structure is comprised of the financial establishments and the monetary markets. The financial organizations could be assembled in the banking structure and the nonbank financial intermediaries. In the system of banking has completed the commercial banks and finance firms whereas the non-bank financial mediators include the development of financial institutions, insurance firms, the provident and pension funds, and other financial intermediaries.

The monetary policy transmission mechanism framework in Malaysia has consistently advanced close by the advance of its financial and economic structure. Malaysian authorities are in steady search of impressive monetary policy transmission mechanism performance. But, the quick rising of interest-free banking, nearby the available conventional banking system, might have difficult monetary policy transmission mechanism and added additional tasks to the evaluation of the efficiency of the monetary policy transmission mechanism in an economy.

The discussion of the monetary policy transmission mechanism needs better comprehend of the significance of banks' assets and liabilities in illumination difference in economic activities. Moreover, the existence of a bank considerate the influence in Malaysian economic on the bank circumstance presentation is important. The comparative rigidity of the twofold monetary policy transmission mechanisms channels could implicit with linked significance of banks' assets and liabilities in amplification economic implementation. The stability of the credit channel mostly responses upon the capability of the central bank to affect finance results by admiration for their borrowing activities. Therefore, the channel of credit needs that differences in deposits, activated with the monetary authorities, efficacy banks' lending results. This paper study the part of banks' loans and banks' liabilities in effecting numerous economic and financial activities in Malaysia. The investigation aids the significant part of the credit elements, i.e., credits delivered to banks, in causing fluctuations in the economic efficiency [7].

The credit channel is a possible applicant for a vital of monetary policy transmission mechanism in Malaysia economy owing to the serious part that the banking area significant in economic activities in a country. In the Malaysia economy, end on of 2006, 70 percent were in the form the credit of bank and just 30 percent was from the capital market. (Bank Negara Malaysia, 2007). Due to there is a significance, bank lending calculated for more than 100 percent of the economy at the end of 2006, total gross domestic product. There is a dynamic to emphasize that the significance of the banking area in tasks monetary policy impact has some recommendations of economic. Assume

that the banking area is significant in the transmission mechanism of monetary policy in a country, it is serious to verify the reliability of the banking area owing to its excessive effects on the economy. In such conditions, certifying the strength and flexibility of the banking structure is an important pre-condition to the complete economic stability.

To this end, the current examination attempt fills up the current gaps in this extent of the investigation with study the represent of monetary policy transmission mechanism of credit channel using different approaches, statics model namely fixes effect model and random effect model, for instance. This paper likewise could take the test of investigating the distributional influence of monetary policy transmission mechanism and economically active. This study goal to assess the significance of bank loan as a monetary policy transmission channel in the Malaysian economy. Based on the data and through the study goals at highlighting main matters to certify a calculated preparation and effective implementation of monetary policy in Malaysia.

This article, therefore, searches for analysing the effectiveness of the monetary policy transmission mechanism procedure for commercial banks in Malaysia by consideration assumed to the credit channel of the monetary policy transmission. This work also includes the loan availability of monetary policy transmission by utilizing the fix effect model and random effect. However, as commercial banks in Malaysia become added critically significant than ever, the size and phase of the transmission process can probably be affected to assuredly extend.

To the best of our knowledge, this study is the first investigation that files the section of balance sheet factors recommended hold in after crisis lending. This work also clearly the examination of the interaction between capital and liquidity. This study linking on the part of banking characteristic in the monetary policy transmission to the real economy [3, 8-12]. The contribution to this variable is to utilization microdata on to bank lending from Malaysia and research a bank lending channel via opposite tight conditions. Another contribution is to analyse the bank balance sheet channel through which the asset of bank balance sheets influences the capability of the lending channel from a novel image. The goal of this work is to critically study the ways in which to broaden the scope of available research by measuring the impact of economic activity as well as monetary conditions on credit and account availability based of bank balance sheets in Malaysia.

This study purposes to examine the credit channel in the transmission mechanism of monetary policy in Malaysia with apply the disaggregated bank-level. With investigative the linking of bank lending channel in economic activity, it could process about a knowledge to the monetary expert in planning a suitable monetary policy transmission mechanism to realize their definitive goals (for instance, sustainability of economic growth). The importance of bank

lending channel will be studied with assessing the credit supply purpose in static panel data structure. Also, monetary policy transmission mechanism factors, some macroeconomics elements (GDP, and inflation), and bank features (bank size, liquidity, and capital) are similarly deliberate in assessing the credit supply function.

In this paper research whether fluctuations in reliable contexts are in unity by bank lending channels. This work thinks whether bank lending channels have been effective in Malaysia during 2008-2017, a time of steady macroeconomic situations, monetary growth. This paper has chosen to focus on credit channels and usage of commercial banking.

In this study, I pursue [10, 11, 13-15] and other researchers who use disaggregated data on bank balance sheets to examine the credit channel of the monetary policy transmission mechanism. Confidently, I discover how the changes in bank characteristics create the heterogeneous reply of credit supply to monetary policy tightening in Malaysia.

This paper describes the current literature by analysing the effectiveness of monetary policy transmission in a small open economy (i.e. Malaysia) at the macroeconomic level. This paper is carried out usage of commercial banks from 2008 to 2017. This article empirically assesses the emphases on the impact of economic activities as well as the monetary situation on credit accessibility on Malaysia. The aims of this paper are (i) to study if detrimental economic situations and a monetary policy influence bank loan supply in Malaysia (ii) to examine if credit availability depends on bank balance sheet strength in Malaysia. Prior results on the effectiveness of monetary policy an open economy SVAR method have been incomplete. In the Malaysian framework, the prior revisions through Azali and Matthews [16], Ibrahim [17] and Tang [18] were insufficient in illumination the efficiency of monetary policy as a stabilization policy. This paper makes an important contribution by improving the prior work in some scopes by other technique, for example, random effect. Primary, this study sheds novel light on the effect of economic activities as well as monetary policy transmission condition on credit availability. New study examination mostly on instantaneously study the impact of economic activities and monetary policies on the credit channel in Malaysia country and it accounts for bank balance sheet strength. Therefore, it is expected that the Malaysian macroeconomic variations and monetary policy will be susceptible to the exogenous shocks from the external environment.

Hence, we hope this study would contribute to the policymakers for the creation of a great policy to stabilize the economic situation and the banking system. Then, the target of this study is to analyse the credit channel as one of the significant transmission mechanisms of monetary policy. We similarly requirement to study whether deregulation could produce a respond outcome on the loan supply.

In this study pursues response inquiries such as (a) do detrimental economic situations and a monetary policy influence credit supply in Malaysia? (b) does a decrease in loan availability depend on bank balance sheet strength in Malaysia? The rests of the paper are prepared in the following way: Section 2 provides a literature review on the

bank lending channel. Section 3 to discussing the methodology utilized in this paper Section 4 discusses the empirical outcomes and results of this paper. Lastly, Section 5 conclusion and summarizes the main results of this paper.

II. LITERATURE REVIEW

Empirical studies on the significance of bank loan in the monetary policy transmission mechanism method usually concentration on the connection as well as the influence of conflicts in the banking area on the aggregate economic activity. The significance of bank loan in diverting monetary policy transmission mechanism impacts to the real economy is well-documented in the literature. The monetary policy transmission specific bank lending channel importance the part that banks play in a financial market where data is incomplete.

There is a way for recognizing of significant credit channel appear in the monetary policy transmission mechanism. There is a vision on bank-dependent borrowers that only bank loan for replacement sources of money who have a resource. There is a sensitivity in the assets-liability management of banks because shocks of money should be shifted to the real economic activity via bank-dependent producers in the country. A tight monetary policy drags assets from the banking structure and limits the credit supply funds thus that it raises the external finance premium of bank-dependent debtor companies.

Mostly, literature considers the factors of conventional bank lending created on macroeconomic and microeconomic elements. Microeconomic variables denote the factors exotic to the banking industry such as bank size, bank capitalization, collateral security, capital ratios, provision for losses liquidity and asset quality. Then again, macroeconomic variables denote to general elements, which contain monetary policy factors money supply and interest rates, economic growth, inflation rate, exchange rate, and stock market index, among other variables, among different factors.

Monetary authorities investigate the monetary policy transmission mechanism to accept appropriate monetary policy outlines. Prosperous monetary policies rely upon correct clarifications of the connection among policy size and policy aims. The literature displays that disagreement with policy activism depends on the disagreement that there is insufficient data about these connections [19]. So, studying the monetary policy of the transmission mechanism is significant for both researchers and policymakers.

The significant part of the in the monetary policy transmission mechanism of the credit channel could be pursued after via Bernanke and Blinder [9]. The advantage literature review of the credit channel could be found in Mateut [20], and Egert and MacDonald [21] claimed that there are three circumstances for the being of the bank lending channel, specifically (1) credit and open-market bonds necessity not be complete replacement, (2) the central bank could affect the bank loan through shifting the measure of assets, and (3) incomplete price modification that keeps



any monetary shocks from existence unbiased. With apply the traditional IS-LM model, where IS curve is substituted with the credit-commodity curve (CC), they shaped CC-LM model where a state that monetary policy could affect economic activity through credit channel, For instance, a tight monetary policy via a rise in interest rates will gutter the bank reserves and deposit, and then, the bank will agree to the credit to the commercial and consumer.

Here is well recognized into the literature that greatest of the research linking to the credit channel is concentrated on bank aggregate statistics. For instance, Bernanke and Blinder [22] have utilized novelty into three-month treasury bills rate to obtain exogenous moves in monetary policy and create that the converse connection among loan of the bank and tight monetary policy, and consequently have maintained the credit channel vision in the US economy. Nevertheless, they are some paper have usage the disaggregated data bank in examining the being of the bank lending channel mainly in the advanced countries, particularly in the US economy (for example, [11, 15, 23-25], in the UK scope [13, 26], Euro area [27, 28]).

In Eurozone, the part of banks in monetary policy transmission mechanism has been examined by Ehrmann, Gambacorta [29] in France, Germany, Italy, Germany and Spain; Brissimis and Delis [30] in Greece; Gambacorta [13] in Italy; Den Haan, Ramey [31] in Netherlands; Kaufmann, Lehner [32] in Austrian; Farinha, Marques [33] in Portuguese, and Topi and Vilmunen [34] in Finland. All papers have found that the being of bank lending channel in the Eurozone.

The overall result in greatest of the investigation is the tight monetary policy mains to a decrease in loan of bank, which in turn has a negative influence on the economy. For instance, [15, 23] found that the growth in bank credit in the small commercial banks was greatest receptive to monetary policy. An additional work with Kishan and Opiela [24] has separated banks via two classify specifically asset and liquidity found that the minimum greatest illiquid banks were greatest receptive to monetary policy shocks. This result has helped with Kishan and Opiela [24] by separating banks giving to the size and capital strength. Though, Ashcraft [25] has asked the being of the bank lending channel in the US qualified. Once applying bank statistics, he recognized a variance reply supply of credit to fluctuations in the federal fund rate between the bank.

But, when combined the bank statistics up to the public level, the credit market share of joined banks inclines to lessen the negative answer supply of credit to fluctuations in monetary policy. Further, the aggregate elasticity of output to bank lending is not significant. Research in the UK and the Eurozone has found similar results, which is the relationship part of bank lending channel in monetary policy transmission. For instance, Altunbaş, Fazylov [27], find that the significant part of bank lending in Italy and Spain, and Huang [26] displays that a bank lending works in the UK done dropping loan of the bank to small bank-dependent firms.

More current evidence on the being credit supply monetary policy transmission mechanism is presented with Kashyap, Stein [35] They preserve that a tightening of monetary policy can influence the external financing

combination of firms with favoring commercial paper issuances versus loan of the bank. This might still specify that a contractionary monetary policy could depend on to encourage a decrease in the supply of loan and since investment particularly when commercial paper issuances are not a nearby substitute as might be correct in the situation of Malaysia.

Malaysia is a comparatively small country located in South-East Asia by a geographical part of 330,000 square kilometers. valuable in natural resources, it has a multi-racial population including Malays and other original people (62.4%), Chinese (29.1%), Indians (8%), and Others (0.5%). Basically, created private creativity by the administration considering a dynamic part in charting out countrywide growth policies, the Malaysian country is one of the rapidly rising in Asia. Usually, over the past two decades, there has been a stable increase in the bank credit ratio to GDP in Malaysia shiny the increasing importance of the banking structure as the main source of financing for economic activity and investment.

The definitive objective of Malaysian monetary policy is to achieve stability of price alongside by the additional macroeconomic aims of maintainable output growth, a steady exchange rate, a less unemployment rate and steady financial markets.

In Malaysia, a few investigations identifying with monetary policy transmission were directed. These papers essentially examined to find the significance of a specific channel comparative to the others. Prior studies of Malaysian monetary policy transmission monarchism have mostly concentrated on investigating the impact of monetary policy on output variations. The methodological approaches of these investigations have changed from bi-variate underlying connection study ([36]; [37]) to further progressive multivariate cointegration methods [17, 38-40] and VAR and SVAR methods [16, 18, 41].

The study by Ghazali and Rahman [7], display that the direct influence of monetary policy on Malaysian bank activities reduces as financial markets advanced and liberalized. Therefore, the phases of growth and improvement of the financial classification can use an important effect on the method banks respond to policies realized with the monetary authorities a significant feature of the credit channel is the connection among a bank's liabilities which is in the regulator of the Central Bank and the bank's lending activities.

The study of Kassim, Majid [42] tried to distinguish significance of the monetary policy transmission of banking sector procedure in an emerging country. Using the ARDL model for long-run connection between factors and desire reply purposes and variance decomposition investigation for the short-run association between the elements, the result displays that equal bank deposits and credit performance vital parts in the monetary policy transmission process in the economy, signifying indication for the money endogeneitytheory of post-Keynesian economists. Another study by Kassim, Majid [42], the finding presented that effect of



monetary policy transmission shift is additional susceptible to Islamic banks than the conventional banks.

There were several investigations that applied VAR technique to examine the impact of monetary policy shocks. For instance, [16-18, 41, 43-45]. Considerable of these studies suitably responsible for deficiency of theoretical basis to classify the Malaysian monetary policy context and thus applied the Choleski's a theoretical method instead. Azali and Matthews [16] demonstrated the Malaysian monetary policy background applied a closed economy SVAR method, mostly to investigate the impact of financial liberalization. They employ a completely definite macroeconomic model parallel to that in Bernanke [46] to arise by the essential classifying limitations in the SVAR model.

According to Fung, Iizaka [41] applying a quasi SVAR method similar as Bernanke and Mihov [47] simultaneous SVAR model, to investigate the impact of monetary policy shocks in East Asian countries plus Malaysia economy. The U.S. factors had been involved in the SVAR model as exogenous elements.

In addition, there are some examinations have studied the presence of the bank loan with applying aggregate data (for instance, [7, 48, 49]). Ghazali and Rahman [7] have examined part of banks loan particularly in commercial bank area, liabilities and financial factors in the scope of Malaysia. With utilizing the bank data and a normal test of Granger causality, the authors found that important bank loan that is loan of bank in effecting the economic factors. This result aid the dynamic part of bank lending channel in shifting the macroeconomic elements. In contrast, this result supports the dynamic bank loan in shifting the macroeconomic factors. In contrast, the study of Goh and Yong [49] being of a bank-lending channel by applying the ARDL method. With applying monthly data from 1990 to 2004, the result is deposit tends to decrease in reply to the monetary policy contractionary shocks. But the banks can defend the client credits from the decrease in deposit complete a modification in the liquid financial tool. The conclusion government that the tight monetary policy did not reduce growth in credits.

Nevertheless, another study of bank lending in Malaysia is investigated by Said and Ismail [50] with employ a static panel data outline from 1994 to 2004, the authors found that the correlation of bank-lending channel in Malaysia. But their finding is an uncertain sense of the coefficient of interest rates on credit of the bank is massive. Consequently, it is predictable there is a misspecification error in researchers' pattern. As claimed by Baltagi [51], the maximum economic connection is dynamic in nature. Therefore, through applying dynamic panel data outline in assessing supply of loan function, it is supposed that monetary authority could get a suitable consequence for the policy determinations.

Another study by Said and Ismail [52], examined bank lending channel in Malaysia economic. The authors utilized bank data and practical fixed effect cross-sectional model via GLS assessment. The finding supported the reality of the bank lending channel, then they appeared to propose that size and capital are unrelated to the implementation of the

bank lending channel. Also, Sayuti [53], to an examination of monetary policy transmission via the Islamic financing channel in Malaysia economy with structural VAR. The research recognized the attendance of the bank lending channel in Malaysia. Similarity Goh and Yong [49] usage bank-level data and applied ARDL model in result the sign for the reality of bank lending in Malaysia prior to and later the organizational move in the interest rate. The consequences are dissimilar in these two periods. Prior the move, tight monetary policy effect supply of credit which in turn maintained the bank lending vision. Still, it had an incomplete strength afterward the change, which showed the lower efficiency of the channel.

Move over, the work by Karim, Harif [48] examined effects of monetary policy on bank level specifically, commercial banks in Malaysia economy to several economic areas with applying the VAR model. The finding presented that the tight monetary policy gives a negative effect on bank lending to economic sectors. However, the effect of bank lending to economic areas similarly replies otherwise to monetary policy shocks. An alike examined with Ibrahim [17] supported possible differences in the influence of monetary policy on real sectoral activities in Malaysia.

According to another study by Said and Ismail [50], to study how variations in monetary policy efficacy the financing behaviour of Islamic banks in Malaysia with a panel data methodology by GLS. The finding recommends that monetary policy has an important effect on size of financing advanced via Islamic banks. Though, authors find that bank features have no part in causal the banks' response to monetary policy, which does not assistance to classify the financing channel.

Another article by Ibrahim [17], to study the sectoral influence of a monetary policy shock through applying a VAR in a closed economy such as Malaysia. The finding maintained the real impact of shocks of monetary policy. For instance, the finding realized that real output decrease throughout monetary tightening. In fact, several areas, for example, manufacturing, construction, and finance, appear to fall more than aggregate production in replying to the interest rates shocks. In short, those sectors that are very seriously reliant on bank loans are more delicate to monetary policy shocks. In contrast, a work with Tang [18] has investigated the comparative significance of the monetary policy transmission mechanism channel with an open economy by applying the VAR model. The results complete that the interest rates channel plays an essential part in affecting output and inflation. However, the asset price channel is also related to illumination output inconsistency, then for inflation, the exchange rate channel is more appropriate than the asset price channel.

Discussion on monetary policy transmission in Malaysia case have concentrated only on factors such as bank loans or commercial banks argued on the private sector Azali and Matthews [16], without picture detailed reference to factors characterizing capital market progresses. Additionally, there does not look to seem investigated that clearly contemplate

the implication of monetary policy on the output gap subsequent the gradually significant part played via the Malaysian capital market. Even though Ghazali [54] decided the case for a decreased efficiency of monetary policy in light of financial liberalization and novelty for Malaysia, this specific work assessed the reply of banks portfolio distribution to shift in Bank Negara Malaysia's, policy interest rate.

Another of the empirical study by Goh and Yong [49] which accepts the ARDL method to analyse the vital of a monetary policy transmission mechanism specifically bank lending channel in the Malaysian case. The study is not supportive of the bank lending channel in monetary policy transmission impact owing to the capability of the banks to counterbalance the decrease in liquidity by adjusting their liquid financial tools. The study by Kassim, Majid [42] assumes the VAR technique to examine impact of monetary policy shocks on the balance sheet objects of Islamic banks, in contrast to conventional banks. The result of paper is that the Islamic banks' deposits and financings are more receptive to monetary policy activities, related to their conventional counterparts. And, Hussin, Muhammad [55] similarly accept the bank-level method. The authors applied yearly data on the Islamic banking in Malaysia from 1997 to 2010. The authors find the monetary policy shifting are irrelevant indecisive the level of Islamic financing in Malaysia.

More recently research on the credit channel of monetary policy transmission mechanism in Malaysia case, there are some study.

According to Khan, Ahmad [56], study bank competition for the monetary policy transmission via the bank lending channel in five ASEAN economics with GMM method from 1999 to 2014. The finding showed that a decline in the level of competition strengthens the monetary policy transmission via the bank lending channel. The weakening/strengthening impact is stronger for extremely capitalized, extremely liquid and large banks.

Another study by Caporale, Catik [57], in the monetary policy transmission mechanism specifically bank lending channel with apply using a two-regime threshold vector autoregression (TVAR) model from 1994 to 2016. The finding shows Islamic credit is lower receptive than conventional credit to interest rate shocks in equally the high and low growth governments. By contrast, the relation vital of Islamic credit shocks in moving output growth is much bigger in the low growth regime, their impact being positive. These findings could be interpreted in terms of the characteristic structures of Islamic banks.

According to Ibrahim [58], to investigate a dual banking system of Malaysia and bank lending behaviour with a business cycle by applying GMM method during of period 2001–2013. The finding displays that the total credit via banks to be pro-cyclical in adaptation through current investigation. Nevertheless, once they are separating the financing and lending behaviour of conventional and Islamic banks, the cyclicity of bank lending looks to be fact only for conventional banks. Certainly, there are shows that the

Islamic banks in overall and the complete Islamic banks in specific could even be counter-cyclical in their financing choices.

The examiner by Majid and Hasin [59] to experimental discover the relationship between Islamic banks' financing and monetary policy impact to the real economy applying ARDL method from 1991 to 2010. The result shows that Islamic financing is unevenly distributed to economic sectors in reply to monetary policy shock. Also, the monetary policy shock and financing shock is not similarly affected the economic sector.

The study by Majid and Hasin [59], examines the response of consumer loan to interest rate moving via the VAR method from 1998 until 2006 in Malaysia. This investigation displays that consumer loan contracted to pursue a monetary policy shock. For example, reversed via the miserable ACL for around a year, this condition could be understood as consumers existence poorly affected by liquidity restrictions owing to the tight monetary policy. A depressed consumer credit would consequence in a feebler consumer demand, therefore a lesser aggregate demand and a decrease in the general output. In this respect, because of the negative effect of high-interest rate on consumer demand and the economy in overall, it should be valuable to have a protection net to defense consumers from the adversative impact of high-interest rate environment.

According to Asbeig and Kassim [60], to examines the pattern of Islamic banks in moving monetary policy via the bank-financing channel in Malaysia. The finding displays insignificant variances across banks, created on size, capitalization and liquidity levels, and therefore do not support the existence of a bank-financing channel in Malaysia. The investigation contributes a deeper realizing of the part of Islamic banks in the monetary policy transmission mechanism in Malaysia.

According to Karim and Karim [5] to study the operation of monetary policy throughout the interest rates aiming in a small open economy for stance Malaysia via structural VAR (SVAR) with period 1995 until 2009. The finding demonstration that in interest rates aiming, monetary policy is important in moving macroeconomics factors. This result recommends that monetary policy has a sign as a stabilization policy in a small open economy due to, the world oil price shock has produced an important influence in effecting domestic monetary policy implementation and macroeconomic elements in the Malaysian economy. And, domestic monetary policy, also credit supply or interest rates have played an important part in stabilizing economic activity (output and inflation).

The study of Said [61], to examines the effect of monetary policy on bank behavior under the Basel controlling basis applying a dynamic GMM period from 1999 to 2007. The experiential finding indicates that policy rates on credits and market rates are a significant effect on regular rates of credit supply. This has a suggestion that Malaysian banks can set their own costs on credits as they are affected by the adjustment in the market rate and policy rate.

According to Muhammad, Sulaiman [62], this study purposes to scale whether the



effectiveness of monetary policy transmission for Islamic banks is affected of Islamic financial system in Malaysia with VAR method, concentrating on the time from 2000 to 2012. The finding indicates that the pass-through effect through profit channel of Islamic banks is still high and large. Although failing study could be detected as Islamic banks convert more analytically vital in the financial system.

The study of Akhatova, Zainal [63], reasonably assesses the credit channel of monetary transmission of Islamic banks and conventional banks with applying SVAR description over the period 2000 to 2013. The finding approves of Islamic financing in the monetary transmission mechanisms. Also, the searching replies to interest rate shocks look to fluctuate from those with the conventional credit. More definitely, Islamic financing falls directly subsequent positive interest rate shocks or monetary tightening. However, the important replies of conventional credit tend to be late.

According to Ibrahim and Shah [64], to study the relations among bank lending and macroeconomic situations in Malaysia country. With apply VAR method from 1991 until 2011. The finding displays long-run positive linkage among real output and both real bank loan and real stock prices. Also, by indicating, adjustment of real output in replies to loan extension or stock price rise and feeble exogeneity of the last two factors, equally loan and stock prices could be determinedly higher than their fundamental values.

According to Abdul Karim, Ngah [65] to examine the relationship between bank-lending channel (BLC) in Malaysia with applying GMM method in period of 1993 to 2008. The empirical indication has specified that monetary policy shocks are remarkably and negatively affected the banks' supply of loan and then has supported the being of bank lending channel in Malaysia. Moreover, some bank-specifications elements specifically bank liquidity and bank capitalization are similarly statistically important in affecting the supply of loan.

The study of Zaidi and Fisher [66], to the examiner of monetary policy with an SVAR method and the sample period, is 1982 to 2008 in case of Malaysia. The result indicates that unexpected monetary policy describes very slight of the inconsistency in output and inflation at all estimate horizons then does account for some short-run inconsistency in the real exchange rate. Foreign factors describe greatest of the inconsistency of output and inflation, however domestic loan is significant for output at the one-quarter horizon.

According to Tan and Goh [67], to study the relation effectiveness of monetary policy in Malaysia in the during 1980-2005 with VAR and GMM methods. The authors find a more effectiveness of monetary policy period of the pre-1990:3 but the post-1990:3 time poses much effort for the behaviour of monetary policy. Innovations in the financial market seemed to have led to lower output inconsistency. Additional, when the real interest rate is complete a function of financial disintermediation, the real interest rate seemed to have lost its vital in influencing real factors in the post-1990: 3 periods.

This study of the relation significance of monetary transmission mechanism channels is imperative for a few

reasons. Firstly, it gives important data to policymakers about the joining between the financial sectors and the real parts. Therefore, its assistance policymakers to formularize monetary policy transmission mechanism that could successfully task to accomplish the favourable results. Secondly, data about the monetary policy transmission mechanism may give the policymakers a good determination of goals. For instance, if the credit channel (via the loan) is observed to be more significance (asset price channel) in monetary policy transmission shock, at that point the policymakers would represent more attention on the loan supply and elements affecting them than concentrating on the price activities. Thirdly, a better understanding of the transmission mechanism might help policymakers explain the path of the financial factors and propose appropriate policy preparation. For instance, if there is an increase in asset prices, information via policymakers of how this may affect prices and difference factors, would propose a policy improved suitable to find the wanted economic result.

As observed, an experiential indication on the comparative significance of the several monetary policy transmission mechanism channels in Malaysia is incomplete. Specifically, the gap of researching in examining the vital of the credit channel in Malaysia is supplementary glaring. A significant part of the study on the being of a credit channel in the monetary policy transmission mechanism has been complete for advanced countries and there is a require developing this study in an emerging economy. There is a gap of a document on the credit channel in the Malaysia economic. But there is another matter which is yet to be examined, for example, distributional impact of monetary policy transmission mechanism on credit channel to several economic sectors and efficiency of the channel regarding size, capital and liquidity of commercial banks. To fill up the area left, the current investigation takes the work of discovering the subject of the distributional impact of monetary policy transmission of credit channel as and economic activities.

III. RESEARCH METHODOLOGY

Amount loan is the results of management choices. The belief of this examination is to utilize complete statistics about loans, though investigating the effect of the economy as well as monetary situations employ the banks' balance sheets channel, evaluate amount loan, as well as a value that is unobserved applying fixed effects. The use of amount loan as well as fixed effects is mainly critical in the exploration supply of loan and loan demand. Based on the literature, the influence of bank characteristic and macroeconomic variables on the credit channel of monetary policy transmission machine will be measured. The overall model used to define the main elements of the credit channel of the monetary policy transmission mechanism, is the static liner panel data model contain pooled OLS, fixed effect model, and the random effect model.

In this section, we apply a method same to [10, 14, 15, 24], However, we examined to study investigation of the



credit channel for the commercial banks in Malaysia between 2008 and 2017. They apply a component decided as he bank loan. They accessible that the factors are the decline in periods of financial crisis and tight monetary policy. Giving to bank- lending channel theory, the essential issue in the subject of the procyclicalbehavior is going via bank lending in the macroeconomic circle alike of Bernanke and Blinder [22], Hence, in this part considers to which bank lending relies upon either demand or supply factors. Obviously, there is a robust relationship among demand for loan and the business cycle. The model established under is assessed applying the random effects panel information method. This is set out as follows, with index i denoting to bank i and t to historical t. Our empirical model for lending was given as:

$$\text{amount loan}_{it} = \beta_1 \Delta IR_t + \beta_2 \Delta GDP_t + \beta_3 \Delta INF_t + \beta_4 (\Delta IR_t \times CAP_{t-1}) + \beta_5 (\Delta IR_t \times LIQ_{t-1}) + \beta_6 (\Delta GDP_t \times CAP_{t-1}) + \beta_7 (\Delta GDP_t \times LIQ_{t-1}) + \beta_8 (\Delta INF_t \times CAP_{t-1}) + \beta_9 (\Delta INF_t \times LIQ_{t-1}) + \varepsilon_{it}$$

where $i=1, \dots, N$ and $t=1, \dots, T$ and where dependent variable y_{it} is the of amount loans measured as the first order difference of the log of the bank loan i in time t. The path of bank characteristic contains liquidity, capitalization, and size. Liquidity is a measurement with apply ratio cash to total assets. Capitalization is proxied with the ration of equity to total assets. Size is definite the log of the bank's total assets, the macro is a vector of two macroeconomic factors, the growth rate of real GDP and inflation rate.

To examine the credit channel, this paper adopts the cross-sectional importance of the accessibility of the loan availability based on the balance sheet [11] for the bank lending channel [68]. Next shows the theoretical study [69, 70], work focusses on bank capital ratio. Simultaneously Kashyap and Stein [11] and [68], this paper similarly conditions the bank liquidity ratios [10, 13, 14]. In this study, we control for macroeconomics elements with real GDP growth, interest rate, and inflation rate. This paper includes the interaction linking between the monetary policy transmission and these three bank specifications (Size, LIQ, and CAP) to measure the effect of these structures on lending rely on monetary policy.

A. Estimation Approaches

To validate whether the sample information is normally distributed, the statistics are assessment utilizing several methods, for example, the skewness test and kurtosis and the value of mean and median. If a sample is normally distributed, the value of skewness will be alike to zero, the value of kurtosis would be three and the value of mean would be the similar as the value of its median.

Therefore, the Generalised Least Square technique is rather suitable then predictable to efficiency a much better outcome. The standard unit root test must be done first to check the stationarity of our data. But it is frequently claimed that normally used unit root tests, for example, the augmented Dickey-Fuller test and the Phillips-Perron test, are not very influential. As a reply, panel unit root tests were expanded. These tests are interested to rise the influence via combining data across units. The statistical software STATA version 14 is using for data examination. The data analysis contains approaches for stance, the descriptive data, correlation analysis, multivariate regression ordinary least square (OLS) regression model, the assumption for multiple regressions analyses and robustness analysis. To accept the suitable panel estimator, Hausman test number is applying to compare random effects with the fixed effects model. In all the assessments drew in this study. The random effect was the preferred model.

B. Data

To examine the effectiveness of the monetary policy transmission mechanism process for commercial banks in Malaysia via credit channel, we utilization an unbalanced bank-level dataset for 41 commercial banking. This exemption usages yearly commercial bank balance sheet statistics from 2008 up to 2017. The total number of observations in the model is 266 samples. Precisely, there is 66 listed number of commercial banks in bank scope but there are 41 commercial bank data available in the database. The bank characteristics data set such as amount loan, asset, liquidity, and bank capital has been gathered from bank scope database. However, the data of macroeconomic factors as GDP, inflation and interest rate has been extracted from the International Monetary Fund. The bank-characteristics factors and macroeconomics elements are computed applying the methods in Table 1.

Table 1: Model Variable Descriptions

| Variables | Definition |
|---------------------------------|---|
| Dependent variable | |
| Amount loan it | The basic amount of the loan plus any additional financed closing costs or A maximum loan amount defines the total amount that a borrower is approved to borrow |
| Independent variables | |
| Macroeconomics condition | |
| ΔIR_t interest rate | Annual change of the country 3 -month interbank interest rate. Calculated as the nominal interest rate minus inflation in country j at time t. |
| ΔGDP_t | Annual change of the country Real GDP growth (YOY) in country j at time t. |
| Δ Inflation rate | Annual change of the country Consumer Price Index, the (end of year) change in CPI in country j at time t |



| | |
|----------------------------|---|
| Bank characteristic | |
| Bank capital it | The ratio of bank equity over total assets of the bank |
| Bank liquidity it | The ratio of liquid assets (cash and balance with central bank, and loans and advances to governments and credit institutions) held by the bank over the total assets of the bank |
| Total assets it | The total assets of the bank |
| ROA it | The total net income over assets of the bank |

IV. ESTIMATING FUNDING

In this section, involves description data and main characteristics showed to surely an unbiased estimation.

A. Estimating statistics

In Table 2, N defines the general observation, and n define the number of banks. The word of min and max columns showing as minimums and maximums of the statistic.

Table 2: Descriptive Statistics

| Descriptive Data of Malaysia | | | | | |
|--|-----|----------|-----------|---------|---------|
| Variable | Obs | Mean | Std. Dev | Min | Max |
| Dependent Variable | | | | | |
| Amount loan | 255 | 13294.95 | 23953.31 | 0.19128 | 119543 |
| Independent Variables | | | | | |
| Panel A: Bank level Determinants | | | | | |
| Total assets | 263 | 20190.39 | 36662.01 | 6.99308 | 188405 |
| ROA | 238 | 1.209916 | 1.467306 | -1.23 | 14.45 |
| Liquidity Ratio | 265 | 0.382038 | 0.9879152 | 0.00733 | 15.29 |
| Capital Ratio | 263 | 20.23837 | 20.70701 | 3.12 | 99.46 |
| Equity | 259 | 20433.36 | 36893.49 | 6.99308 | 188405 |
| Panel B: Country level Determinants | | | | | |
| Δ GDP | 259 | 10.94932 | 41.40716 | -12.372 | 306.132 |
| Δ INF | 261 | 0.262425 | 1.289881 | -4.588 | 3.414 |
| Δ IR | 261 | 0.027778 | 0.2319326 | -1.25 | 0.75 |

Table 4.2 presents the descriptive data for the dependent variables, amount loan, the hypothesis variables (total assets, ROA, liquidity, capital, GDP, interest rate and inflation) and the correlated control variables in Malaysia. The data created are included of the mean, the standard deviation, the minimum, and the maximum. The following are important descriptive statistics to highlight. In table 4.2, It shows that the average amount loan as a dependent variable of Malaysia banks in the sample amounted to 13294.95 \$ million. The maximum and minimum value of amount loan 119543 \$ million and 0.19128 million respectively, with a large standard deviation of 23953.31. The significant difference between the two values and the large value of the standard deviation from the mean (13294.95 million) may indicate the extent to which banks in the Malaysia economics is heterogeneous in terms of their sizes, measured by total bank loan.

It displays that the bank's determinants such as mean total

assets, ROA, liquidity ratio, capital ratio and equity of Malaysia banks in the sample amounted to 20190.39, 1.209916, 0.382038, 20.23837 and 20433.36 million respectively. With a maximum value of 188405, 14.45, 15.29, 99.46 and 188408 million and a minimum value 6.99308, -1.23, 0.00733, 3.12 and 6.99308 million respectively. The big difference between the two values and the large value of the standard deviation from the mean (36662.01 and 36893.49 million) may indicate the extent to which banks in Malaysia are heterogeneous in terms of their sizes, measured by the total bank assets and equity).

It shows that macroeconomics variables, GDP, inflation and interest rate as an independent variable of Malaysia in the sample amounted to mean 10.94932, 0.262425 and 0.027778 million respectively. Based on our analysis in this study, the result of the analysis showed that the mean and median value is not symmetric for each element verified.



Table 3: Correlation matrix

| Correlation matrix- Malaysia | | | | | | | | | |
|------------------------------|-------------|--------------|------------|-----------------|---------------|---------|-----------|-----------|------|
| Variables | Amount loan | Total assets | ROA | Liquidity Ratio | Capital Ratio | Equity | ΔGDP | Δ INF | Δ IR |
| Amount Loan | 1 | | | | | | | | |
| Total assets | 0.9970*** | 1 | | | | | | | |
| ROA | 0.0232 | -0.0312 | 1 | | | | | | |
| Liquidity Ratio | -0.1262 | -0.3395*** | -0.1553*** | 1 | | | | | |
| Capital Ratio | -0.29*** | -0.2982*** | 0.397*** | 0.3471*** | 1 | | | | |
| Equity | 0.9971*** | 1*** | -0.0303 | -0.1215** | -0.3021*** | 1 | | | |
| ΔGDP | -0.0583 | -0.0587 | 0.0291 | -0.0096 | -0.0381** | -0.0597 | 1 | | |
| Δ INF | 0.0049 | 0.009 | 0.0806 | 0.0357 | 0.0308 | 0.0087 | 0.0963 | 1 | |
| Δ IR | 0.4784 | 0.0096 | 0.073 | 0.0822 | 0.0334 | 0.0068 | 0.4644*** | 0.4784*** | 1 |

Table 3 indication that correlation variables with amount loan as a dependent variable based on credit channel and independent variables in Malaysia country. There is some significant and some of them insignificant correlated with some of the bank variables and macroeconomic variables. The correlation coefficient between total assets and amount loan is significantly and positively (0.9970. $p < 0.1$). Also, the correlation coefficient between capital ratio and amount of loan is significantly and negatively. ($-0.29 < 0.1$).

Amount of loan is insignificantly and positively correlated with ROA, Δ inflation and Δ interest rate but negatively correlated with liquidity ratio and Δ GDP.

A. Finding of the characteristics Tests

In table 4, it has been shown results of specification tests. Also, it is displayed containing tests for the consistency of the random effect model and the existence of heteroskedasticity, multicollinearity and a white test.

Table 4: Results of the Specification Tests

| Variables | Pooled OLS | P- value | Random effect | P- value |
|-----------------|--------------|----------|---------------|----------|
| Total asset | 0.6399541*** | 0.000 | 0.6475229*** | 0.000 |
| | (0.0036274) | | (0.0074736) | |
| ROA | -74.01288 | 0.570 | -72.78385* | 0.295 |
| | (130.213) | | (69.43948) | |
| Liquidity ratio | -2259.367*** | 0.001 | -2537.755*** | 0.000 |
| | (701.8451) | | (646.9817) | |
| Capital ratio | 2.961097** | 0.756 | 12.60585** | 0.037 |
| | (9.519025) | | (6.027723) | |
| Δ IR | -1410.835** | 0.200 | -1977.092*** | 0.000 |
| | (1097.609) | | (519.393) | |
| Δ GDP | 2.479498 | 0.533 | 3.423316* | 0.100 |
| | (3.973644) | | (2.079188) | |
| Δ INF | 118.1223** | 0.338 | 112.5548** | 0.029 |
| | (123.12224) | | (51.57638) | |
| Δ IR. Cap | 25.38032 | 0.672 | 48.76977 | 0.058 |
| | (59.91582) | | (25.68533) | |
| Δ IR. Liq | 1946.233 | 0.512 | 2006.317 | 0.114 |



| | | | | |
|---|-------------------------|-------------------------|-------------|-------|
| | (2961.573) | | (1270.639) | |
| Δ GDP.Cap | 0.246601** | 0.958 | 0.1233568* | 0.555 |
| | (0.471762) | | (0.2087766) | |
| Δ GDP. Liq | -20.38206 | 0.413 | -11.35937 | 0.303 |
| | (24.84396) | | (11.03725) | |
| Δ INF. Cap | -1.564479* | 0.797 | -2.421796 | 0.343 |
| | (6.063153) | | (2.556139) | |
| Δ INF.Liq | 26.48336* | 0.852 | 35.15598* | 0.561 |
| | (141.951) | | (60.53012) | |
| Constant | 722.1212 | 0.033 | 412.9614 | 0.347 |
| | (337.1257) | | (439.4947) | |
| White Test | $\chi^2 = 172.69^{***}$ | | | |
| Multicollinearity test (VIF) | Mean VIF=1.72 | | | |
| Modified Wald test for group-wise Heteroskedasticity | $X^2 = 238.67^{***}$ | | | |
| Breusch and Pagan Lagrangian multiplier test for random effects | | $\chi^2 = 488.64^{***}$ | | |

In table 4, represent pooled OLS, random effect model regression with the p-value. In each model of regression has displayed the various result, with an indication of the company of bias. The white test clearly finds the significant existence of bank effect. consequently, combining the data mains to biased estimates. Earlier testing how the unobservable effects could be the remedy. first, test the efficiency of pooled OLS model. The finding represents that the P-value is significant So, H_0 is pooled OLS which is accepted and then H_1 rejected which is fixed effect model. For random effect model, H_0 is pooled OLS has rejected it then H_1 accept which random effect model. Breusch and Pagan Lagrangian multiplier test for random effects is significant. So, the normal Hausman test is not valid. Then, the effectiveness of pooled OLS and the consistency of the hypotheses analysing are discussable. For certainly validity data conclusion, it is common in the literature to rely on "robust" standard errors that developed by (Arellano, 1987; Huber, 1967; White, 1980). If the standard errors are heteroskedastic then residuals are valid.

Based on Shapiro-Wilk W test, the p-value is significant, H_0 is rejected and then H_1 is accepted. We could conclude that all samples of the data are not normally distributed. Based on the rule of thumb, our observations in this study more than 100 ($N > 100$), the distribution of residual tend to normal distribution and normality is not an issue. Random effects model has been chosen as our specification test in order to get more powerful and parsimonious model. From

the loan equation that credit channel does seem to be statistically significantly correlated to the fluctuations in the stance of the monetary policy.

V. FINDING

Table 5 shows the finding of the analysis definite to evaluation the effect of monetary policy transmission mechanism specific credit channel on our data of commercial banks. The key evaluation denotes the baseline for the various circumstances, specifically capital, liquidity, and size. The table displays that the coefficient of interest rate is slight and significant. This indicates that the commercial banks are clarified with other macroeconomic variables. In this finding not in row with Muhammad et al. (2012) and consistent by the result of Said and Ismail (2007). The result of this research could figure out in the framework of monetary policy transmission mechanism implementation in Malaysia economics. The finding could similarly reflect the change of monetary policy transmission mechanism in Malaysia, which permits the commercial banks to expand their assets and professionally achieve their liquidity to privet instead of liquidity due to with monetary policy processes. Therefore, monetary policy transmission mechanism has not been using violently, for example the BNM believes that there are restrictions to what monetary policy transmission could be can realize in contending increasing price levels (BNM Annual Report, 2007).

Table 5: Results of the Random-effects GLS regression

| Result of the Random effect Model of Malaysia | | |
|---|---|-----------------|
| Variable | Coefficient | Standard errors |
| Independent Variables | | |
| Panel A: Bank characteristics | | |
| Total assets | 0.6475229*** | (0.0074736) |
| ROA | -72.78385 | (69.43948) |
| Liquidity Ratio | -2537.755*** | (646.9817) |
| Capital Ratio | 12.60585** | (6.027723) |
| Equity | equity omitted because of collinearity | |
| Panel B: Country level Determinants | | |
| ΔGDP | 3.423316* | (2.079188) |
| ΔINF | 112.5548** | (51.57638) |
| ΔIR | -1977.092*** | (519.393) |
| Panel C: Interaction terms | | |
| LIQ R-1 Δ IR | 2006.317 | (1270.639) |
| CAP R-1 Δ IR | 48.76977* | (25.68533) |
| LIQ R-1 Δ GDP | -11.35937** | (11.03725) |
| CAP R-1 Δ GDP | 0.1233568* | (0.2087766) |
| LIQ R-1 Δ Inflation | -35.15598* | (60.53012) |
| CAP R-1 Δ Inflation | -2.421796** | (2.556139) |
| R^2 | within = 0.9311 between = 0.9954 overall = 0.9946 | |
| Constant | 412.9614** | 1.25 |

Notes: ***, **, * indicates significance at 1%, 5% and 10% respectively

The coefficients of total assets and capital ratio exhibit statically significant positive impact on credit supply. For liquidity ratio, despite an extremely insignificant coefficient, the linking is negative. For ROA, the coefficient is statically insignificant with credit supply. And, equity is removed due to collinearity. Capital ratio and total assets for the commercial banks are extremely significant in their relationship by the banking levels. This could be comprehensive in the situation of the dramatic progress in the commercial banking sector during the previous ten years.

There is a positive and statistically significant in the change real GDP effect on the size of commercial banks. This finding is compliant by furthestmost researches showed on Malaysia, for instance [40, 42, 64, 71]. Also, the two outstanding macro factors, there are inflation and interest rate statistically significantly confirmed after the monetary policy. This is signifying that fluctuations in monetary policy transmission mechanism can affect the credit channel in the present period, whereas it raised change inflation at coefficient value 112.5548 and inters rate declined one year after at coefficient value -1977.092.

There are statistically significant in the coefficients of the interaction term proposing bank answers to monetary policy transmission mechanism are an effect with the size, liquidity and capital situation of commercial banks. The coefficients

of interaction capital ratio with change interest rate and capital ratio with change in a real GDP are statistically significant. This can be exposed that, when rising 1 percent in interest rate (monetary contraction), it would decline the amount of loans to -1977.092 percent. This recommends how the changes in monetary policy could move the credit supply, which is reliable by credit channel. The discrepancy between this research and other works showed on the commercial in Malaysia is possibly owing to assuming various monetary policy indicators and various statistics sources. It is also important that the inconsistency between different sources of data could be main to fluctuating consequences.

VI. CONCLUSION

Following g the method proposed by (Gambacorta, 2005; Jiménez et al., 2012; Jiménez et al., 2014; Kashyap and Stein, 1995; Kishan and Opiela, 2000), we apply bank balance sheet to estimate the reply of amount loan to changes in monetary policy transmission mechanism via credit channel between 2008 and 2017. This paper accepts a bank-level method to examine whether the credit supply



plays any role in the monetary policy mechanism via the commercial banks. In this study, the finding has an evidence on the credit channel in the case commercial bank in Malaysia. It means that fluctuations in monetary policy changed in interest rate in last year would affect credit supply in recent the year. Policy suggestion that can be finalized from this study. The result represents there is a credit channel in the case of Malaysia. The finding showed monetary policy should affect the assets and liabilities. Therefore, as policymakers, they could apply the monetary policy in command to change the credit supply to overcome inflation in the economy.

REFERENCES

- Mishkin, F.S., *Monetary policy strategy: How did we get here?* 2006, National Bureau of Economic Research.
- Mishkin, F.S., *Understanding financial crises: a developing country perspective.* 1996, National Bureau of Economic Research.
- Bernanke, B.S. and M. Gertler, *Inside the black box: the credit channel of monetary policy transmission.* 1995, National bureau of economic research.
- Bernanke, B. and M. Gertler, *Business fluctuations and the choice between internal and external finance.* American Economic Review, 1989. **79**: p. 14-31.
- Karim, Z.A. and B.A. Karim, *Interest rates targeting of monetary policy: an open economy SVAR study of Malaysia.* Gadjah Mada International Journal of Business, 2014. **16**(1): p. 1.
- Saini, P. and J. Sindhu, *Role of Commercial Bank in the Economic Development of India.* International Journal of Engineering and Management Research, 2014. **4**(1): p. 27-31.
- Ghazali, N.A. and A.A. Rahman, *The Transmission Mechanism of Monetary Policy in Malaysia: Through Bank Loans or Deposits?* IJUM Journal of Economics and Management, 2005. **13**(1): p. 2.
- Bernanke, B.S. *The financial accelerator and the credit channel. in Remarks at a Conference at the Federal Reserve Bank of Atlanta.* 2007.
- Bernanke, B.S. and A.S. Blinder, *Credit, money, and aggregate demand.* 1988, National Bureau of Economic Research.
- Jiménez, G., et al., *Credit supply and monetary policy: Identifying the bank balance-sheet channel with loan applications.* The American Economic Review, 2012: p. 2301-2326.
- Kashyap, A.K. and J.C. Stein, *What do a million observations on banks say about the transmission of monetary policy?* American Economic Review, 2000: p. 407-428.
- Jiménez, G., et al., *Monetary policy and credit crunch: Identifying simultaneously the bank lending and balance sheet channels.* American Economic Review, 2011.
- Gambacorta, L., *Inside the bank lending channel.* European Economic Review, 2005. **49**(7): p. 1737-1759.
- Jiménez, G., et al., *Hazardous Times for Monetary Policy: What Do Twenty-Three Million Bank Loans Say About the Effects of Monetary Policy on Credit Risk-Taking?* Econometrica, 2014. **82**(2): p. 463-505.
- Kashyap, A.K. and J.C. Stein, *The impact of monetary policy on bank balance sheets. in Carnegie-Rochester Conference Series on Public Policy.* 1995. Elsevier.
- Azali, M. and K.G.P. Matthews, *Money-income and credit-income relationships during the pre-and the post-liberalization periods: evidence from Malaysia.* Applied Economics, 1999. **31**(10): p. 1161-1170.
- Ibrahim, M.H., *Sectoral effects of monetary policy: evidence from Malaysia.* Asian Economic Journal, 2005. **19**(1): p. 83-102.
- Tang, H.C., *The relative importance of monetary policy transmission channels in Malaysia.* 2006, Centre for Applied Macroeconomic Analysis, Crawford School of Public Policy, The Australian National University.
- Mishkin, F.S., *The economics of money, banking, and financial markets.* 2007: Pearson education.
- Mateut, S., *Trade credit and monetary policy transmission.* Journal of Economic Surveys, 2005. **19**(4): p. 655-670.
- Egert, B. and R. MacDonald, *Monetary transmission mechanism in central and eastern Europe: surveying the surveyable.* Journal of Economic Surveys, 2009. **23**(2): p. 277-327.
- Bernanke, B.S. and A.S. Blinder, *The federal funds rate and the channels of monetary transmission.* The American Economic Review, 1992: p. 901-921.
- Kashyap, A.K., J.C. Stein, and D.W. Wilcox, *Monetary policy and credit conditions: Evidence from the composition of external finance: Reply.* The American Economic Review, 1996. **86**(1): p. 310-314.
- Kishan, R.P. and T.P. Opiela, *Bank size, bank capital, and the bank lending channel.* Journal of Money, Credit and Banking, 2000: p. 121-141.
- Ashcraft, A.B., *Does the market discipline banks? New evidence from the regulatory capital mix.* New Evidence from the Regulatory Capital Mix (March 2006). FRB of New York Staff Report, 2006(244).
- Huang, Z., *Evidence of a bank lending channel in the UK.* Journal of Banking & Finance, 2003. **27**(3): p. 491-510.
- Altunbaş, Y., O. Fazylov, and P. Molyneux, *Evidence on the bank lending channel in Europe.* Journal of Banking & Finance, 2002. **26**(11): p. 2093-2110.
- Angeloni, I., A.K. Kashyap, and B. Mojon, *Monetary policy transmission in the euro area: a study by the eurosystem monetary transmission network.* 2003: Cambridge University Press.
- Ehrmann, M., et al., *The effects of monetary policy in the euro area.* Oxford Review of Economic Policy, 2003. **19**(1): p. 58-72.
- Brissimis, S.N. and M.D. Delis, *Identification of a loan supply function: A cross-country test for the existence of a bank lending channel.* Journal of International Financial Markets, Institutions and Money, 2009. **19**(2): p. 321-335.
- Den Haan, W.J., G. Ramey, and J. Watson, *Liquidity flows and fragility of business enterprises.* Journal of Monetary Economics, 2003. **50**(6): p. 1215-1241.
- Kaufmann, A., P. Lehner, and F. Tödtling, *Effects of the Internet on the spatial structure of innovation networks.* Information Economics and Policy, 2003. **15**(3): p. 402-424.
- Farinha, L., et al., *Monetary Policy Transmission in the Euro Area.* 2003, Cambridge University Press Cambridge, Massachusetts, USA.
- Topi, J. and J. Vilmunen, *Transmission of monetary policy shocks in Finland: evidence from bank level data on loans.* 2001.
- Kashyap, A., J. Stein, and D. Wilcox, *The monetary transmission mechanism: Evidence from the composition of external finance.* American Economic Review, 1993. **83**: p. 78-98.
- Giap Tan, K. and C.-S. Cheng, *The causal nexus of money, output and prices in Malaysia.* Applied Economics, 1995. **27**(12): p. 1245-1251.
- Abdullah, A.Z. and Z. Yusop, *Money, Inflation and Causality: The Case of Malaysia (1970-92).* Asian Economic Review, 1996. **38**(1): p. 44-51.

38. Masih, A.M. and R. Masih, *Energy consumption, real income and temporal causality: results from a multi-country study based on cointegration and error-correction modelling techniques*. *Energy economics*, 1996. **18**(3): p. 165-183.
39. Baharumshah, A.Z., T. Sarmidi, and H.B. Tan, *Dynamic linkages of Asian stock markets*. *Journal of the Asia Pacific Economy*, 2003. **8**(2): p. 180-209.
40. Ibrahim, M.H., *STOCK PRICES AND BANK LOAN DYNAMICS IN A DEVELOPING COUNTRY: THE CASE OF MALAYSIA*. *Journal of Applied Economics*, 2006. **9**(1).
41. Fung, K.C., H. Iizaka, and S. Parker, *Determinants of US and Japanese direct investment in China*. *Journal of Comparative Economics*, 2002. **30**(3): p. 567-578.
42. Kassim, S., A. Majid, and M. Shabri, *Impact of monetary policy shocks on the conventional and Islamic banks in a dual banking system: Evidence from Malaysia*. *Journal of Economic Cooperation and Development*, 2009. **30**(1): p. 41-58.
43. Ito, T. and K. Sato, *Exchange rate changes and inflation in post-crisis Asian economies: VAR analysis of the exchange rate pass-through*. 2006, National Bureau of Economic Research.
44. Raghavan, M.V. *The changing Malaysian Financial environment and the effects on its monetary policy transmission mechanism*. in *The 21st Australasian Meeting of the Econometric Society (Melbourne)*. 2004.
45. Domac, I., *The distributional consequences of monetary policy: Evidence from Malaysia*. 1999: The World Bank.
46. Bernanke, B.S., *Alternative explanations of the money-income correlation*. 1986, National Bureau of Economic Research Cambridge, Mass., USA.
47. Bernanke, B.S. and I. Mihov, *Measuring monetary policy*. *The Quarterly Journal of Economics*, 1998. **113**(3): p. 869-902.
48. Karim, M.Z.A., A.A.M. Harif, and A. Adziz, *Monetary policy and sectoral bank lending in Malaysia*. *Global Economic Review*, 2006. **35**(3): p. 303-326.
49. Goh, K.-L. and S.-L. Yong, *Bank lending and monetary policy: the effects of structural shift in interest rates*. *Economics Bulletin*, 2007. **5**(5): p. 1-14.
50. Said, F.F. and A.G. Ismail, *MONETARY POLICY, CAPITAL REQUIREMENT AND LENDING BEHAVIOUR OF ISLAMIC BANKING IN MALAYSIA*. *Journal of Economic Cooperation Among Islamic Countries*, 2008. **29**(3).
51. Baltagi, B., *Econometric analysis of panel data*. 2008: John Wiley & Sons.
52. Said, F.F. and A. Ismail, *Are asset size and capital strength matters in influencing the bank-lending channel*. 2005, Working Paper in Islamic Economics and Finance.
53. Sayuti, W.R.A., *Monetary policy transmission through bank lending in a small-open economy: A structural VAR approach for the case of Malaysia*. 2009: Kulliyah of Economics and Management Sciences, IIUM.
54. Ghazali, N.A., *Liberalization, Innovation and the Response of Malaysian Commercial Banks' Portfolios to Monetary Shocks*. *Jurnal Pengurusan*, 1999. **18**: p. 39-53.
55. Hussin, M.Y.M., et al., *Macroeconomic variables and Malaysian Islamic stock market: a time series analysis*. *Journal of Business Studies Quarterly*, 2012. **3**(4): p. 1.
56. Khan, H.H., R.B. Ahmad, and C.S. Gee, *Bank competition and monetary policy transmission through the bank lending channel: Evidence from ASEAN*. *International Review of Economics & Finance*, 2016. **44**: p. 19-39.
57. Caporale, G., et al., *The bank lending channel in a dual banking system: evidence from Malaysia*. 2016.
58. Ibrahim, M.H., *Business cycle and bank lending procyclicality in a dual banking system*. *Economic Modelling*, 2016. **55**: p. 127-134.
59. Majid, M.S.A. and Z. Hasin, *Islamic banks and monetary transmission mechanism in Malaysia*. *Journal of Economic Cooperation & Development*, 2014. **35**(2): p. 137.
60. Asbeig, H.I. and S.H. Kassim, *Monetary Policy Transmission through the Bank-Financing Channel in Malaysia: Evidence from Bank-Level Data*. *Journal of Economic Cooperation & Development*, 2014. **35**(2): p. 121.
61. Said, F.F., *The dynamic of bank lending channel: Basel regulatory constraint*. *Economic Modelling*, 2013. **31**: p. 606-613.
62. Muhammad, F., et al., *Does Islamic interbank rate influence bank characteristics and economic cycle in Malaysian monetary transmission?* *Asian Journal of Finance & Accounting*, 2012. **4**(2): p. 131-143.
63. Akhatova, M., M.P. Zainal, and M.H. Ibrahim, *Banking Models and Monetary Transmission Mechanisms in Malaysia: Are Islamic Banks Different?* *Economic Papers: A journal of applied economics and policy*, 2016. **35**(2): p. 169-183.
64. Ibrahim, M.H. and M.E. Shah, *Bank lending, macroeconomic conditions and financial uncertainty: evidence from Malaysia*. *Review of Development Finance*, 2012. **2**(3-4): p. 156-164.
65. Abdul Karim, Z., et al., *Bank lending channel of monetary policy: dynamic panel data evidence from Malaysia*. 2010.
66. Zaidi, M.A.S. and L.A. Fisher, *Monetary policy and foreign shocks: A SVAR analysis for Malaysia*. *Korea and the world economy*, 2010. **11**(3): p. 527-550.
67. Tan, A.C. and K.-L. Goh, *Financial disintermediation in the 1990s: Implications on monetary policy in Malaysia*. *Hitotsubashi Journal of Economics*, 2009: p. 1-27.
68. Bernanke, B.S., M. Gertler, and S. Gilchrist, *The Flight to Quality and the Financial Accelerator*. *Review of Economics and Statistics*, 1996. **78**(1): p. 1-15.
69. Bernanke, B.S., M. Gertler, and S. Gilchrist, *The financial accelerator in a quantitative business cycle framework*. *Handbook of macroeconomics*, 1999. **1**: p. 1341-1393.
70. Holmstrom, B. and J. Tirole, *Financial intermediation, loanable funds, and the real sector*. *The Quarterly Journal of Economics*, 1997: p. 663-691.
71. Said, F.F. and A.G. Ismail, *How does the changes in monetary policy affect lending behavior of Islamic banking in Malaysia*. *Economic Journal of Emerging Markets*, 2007. **12**(3): p. 163-177.

AUTHORS PROFILE



Mohammad Farajnezhad is pursuing Ph.D from AzmanHashim International Business School, UniversitiTeknologi Malaysia, Kuala Lumpur, Malaysia. He has completed his in Economics in from University Malaya (UM) Kuala Lumpur, Malaysia. His has eight years of work experience. His area of research is Macroeconomics, Monetary policy, trade and growth and Econometric modelling.



Suresh A/L Ramakrishnanis an Assistant Professor in AzmanHashim International Business School, UniversitiTeknologi Malaysia, Kuala Lumpur, Malaysia. He has received her Doctoral degree from Deakin UniversityVictoria, Australia. His research interests including [Finance](#), [Financial Risk Management](#), [Banking](#), [Capital Structure](#).

