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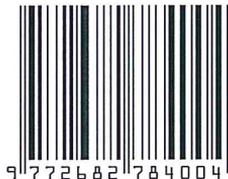
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# MACROPRUDENTIAL POLICY IN MALAYSIA: IMPLICATIONS, KEY MEASURES AND EXPERIENCES

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## ABSTRACT

*Macroprudential policy is a set of measures and institutional that is specifically aimed at containing systemic risks and maintaining financial stability in a country. In Malaysia, the development of the macroprudential policy framework started and gained its momentum after the Asian financial crisis where macroprudential policy instruments are used to manage excesses and imbalances in the financial system and in managing capital flows. The implementation of this policy has been strengthening by Bank Negara Malaysia after Global financial Crisis in order to achieve the objectives of ensuring financial system stability, addressing procyclicality and mitigate the systemic risk. This paper discusses the Malaysia's experiences in macroprudential policy and the implications in terms of the oversight of macroprudential conditions and the development and application of policy tools*

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## 1. Introduction

Started in the United States (U.S.) and spread to the rest of the world, the Global Financial Crisis (GFC) of 2008 to 2009 has brought a huge impact on the world economy. It began with an asset bubble that caused by a wide array of financial derivatives that led to the sub – prime mortgage boom, exploding into housing and banking crisis with a cascading effect on consumer and investment demand (Zainal Abidin & Rasiah, 2009). From a housing crisis, it quickly grew into a global banking crisis with the investment and merchant banks first absorbing the impact before it spreads to the commercial banks as well as Islamic banks. In other words, this crisis played a significant role in the collapse of the financial institutions, failure of key business, declines in consumer wealth and a downturn in economy activity not only in the U.S. but in almost countries in the world. According to Arvai, Prasad and Katayama (2014), the global financial crisis not only triggered major changes in the approach countries take in financial regulation, but it also led to the recognition of the financial stability in order to achieve macroeconomic stability. The main lesson of this crisis is the importance of mitigating systemic financial risks and the need to strengthen the macroprudential approach to supervision and regulation that can identify risks throughout the system and take appropriate actions to maintain financial stability (Kawai & Morgan, 2012).

The European Central Bank (ECB) website has defined financial stability as “ a condition in which the financial system comprising of financial intermediaries, markets, and market infrastructures is capable of withstanding shocks, thereby reducing the likelihood of disruptions in the financial intermediation process which are severe enough to significantly impair the allocation of savings to profitable investment opportunities” (ECB,2012). Selialia, Mbeleki and Matlapeng (2010) reported that financial stability is vital for sustained economic growth. Without strong financial systems in a country, economic growth cannot be achieved. Even with sound macroeconomic fundamentals, weak financial systems can destabilize economies, making them more vulnerable to external shocks. Since the financial instability can be very costly to the global economy, the interaction of financial markets and the real economy become the priority by each country in the world. Stable, efficient and a smoothly operation of a financial system is a main pillar for growth, output, and employment.

Central banks of each country should play an important role in monitoring and regulating financial stability. In order to maintain financial stability, Siregar (2011) found that it requires more flexible and adaptive macroprudential policies. Macroprudential policy can be defined as a set of measures and institutional that is specifically aimed at containing systemic risks in the whole financial system. The main focused of macroprudential regulation and policy is to reduce systemic risk and preserve systemic financial stability by identifying vulnerabilities in a country’s financial system and implementing policy actions to address those vulnerabilities in a timely manner to prevent a crisis (Kawai & Morgan, 2012). Key elements of an effective macroprudential policy framework need to be structured in consideration of three aspects. First, a well-developed system of early warning indicators in order to be used as a basis for analyzing the current health and stability of the financial system and also be used as an early signal for detecting imbalances that affect the financial system. Second, a complete set of macroprudential policy instruments that can help contain risks ex ante and address the increased vulnerabilities at an early stage, as well as help build buffers to absorb shocks ex post. Third, an established macroprudential institutional framework that ensures the effective identification of systemic risks and implementation of macroprudential policies. In Malaysia, the development of the macroprudential policy framework started and gained its momentum after the Asian financial crisis where macroprudential policy instruments are used to manage excesses and imbalances in the financial system and in managing capital flows. The implementation of this policy has been strengthening by Bank Negara Malaysia after Global financial Crisis in order to achieve the objectives of ensuring financial system stability, addressing procyclicality and mitigate the systemic risk. This paper discusses the Malaysia’s experiences in macroprudential policy and the implications in terms of the oversight of macroprudential conditions and the development and application of policy tools.

## **LITERATURE REVIEW**

### ***Definition of Macroprudential Policy***

The Bank for International Settlements (BIS) (2011) has defines macroprudential policy as a policy that uses primarily prudential tools to limit systemic or system-wide financial risk, thereby limiting the incidence of disruptions in the provision of key financial services that can have serious consequences for the real economy. Meanwhile, Borio (2003) described macroprudential policy as the set of measures and institutional that is specifically aimed at containing risks in the financial system as a whole.

Kawai and Morgan (2012) stated that there are two main objectives of macroprudential supervision and regulation that are to reduce systemic risk and preserve systemic financial stability. In order to achieve those objectives it is important to identify vulnerabilities in a country's financial system and implementing policy actions to address those vulnerabilities in a timely manner to prevent a crisis. According to Vinals (2011), to achieve an effectiveness of macroprudential policy in the country, their objectives, scope of analysis (the whole financial system and its interaction with the real economy), set of powers and instruments and governance (macroprudential authorities and mandates) should be strengthened.

Table 2.1 shows the comparison between macroprudential perspectives and microprudential perspective that can be used to understand macroprudential policy in detailed. There are a different in both perspectives in terms of objectives and the nature of the risk understanding (Borio, 2003).

Table 2.1: The Comparison between Microprudential and Macroprudential Perspectives

	Microprudential	Macroprudential
Proximate objective	limit distress of individual institution	Limit financial system-wide distress
Ultimate objective	Consumer(investor/depositor) protection	Avoid output (GDP) costs
Characterisation of risk	Seen as independent of individual agents' behavior (exogenous)	Seen as dependent on collective behavior (endogenous)
Correlation and common exposures across institutions	Irrelevant	Important
Calibration of prudential controls	In terms of risks of individual institutions: bottom-up	In terms of system wide risk: top-down

Source: Borio (2003)

### ***Definition of Systemic Risk***

Systemic risk refers to the risk of failure in the entire financial system as a result of undercapitalisation by financial institutions in the market (Bartram, Brown & Hund, 2005). Understanding and quantifying this systemic risk is important in ensuring that our financial institutions are adequately capitalised to withstand another financial crisis. Systemic risk is the risk of collapse in the entire financial system stemming from the breakdown of a single firm. It is a result of undercapitalisation by financial institutions in a market that is increasingly interdependent (Calmes & Theoret, 2014).

Borio (2010) stated that there are two classification of the systemic risks that addressed by macroprudential policy that are time dimension and cross-sectional dimension. The time dimension deal with how aggregate risk in the financial system evolves over time. This is a response to the tendency toward procyclicality of the financial system as a result of positive feedbacks between the economy and financial system, the so called macro-financial channel. According to Cerutti, Claessens, and McGuire (2011), there are a wide set of variables that can be used to identify the time dimension of risk for an example the ratio of credit to GDP, real asset prices, ratio of non-core to core liabilities of the banking sector, and monetary aggregates. Within each dimension of systemic risk, it is then possible to address intermediate objectives to which macroprudential instruments are assigned and specific functions for each instrument.

In addition, the cross-sectional dimension involves dealing with how risk is allocated within the financial system at a given point in time as a result of common exposures and interconnectedness in the financial system. In this case, the guiding principle for policy is to calibrate prudential tools with respect to the contribution of each institution to systemic risk, as well as to take steps to increase the transparency of such risks (Crockett, 2009). It can be monitored by tracking balance sheet information on total assets and their composition, liability and capital structure as well as the value of the institutions' trading securities and securities available for sale. Additionally, other sophisticated financial tools and models have been developed to assess the interconnectedness across intermediaries and each institution's contribution to systemic risk (Acharya, Pedersen, Philippon & Richarson, 2010).

Moreover, Puzanova and Dulmann (2013) reported that the first type of macroprudential policy instruments focuses on the time dimension of systemic risk, that are comprises of instruments geared towards credit, leverage and asset price booms. The second type of instruments is also geared towards the time dimension and addresses liquidity or market risk. The third type of instruments is for cross section dimension of systemic risk where it addresses vulnerabilities that arise from either market structure vulnerabilities related to interconnectedness, size, position in the market and those originating in the financial infrastructure. Vinals (2011) stated that a variety of indicators and quantitative models/tools is used for systemic risk identification, monitoring, and assessment. The domestic and international aspects of the financial system including macro, micro, and sectoral variables ranging from bank capital and performance to market liquidity and household indebtedness are covered by these indicators

### ***Macroprudential Policy Instruments***

Macroprudential policy instruments are classified by types of vulnerability in the financial system (Committee on the Global Financial System (CGFS), 2010). First, some of macroprudential instruments that are used to manage the leverage position of the banking system are loan to value ratio, capital ratio, provisioning, maturity caps, risk weights and credit growth. Second, the following macroprudential instruments such as liquidity or reserve requirements, currency mismatch limits and foreign exchange lending restrictions can be considered as instruments to mitigate liquidity risk or market risk. Last, but not least, is regarding to the vulnerabilities arising from interconnectedness where macroprudential instruments that can be used to mitigate this exposure are concentration limits, strict policies regulating bank subsidiaries and systemic capital surcharges.

Other than that, according to the Lim, Bhattacharya, Columba, Costa, Otani and Wu (2011), 10 types of macroprudential instruments have been identified that are most frequently applied to achieve macroprudential objectives based on the three types of measures. First, macroprudential policy instruments that are used for credit related are loan to value ratio (LTV), debt to income ratio (DTI), ceilings on credit or credit growth and caps on foreign currency lending. Second macroprudential policy instruments that are used for liquidity related are limits on net open currency positions/currency mismatch, reserve requirements, limits on maturity mismatch, and countercyclical/time-varying capital requirements. Last but not least, macroprudential policy instruments that are used for capital related are time varying/dynamic provisioning and restrictions on profit distribution (refer table 2.2).

Table 2.2 : Macroprudential Policy Tools/Instruments

MEASURE	INSTRUMENTS	DEFINITION
Credit related	caps on the loan-to-value (LTV) ratio,	The LTV imposes a down payment constraint on households' capacity to borrow. In theory, the constraint limits the procyclicality of collateralized lending since housing prices and households' capacity to borrow based on the collateralized value of the house interact in a procyclical manner. Set at an appropriate level, the LTV addresses systemic risk whether or not it is frequently adjusted. However, the adjustment of the LTV makes it a more potent counter-cyclical policy instrument.
	caps on the debt-to-income (DTI) ratio,	The DTI represents prudential regulation aimed at ensuring banks' asset quality when used alone. When used in conjunction with the LTV, however, the DTI can help further dampen the cyclicity of collateralized lending by adding another constraint on households' capacity to borrow. Like in the LTV, adjustments in the DTI can be made in a counter-cyclical manner to address the time dimension of systemic risk
	caps on foreign currency lending	Loans in foreign currency expose the un-hedged borrower to foreign exchange risks which, in turn, subject the lender to credit risks. The risks can become systemic if the common exposure is large. Caps (or higher risk weights, deposit requirements, etc.) on foreign currency lending may be used to address this foreign-exchange-induced systemic risk.
	ceilings on credit or credit growth;	A ceiling may be imposed on either total bank lending or credit to a specific sector. The ceiling on aggregate credit or credit growth may be used to dampen the credit/asset price cycle—the time dimension of systemic risk. The ceiling on credit to a specific sector, such as real estate, may be used to

Liquidity related	limits on net open currency positions/currency mismatch (NOP),	Such prudential regulation tools limit banks' common exposure to foreign currency risks. In addition, the limits may be used to address an externality—sharp exchange rate fluctuations caused by a convergence of purchases/sales of foreign exchange by banks. This externality increases the credit risk of un-hedged borrowers with heavy foreign currency debt.
	limits on maturity mismatch	These prudential regulation tools may be used to address systemic risk since the choice of asset/liability maturity creates an externality—fire sales of assets. In a crisis, the inability of a financial institution to meet its short-term obligations due to maturity mismatches may force it to liquidate assets, thus imposing a fire sale cost on the rest of the financial system. The funding shortages of a few institutions could also result in a systemic liquidity crisis due to the contagion effect.
	reserve requirements	This monetary policy tool may be used to address systemic risk in two senses. First, the reserve requirement has a direct impact on credit growth, so it may be used to dampen the credit/asset price cycle—the time dimension of systemic risk; second, the required reserves provide a liquidity cushion that may be used to alleviate a systemic liquidity crunch when the situation warrants.
	countercyclical/time-varying capital requirements	The requirement can take the form of a ratio or risk weights raised during an upturn as a restraint on credit expansion and reduced during a downturn to provide a cushion so that banks do not reduce assets to meet the capital requirement. A permanent capital buffer, which is built up during an upturn and deleted during a downturn, serves the same purpose. Both can address the cyclicity in risk weights under Basel II based on external ratings that

Capital related	Time varying/ dynamic provisioning	Traditional dynamic provisioning is calibrated on historical bank-specific losses, but it can also be used to dampen the cyclical in the financial system. The provisioning requirement can be raised during an upturn to build a buffer and limit credit expansion and lowered during a downturn to support bank lending. It may be adjusted either according to a fixed formula or at the discretion of the policymaker.
	restrictions on profit distribution	These prudential regulation requirements are intended to ensure the capital adequacy of banks. Since undistributed profits are added to bank capital, the restrictions tend to have a counter-cyclical effect on bank lending if used in a downturn. The capital conservation buffer of Basel III has a similar role.

Source: Lim et. al. (2011)

### ***Institutional Framework of Macprudential Policy***

According to Balogh (2012) it is necessary to clarify some of the structural aspects or key elements of the implementation of macroprudential policies in the country and the authority in charge of macroprudential supervision in order to develop an effective institutional framework of macroprudential policy. Adequate institutional foundation for macroprudential policy frameworks need to suit with country-specific circumstances and institutional backgrounds (BIS 2011, CGFS 2012, IMF 2013). There is no “one size fits all” because different models of institutional framework might be effective depending on the country specifics such as historical background and events, legal traditions, availability of resources and the size and complexity of the financial market (Zulkhibri & Naiya 2016).

The International Monetary Fund (IMF, 2011) has identified five relevant elements that play key roles in effective institutional framework for macroprudential policy. There are the mandate, the power and instruments, accountability and transparency mechanism, the composition of the decision-making body and the mechanism for domestic cooperation and the coordination of internal policies.

### ***Empirical Research: The Effectiveness of Macprudential Policy Tools***

Claessens, Ghosh and Mihet (2014) are studies about the effectiveness of using macroprudential policies to mitigate financial system vulnerabilities. They used a panel data set of macroprudential policy measure that are credit, liquidity and capital-related as their independent variable while, Leverage growth, asset growth, and noncore-to-core liabilities growth are used as

banking variables. By using GMM estimators, this study covered the period from 2000-2010 and the data is collected from 2820 banks in 48 countries, of which 35 countries implemented at least one macroprudential policy instrument. The analysis confirmed the greater use of macroprudential policy tools would reduce the risk in the banking system. They found that macroprudential policies tools caps on borrower such as LTV and caps on bank's asset and liabilities effectively or significantly reduce the total leverage growth and total asset growth while buffer-based policies seems to have little impact on asset growth.

Other than that, Aiyar, Calomiris, and Wieladek (2014) have studied on the respond of credit supply to monetary policy and bank minimum capital requirement in the UK during 1998 to 2007. They found that bank-specific higher capital adequacy requirements diminished lending by individual banks (whereas tighter monetary policy did not affect the supply of lending) .On the other hand in this study, there are also cases where macroeconomic tools were used that can be interpreted with a macroprudential policies perspective.

On the other hand, by using bank-firm matched data, Camors and Peydro (2014) had studied on macroprudential and monetary policy: loan-level evidence from reserve requirements in Uruguay. They have examined on the effects of a large and unexpected increase in reserve requirement (RR) in 2008, the result showed that while aggregate credit growth declines, some more risky firms to get more credit, larger and possibly more systemic banks are less affected.

Akinci and Olmstead-Rumsey (2015) have studied on the effect of few macroprudential policy instruments that are countercyclical capital requirements, provisioning requirements, restrictions on growth in bank credits and stricter requirements for consumer loans on total bank credit, mortgage and house price". The data was collected in 57 countries during year 2000 to 2013. The empirical resulted showed that provisioning requirements an countercyclical capital requirements have siginifant effect on total bank credits. Other result of this study, there is a relationship between capital requirements and house price and provisioning requirements does not have any relationship with mortgages and house price. In addition, Cerutti, Claessens and Laeven (2015), have use various of macrorudential instruments in their study as an independent variables to explain whether it's have an impact on development in credit and housing market or not. They are used large sample of 119 countries over the period of 2000 to 2013 and found that these macroprudential policy instruments are generally associated with a reduction in credit growth rate and have some impact on growth in house prices.

In the recent study by Akinci (2016), it showed that some of the macroprudential instruments tightening have significantly reduce credit growth and house price appreciation. The author has done this research by using quarterly data of macrorudential policy index among 57 advanced and emerging countries from year 2000 to 2013. The dynamic panel data model is used as a method of analysis. However, Ghosh (2016) pointed out that although macroprudential policies are useful in the case of credit growth in GCC countries, not all of them are equally effective in containing the potential build-up of financial stress.

### ***Malaysia's Experience***

In Malaysia, the use of macroprudential policy and regulation has implemented by the government for the past decades. In the past, especially after the Asian financial crisis, macroprudential policy instruments have been used to manage excess and imbalance in the

financial system and to manage capital flows. At that time the development of macroprudential policy framework is very important based on two basic issues that arise after the Asian financial crisis that are the need for risk assessment macro level to complete micro-level supervision and the need for an assessment of the risk of transmission cross institutional and across sectors. After the global financial crisis (GFC) 2008 to 2009, the implementation of this policy has been strengthening by Bank Negara Malaysia in order to achieve the objectives of ensuring financial system stability, addressing procyclicality and mitigate the systemic risk.

Bank Negara Malaysia views the macroprudential policy framework based on five (5) core elements (Lau, 2015). First is a clear mandate, policy objectives and sound legal framework. To achieve the objective of implementation macroprudential policy, every country needs to have well-defined financial stability mandate, powers and accountability framework. Second are an integrated macro and micro prudential surveillance and systemic risk assessment and collection of information and assessment of this systemic risk must cover all sources. Third is an effective toolkits and implementation strategy. The strategies are discretionary and preemptive to ensure timely uplift, with careful management of circumvention/arbitrage, progressive and targeted approach in order to minimise risk of overshooting or unintended spillovers (e.g. shift of risks) and recalibration to respond to changing conditions. Fourth are a strong institutional arrangements, governance and coordination and last but not least an effective communication framework.

### ***Macroprudential Policy Measures***

In the early 1990s, strong economic growth and resilient stock market activity has encouraged great capital inflows into Malaysia. As liquidity stemming from this situation causes upward pressure on prices of financial assets and real estate. In order to the destabilizing effects of short-term flows in the financial sector and the economy, a series of macroprudential measures have been implemented during 1993. These measures are the imposition of limits on non-trade related external liability position of banks, prohibition of forward transactions (on the bid side) and non-trade related swaps by commercial banks with foreign customers, restriction on sales of short-term monetary instruments to non-residents, and limitation on purchases of residential property exceeding RM250,000 by non-residents (Financial Stability and Payment System Report, 2009). It can help to curb the speculative inflows.

During 1995 to 1996 housing prices and commercial real estate's prices still increase and at the same time interest rates increase too high during this periods because of formation of asset bubbles that would dampen investments in the productive sectors of the economy. This will cause the growth in bank loans for non-residential property purchases far exceeded that in loans for residential property purchases. Macroprudential measures used such as the introduction of maximum loan to value ratio (LTV) of 60% on real estate loans in 1995 to curb excessive lending for consumption purposes as well as to contain systemic impact of correction in domestic property market, introduction of a limit on property lending equal to 20% of a bank's portfolio in 1997 to limit banks' exposures to the equity market/broad property sector and reduce speculative and investment activities and increase in the statutory reserve requirement from 8.5% to 11.5% in 1994, and again to 13.5% in 1996 to curb excessive credit expansion that had fed into asset prices and the introduction of exchange rate control measure in 1998 to discourage large scale inflows of short term funds. This action also will help the government to overcome the negative effects of Asian Financial Crisis (1997-1998).

The boom-bust in the 1990s left the market with a significant supply hangover, in particular at the high-end condo segment. There have also been considerable additions to supply at the lower-end as a consequence of mass building of housing units by government agencies. Residential mortgage credit growth gained speed starting in 2001, and house prices recorded an increase of 4 percent in 2004, after an increase of about 1.6 percent per annum during 2000-2003 (Lim et al., 2011). The authorities took action to reduce the mortgage growth rate and property prices with increase in risk weight for non-performing loans from 50% to 100% (2005).

In response to the impact of 2008 Global financial crisis (GFC), excessive credit growth, inflation problem, and rising household debt have become a major thread for certain countries since interest rate have been slashed by major central banks and triggered a wave of easy money to emerging market. The problem of credit growth started accelerating due to strong demand for consumer loans and mortgages. This can reduce loan quality, increase systemic risk and worsen bank soundness. According to Lau (2015), in order to overcome these problems several macroprudential measure are used that are introduction of maximum 70% of LTV for the third house loan (2010), introduction of maximum 60% of LTV on non-individuals taking loans for residential properties (December 2011), maximum tenure of 35 years for purchase of properties (July 2013) and prohibit of housing loans with interest capitalisation (ICS) or developer interest bearing schemes (DIBS) (November 2013).

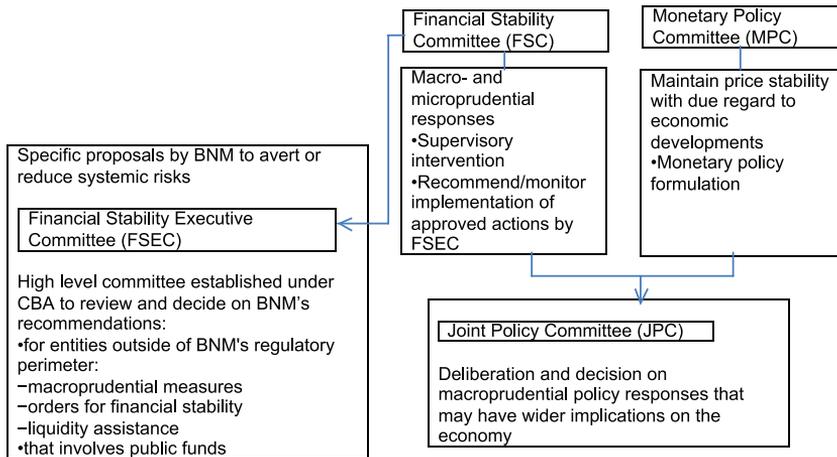
### ***Macroprudential Institutional Framework.***

In Malaysia, Bank Negara Malaysia (BNM), as stated in the Central Bank Law is responsible as a financial stability mandate for ensuring the Malaysian financial system to be resilient, stable, show significant growth. Since the global financial crisis has brought a negative impact on financial stability in many countries, including Malaysia, the government has amended the law to make the mandate more detailed and clear. This action has been taken to strengthen the financial stability framework in Malaysia.

The main objectives of the amended Central Bank of Malaysia Act 2009 (CBA) stated that “shall be to promote monetary stability and financial stability conducive to the sustainable growth of the Malaysian economy” (Zulhibri & Naiya, 2016). As a mandate of financial stability, Bank Negara Malaysia has been given all the powers by the Central Bank of Malaysia Act 2009 (CBA) to implement the macroprudential policy in terms of ex-ante surveillance powers for timely risk identification, power to enter into arrangements, advise and make recommendations to other supervisory authorities, pre-emptive powers to avert or mitigate systemic risk, ex-post powers to minimise impact of instability and power to prescribe financial institutions to ongoing regulation and supervision.

There are four major features in Malaysia macroprudential policy design that are discretionary, targeted, allowing calibration and coordinated with other policies. The whole process is supported by strong institutional arrangements, governance and communication framework to manage complex policy trade-offs. Figure 3.1 shows the strong institutional & governance arrangements framework for macroprudential policy.

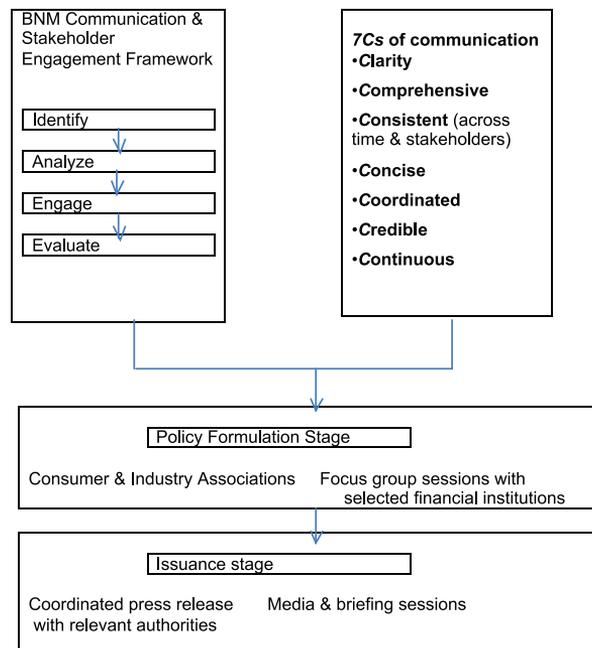
Figure 3.1: Strong Institutional & Governance Arrangements Framework



Source: Lau, 2015

An effective communication framework is a clear and comprehensive engagement process that enables effective communication of policies and issues also it shows a continuous engagement with relevant stakeholders to ensure commitment from all parties (Figure 3.2).

Figure 3.2: Effective Communication Framework of Macroprudential Policy



Source: Lau, 2015.

## CONCLUSION

The Global Financial Crisis (GFC) of 2008 to 2009 has highlighted the need to go beyond a purely micro – based approach to financial regulation and supervision in order to achieve financial stability. With increasing complexity in banking industry, coupled with growing severity of the crises, the focus of regulators has shifted to the adoption of a more structured macroprudential framework to address systemic risks and account for the interconnectedness of financial and non-financial institutions in the economic system. In Malaysia, the implementation of Macroprudential policy started from the past decades and gained its momentum after the Asian financial crisis. It is continued strengthening by Bank Negara Malaysia after Global financial Crisis in order to achieve the objectives of ensuring financial system stability, addressing procyclicality and mitigate the systemic risk. The Malaysia's experience of macroprudential policy are based on five (5) core element in the Macroprudential Policy Framework that are clear mandate, policy objectives and sound legal framework, an integrated macro and micro prudential surveillance and systemic risk assessment, an effective toolkits and implementation strategy, a strong institutional arrangements, governance and coordination and last but not least an effective communication framework.

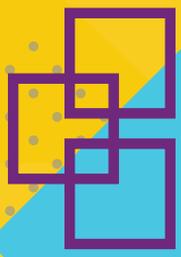
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