

MACROPRUDENTIAL POLICY AND REGULATION IN A DUAL BANKING SYSTEM: AN EXPLORATORY PERSPECTIVE

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ABSTRACT

The paper synthesizes the growing literature on macroprudential policy in particular countries with a dual banking system. In a dual banking system, both conventional and Islamic financial institutions operate side-by-side, but specific laws and regulations have been introduced for the Islamic financial institutions. Based on the analysis there is no “one size fits all”; different models might be effective depending on the country specifics. The choice among the different macroprudential models is mostly influenced by traditions, current institutional frameworks for other policies and political economy considerations. Furthermore, there is no differentiation between conventional and Islamic financial institutions has been practiced by the authorities with dual banking system. The reason is to avoid regulatory arbitrage between these two financial institutions and the fact that Islamic financial institution is still largely based on mark-up or profit margin techniques in its operation.

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Keywords: Macroprudential; Islamic Finance; Regulation; Systemic Risks

1. Introduction

In recent years following the financial crisis 2008/09, efforts to strengthen the financial system have been focused on the development of macroprudential orientation of regulatory and supervisory framework. Macroprudential policy seeks to maintain financial stability by explicitly accounting for the ‘externalities’ arising from the behaviour of individual institutions as well as the structure of the financial system. Moreover, macroprudential approaches to regulation considers the systemic implications of the collective behaviour of financial firms. Such approach and policy can be used both to limit the ex-ante externalities that lead to an excessive build-up of systemic risk, and the ex-post externalities that can generate inefficient failures of otherwise sound institutions specifically in a crisis.

Efforts to strengthen the financial system have been focused on the development of macroprudential orientation of regulatory and supervisory framework for financial stability. Macroprudential policy is increasingly seen as a way of dealing with the different dimensions of systemic risk. Macroprudential approaches are widely adopted by many central banks and regulators for supervision and regulation in order to maintain financial stability and, ultimately, improve social welfare by aligning private incentives with social objectives. The literature on financial stability has made a distinction between micro and macroprudential perspectives on financial institutions. Borio (2003) argues that the macro and microprudential perspectives change towards their objectives and their understandings about the nature of risk.

Macroprudential measures are defined as regulatory policies that aim to ensure stability of the financial system as a whole and reduce systemic risks against domestic and external shocks, and ensure that it continues to function effectively (BIS, 2010). The main purpose of the macroprudential regulation focuses on the financial system overall welfare, while the traditional microprudential regulation is focuses on increasing the security and stability of the individual financial institutions. However, research to address the issue of financial stability and macroprudential is limited particularly pertaining to Islamic financial institutions. Without deeper understanding on these issues, understanding and analysis are insufficient that can creates the condition for ill-informed policy decisions. The research is intended to fill the gap in the

academic literature and policy implementation concerning macroprudential policy in a dual banking system. The research provides a deeper understanding of the issues with respect to the specific macroprudential policy and regulation as well as tools that could be employed to mitigate systemic risks for both conventional and Islamic financial institutions. Thus, the objective of the research is to synthesize the growing literature on macroprudential policy for conventional and Islamic banks and provide stylized facts with respect to macroprudential policies and regulations as well as macroprudential implementation tools for selected Muslim countries.

This paper is set out as follows: Section 2 reviews related literature pertaining to financial inclusion, governance and institution. Section 3 provides the stylized facts of Islamic macroprudential policy and regulation implementation in selected Muslim countries in comparison with conventional macroprudential policy and regulation. Section 4 provides analytical discussions on macroprudential policy and regulation. Finally, Section 5 offers conclusions and recommendations.

2. Literature Review on Macroprudential Policy and Regulation

Following the aftermath of the financial crisis in 2007, theoretical work on macroprudential policies has flourished in recent years. One important lesson from the financial crisis is that, alongside monetary policy and microprudential supervision, macroprudential policy is also needed in order to maintain financial stability. Macroprudential regulation is rooted in the same fundamental market inefficiencies that rationalise microprudential interventions, but addresses such externalities between banks (or other financial institutions) and between the financial sector and the real economy. A literature on macroprudential regulation is now emerging. It builds on existing strands of the banking and financial frictions literature (Bernanke and Gertler, 1989); Kiyotaki and Moore, 1997; Bernanke et al., 1999).

Macroprudential literature traditionally focus on two risks: risks over the cycle: credit booms and asset price booms (“time” dimension); and risks across financial institutions: network risks (“cross section” dimension). Two approaches can be broadly identified in the literature.

One highlights that individual price taking agents tend to “over borrow” without internalizing the full general-equilibrium impact of their decisions, and shows how macroprudential policy can induce agents to internalize such negative externality (Bianchi and Mendoza, 2010; Bianchi, 2010). The second focuses on the role of macroprudential policies in dampening the procyclicality caused by financial frictions and, therefore, in mitigating the cyclical effect of macroeconomic shocks. This strand of research provides an analytical framework where the optimal combination of monetary policy and macroprudential policy can also be studied.

Despite the fact that the theoretical literature assumes that macroprudential tools effectively meet their objectives, it is still an unsettled issue in practice. Recently, a number of empirical studies have tried to assess the effectiveness of macroprudential policies on a sample of countries from different regions, notwithstanding the challenge of quantifying policy measures (Galati and Moessner, 2014; Claessens et al. 2013; Grace et al. 2015; Kashyap et al. 2011). Overall, most of this empirical literature indicates that some individual macroprudential instruments, such as loan-to-value (LTV) and debt-to-income (DTI) ratios, reserve requirements and dynamic provisioning, have been effective in curbing excessive credit and asset price growth. Empirical studies for cross-country (Claessens, et al. 2013; Cerutti, et al. 2015) and individual countries (Kupiec, et al. 2013; Aiyar, et al. 2014), indicate the impacts from other markets are minor or even run in the opposite direction, whereas work on cross-sections of countries supports macroprudential tools on credit expansion in term of its effectiveness (McDonald, 2015; Lim, et al. 2011).

Lim et al. (2011) review the use of key macroprudential instruments in 46 countries up to 2010 and estimate the effectiveness of individual instrument tightening in reducing procyclicality of financial risks, and conclude that many of the frequently used instruments have been effective in lowering systemic risks. Arregui et al. (2013) extend the analysis to 2011, focusing on the direct impact of the macroprudential policy stance, as opposed to policy changes on macroeconomic variables. They find that the benefit of macroprudential policies is to increase financial resilience and reduce the probability of crisis and output loss in the event of a crisis, while resulting in higher intermediation costs and lower long-run output. Akinci and Olmstead-Rumsey (2015) also find that macroprudential policies have been used far more actively after the

global financial crisis in both advanced and emerging market economies. The empirical analysis suggests that macroprudential tightening is associated with lower bank credit growth and house price inflation.

Extended study for macroprudential policy has been done with regard to housing markets. Several studies using panel data find that housing measures may reduce mortgage credit booms (Zhang and Zoli, 2014; IMF, 2014). Recent case studies from emerging Europe (Vandenbussche et al. 2012) and Asia (Craig and Hua, 2011) show that macroprudential tools, especially housing measures, limited house price growth in those regions. On the other hand, Kuttner and Shim (2014) construct their own database of macroprudential measures going back as far as 1980 for some countries and find that macroprudential measures had no significant effect on house prices. They conclude that macroprudential policies are effective in dampening housing prices and credit. Catte et al. (2010), positing that the macroprudential authority can directly affect mortgage spreads, show that a tightening through this instrument would have curbed the U.S house price boom between 2003 and 2006 with modest repercussions on the other variables.

Study by Angelini et al. (2012) find modest benefits during “normal times” and the benefits of introducing macroprudential policy tend to be sizeable when financial shocks, which affect the supply of loans, are important drivers of economic dynamics. Beirne and Friedrich (2013), instead, find a limited effect of macroprudential policies on capital inflows in 39 countries over 1999–2009. Ostry et al. (2011) show that foreign exchange (forex) related instruments and capital controls can reduce the share of forex lending in domestic credit, while other prudential measures seem to be effective in dampening aggregate credit booms. On the other hand, Unsal (2013) shows that macroprudential measures can usefully complement monetary policy under a financial shock that triggers capital inflows. Bruno and Shin (2013), find that capital inflows to Korea are significantly decoupled from global conditions after the introduction of macroprudential measures. Dell’Ariccia et al. (2012) provide illustrative evidence that macroprudential policy can contain credit booms and limit the adverse consequences of busts.

3. Macroprudential Policy and Regulation Framework

While effective institutional arrangements are highly desirable, there is currently no consensus on an optimal framework for macroprudential policies. There is no “one size fits all”; different models might be effective depending on the country specifics. Given the facts that financial stability is not affected by macroprudential policy solely, but by a range of other policies as well. This interaction underscores the need for consistency between these policy areas. Figure 1 provides interference between macroprudential, microprudential policy with other policies. Arrangements for macroprudential framework has evolved over the years reflecting the evolution of central banking and financial regulations. Some key attributes are nevertheless essential to ensure effective and efficient macroprudential policies. Sound macroprudential policies require thorough expertise and analysis of systemic developments in the whole financial system and their interactions with the wider economy. Given their expertise in these areas and their position at the heart of the financial system, central banks are well placed to play a leading role in macroprudential policies.

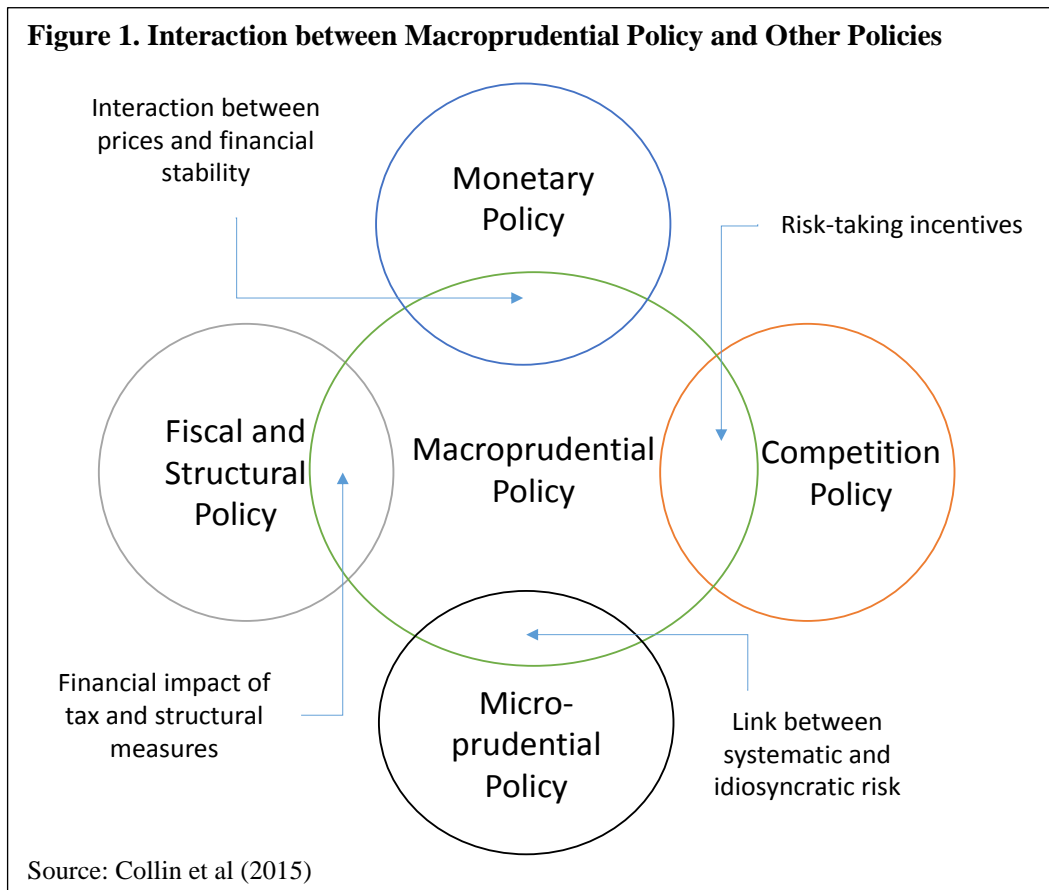


Table 1 provides comparative perspectives between macro- and microprudential within the context of current regulatory framework. The two policies differ in objective, focus, approach, view of risk, and in their calibration of tools. The macroprudential dimension focuses on the financial system as a whole to limit the chances of system-wide distress and avoid significant losses in terms of real output. The microprudential dimension focuses on individual institutions to limit the likelihood of failure of individual institutions and protect consumers (investors and depositors) regardless of systemic consequences or impact on the overall economy. Microprudential supervision can thus fail to identify risks that emerge at the systemic level. Furthermore, the two approaches view risk differently: risk is considered to be endogenous from the macroprudential dimension, since institutions can collectively affect economic transactions, while from the microprudential dimension, risk is assumed to be exogenous, since individual institutions will generally have little impact on the economy. The microprudential policy is viewed as a bottom-up approach. Some differences in these two policies may also reflect historical and institutional aspects, including whether prudential powers are located with central banks or divided among separate agencies.

Table 1: Comparative Perspectives: Macroprudential and Microprudential Policy

	Macroprudential	Microprudential
Proximate objective	limit financial system-wide distress; maintain stability of overall system	limit distress of individual institutions; maintain soundness of individual financial institutions
Ultimate objective	avoid output (GDP) costs	consumer (investor/ depositor) protection
Characterisation of risk	Seen as dependent on collective behaviour (“endogenous”)	Seen as independent of individual agents’ behaviour (“exogenous”)
Correlations and common exposures across institutions	important	irrelevant

Calibration of prudential controls	in terms of system-wide risk; top-down	in terms of risks of individual institutions; bottom-up
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Source: Borio (2003)

3.1 Institutional frameworks

Different models might prevail ranging from the central bank as designated macroprudential authority (centralized model) to a committee outside the central bank with the monetary authorities represented in the macroprudential committee (decentralised model). Two elements play key roles in effective institutional arrangements for macroprudential policy: (1) authorities with a clear mandate for macroprudential policy; and (2) a mechanism for policy coordination and communication of assessment of the issues related to financial stability (IMF, 2011). In other words, macroprudential policy can be pursued by either a single institution or a committee composed by several representatives, although some variations might be observed. The choice among the different models is mostly influenced by traditions, current institutional frameworks for other policies and political economy considerations. For instance, the centralised model is mostly observed in countries where the central bank is in charge of microprudential supervision. Table 2 describes an institution with a mandate for macroprudential policy as an institution in emerging markets that is explicitly given the mandate or the responsibility to address systemic or system-wide financial risk by its settlement law.

Each of the models has its specific strengths and weaknesses. In particular, the centralised model tends to increase the willingness to act by clearly defining mandate and responsibilities. Relatedly, it might also reduce political pressures. This would be extremely valuable to ensure that decisions are taken rapidly and without undue delay. It also greatly enhances synergies and coordination between monetary, microprudential and macroprudential policies, which might enhance and facilitate the decision-making process by internalising the potential trade-off among those policies. However, failures in macroprudential policies could significantly affect the credibility of monetary policy-makers or microprudential supervisors,



especially in the absence of clearly separate accountability frameworks for monetary and prudential actions. In addition, coordination with authorities in areas that do not fall under the centralised macroprudential authority's competences may be more difficult in the centralised model.

Table 2. Comparison of Macroprudential Institutional Framework in Emerging Markets

Country	Ownership of a macroprudential mandate: single (S) or multiple (M)	Ownership of a financial stability mandate: single (S) or multiple (M)	Islamic Banking	Interagency cooperation arrangements			
				Year of establishment	Number of agencies concerned	Role of the central bank	Role of the governmental agencies
1 Albania	S (CB)	S (CB)	Yes	2006	4	Member	Chair
2 Argentina		M	No	2010	2	Member	Chair
3 Armenia	S (CB)	S (CB)	No	2011	3	Chair	Member
4 Bahrain		S (CB)	Yes	Not established	1		
5 Brazil	M (including CB)	M	No	2006	4	Chair (in rotation)	Chair (in rotation)
6 Bulgaria	M (including CB, FSC)	M	No	2003	3	Member	Chair
7 Chile		M	No	2011	5	Member (observer)	Chair
8 China		M	No	2008	7	Member	Chair
9 Colombia		M	No	2003	4	Member	Chair
10 Croatia	S (FSC)	M	No	2013	4	Chair	Member
11 Hungary	S (CB)	M	No	2013	2	Chair	Member (advisor)
12 India	M (including CB, FSC)	M	No	2010	5	Member	Chair
13 Indonesia	S (CB)	M	Yes	2012	4	Member	Member
14 Kuwait		S (CB)	Yes	2011	2	Member	Member
15 Lebanon		M	Yes	2011	2	Chair	Member
16 Lithuania	S (CB)	S (CB)	No	Not established	1		
17 Malaysia		S (CB)	Yes	2010	2	Chair	Member
18 Mexico		M	No	2010	6	Member	Chair
19 Mongolia	S (CB)	M	SB	2007	3	Chair (in rotation)	Chair (in rotation)
20 Nigeria	S (CB)	S (CB)	Yes	1994	10	Chair	Member
21 Oman	S (CB)	S (CB)	Yes	2014	4	Chair	Member
22 Paraguay		S (CB)	No	Not established	1		
23 Peru		M	No	2008	3	Member	Member
24 Philippines		M	No	2014	5	Chair	Member
25 Poland		M	No	2008	4	Member	Chair
26 Qatar		M	Yes	2012	3	Chair	Member
27 Romania	S (FSC)	M	No	Not yet in force	3	Chair	Member
28 Russia	M (including CB, FSC)	M	No	2013	3	Member	Chair
29 Saudi Arabia		S (CB)	Yes	2012	2	Member	Member
30 Serbia		S (CB)	No	2013	4	Chair	Member
31 South Africa	M (including CB, FSC)	M	No	Not yet in force	3	Chair	Member
32 Thailand	S (CB)	S (CB)	No	2011	4	Chair	Member
33 Turkey	S (FSC)	M	Yes	2011	5	Member	Chair
34 Uruguay	S (FSC)	M	No	2011	3	Member	Chair

Notes: 1. CB = central bank, FSC = financial stability committee or other policy coordination bodies, and IR = integrated financial regulator.

Source: adapted from Egawa et al. (2015)

The decentralised model has as a relative advantage that discussions on macroprudential policy among those different authorities takes place within a committee and that decisions taken by the macroprudential authority are (in principle) backed by an agreement among the different parties around the table. This at the same time may result in the main drawback of the decentralized

model, namely the risks of inaction bias and the need for making compromises among the authorities which might reduce the effectiveness of any action taken. While all models present various strengths and risks for effective conduct of macroprudential supervision, mechanisms might be designed to mitigate somewhat some of the drawbacks of these institutional arrangements. In general, such mechanisms include strong accountability and governance frameworks. Beside the existence of separate accountability frameworks for monetary and prudential actions, this includes the publication of a policy strategy and regular public communication related to the assessment of systemic risks made by the macroprudential authority and the accompanying action.

Given the importance of macroprudential policies and the potential impact on the economy, regular reporting to Parliament might also help to enhance legitimacy. Other mechanisms are specifically targeted at dealing with the drawbacks of either one of the models. For instance, collaboration agreements and regular exchange of information with other relevant authorities might help mitigate some of the drawbacks of the centralized model. Governance arrangements such as a “comply or explain” mechanism (see next section) and a decisive vote for the central bank in case of disagreement might mitigate the risks of inaction bias in the decentralized model.

3.2 Macroprudential powers and instruments

Timely and effective macroprudential policy action requires adequate powers and instruments. Macroprudential authorities might have a wide range of powers and instruments at their disposal, generally depending on the institutional models used. In the centralised model, authorities have mostly direct control over specific macroprudential tools and their calibration. This direct power tends to enhance prompt action by the authorities and mitigate the risks of inaction bias. In a



decentralised model, however, powers are usually limited to formal recommendations, which might be coupled with a “comply or explain” mechanism. In this case, instruments need to be activated by another institution than the designated authority. Although recommendations might seem less effective, this mechanism might be useful to influence a wide range of regulatory actions. As highlighted by IMF (2013), the (public) “comply or explain” mechanism is important for the effectiveness of recommendations, as it makes compliance more likely and ensures transparency and public accountability regarding cooperation with other agencies.

The authorities also need to develop adequate indicators and methods that can help detect potential sources of systemic risk. In this context, wide access by the macroprudential authority to all relevant information is crucial for detecting threats to the financial system and conducting effective macroprudential policy. This includes not only information from supervised institutions but also from entities outside the supervisory perimeter. For instance, information related to unregulated sectors, such as the shadow banking sector, might be extremely valuable in the context of the recent strengthening of the banks’ regulatory framework, as vulnerabilities might be building up in other parts of the financial sector. Closing information gaps and improvement in the frequency, quality and timeliness of existing statistics is also particularly important to mitigate risks of inadequate assessment. It is also crucial to ensure homogeneity and comparability of data as macroprudential policies might have cross-border spillovers and require coordinated action in the context of globalised financial markets.

The contributions to the literature on specific macroprudential instruments can be categorized in various ways and highlighted several important distinctions. Table 3 provides an example of a taxonomy of macroprudential tools. There is a well-defined set of proposals for the instruments of macroprudential policy. Instruments under consideration range from rather indirect measures, which alter the cost of funding through capital and liquidity requirements, to very direct measures to control availability and price of credit. One important distinction is between tools geared towards addressing the time-series dimension of financial stability (procyclicality in the financial system) and tools that focus on the cross-sectional dimension (on how risk is distributed at a point in time within the financial system and contributions to systemic risk of individual institutions). For instance, the time series dimension captures the evolution of risk

over time, i.e. the pro-cyclicality of risk (BIS, 2001; Borio et al., 2001; Borio and Zhu, 2008; Brunnermeier et al, 2009; Shin, 2009).

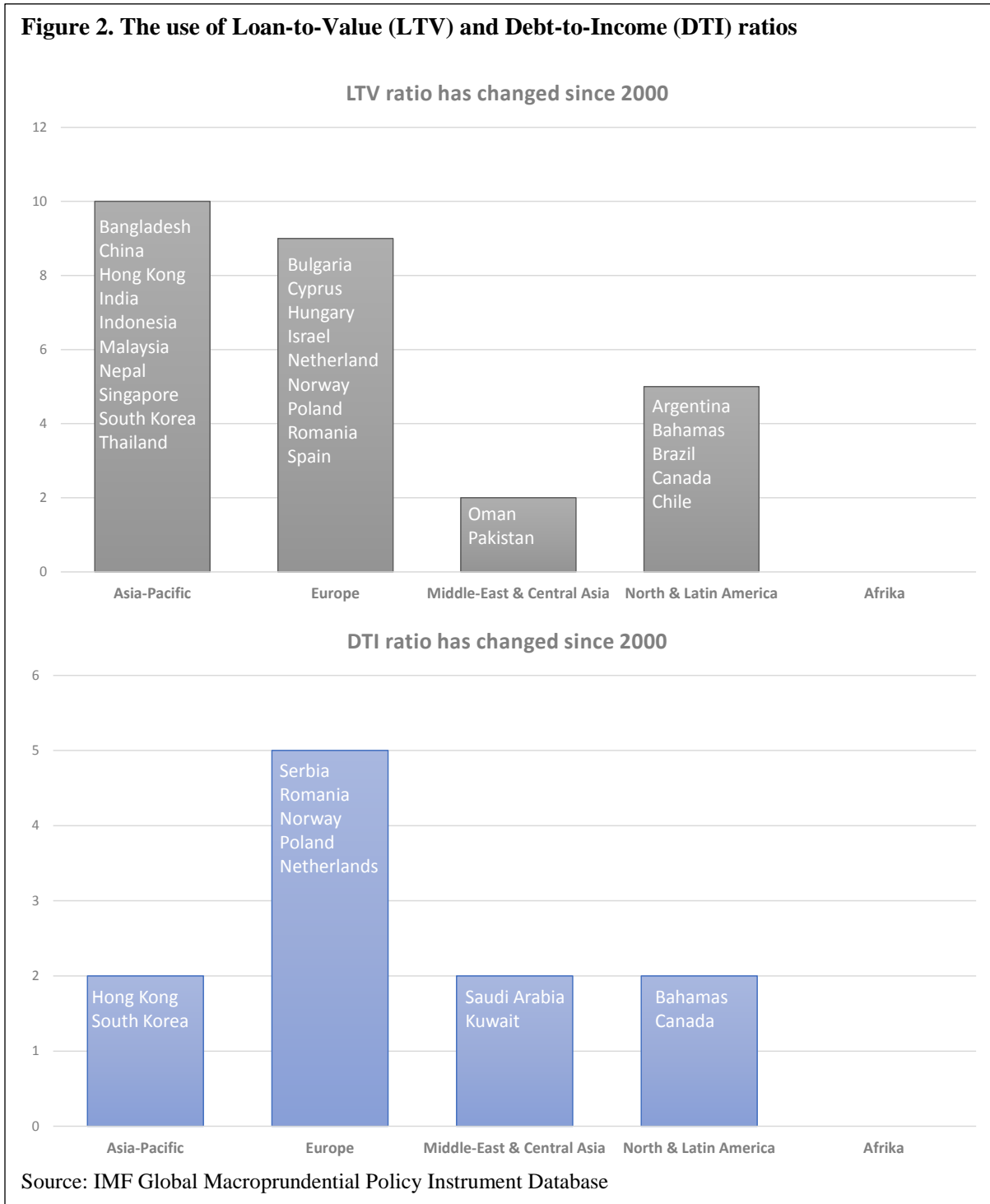
Table 3: Macroprudential Tools/ or Instruments

Type	Tools to address excessive credit expansion	Tools to address structural vulnerabilities and systemic risk	Intermediate Objective
Capital-based	Time-varying/countercyclical capital requirements or risk weights; Time-varying/dynamic provisions	Additional loss absorbency related to systemic importance; Levy on non-core funding	Credit; Concentration; Impact
Credit-based	Ceilings on credit or credit growth; Time-varying caps on loan-to-value (LTV) or debt service-to-income (DTI) ratios; Dynamic haircut-setting and margining	Limits on counterparty concentration risk	Credit; Concentration
Liquidity-based	Minimum reserve requirements; Time-varying minimum margin requirements	Caps on foreign currency lending; Limits on net open currency positions or mismatches; Limits on maturity mismatches	Liquidity
Structural		Resolution requirements for systemically important financial institutions (SIFIs); Disclosure policy for markets and institutions targeting systemic risk	Impact

Source: adapted from Collin, et al (2014).

Intermediate objectives of macroprudential policy in the banking sector are to: mitigate and prevent excessive credit growth and leverage (credit); mitigate and prevent excessive maturity mismatch and market illiquidity (liquidity); limit direct and indirect exposure concentration (concentration); and limit the systemic impact of misaligned incentives with a view to reducing moral hazard (impact). Capital-based and credit-based instruments are at the

centre of the policy debate. Figure 2 exhibits countries around the world that have used the two most popular macroprudential instruments (LTV and DTI) to restrain unsustainable lending in



mortgage markets.

3.3 *Capital-based instruments*

Capital-based instruments aim at increasing banks' resilience to credit losses by increasing their loss-absorbing capacity. If the higher cost of funding resulting from higher capital requirements is passed on to credit markets, this may also contribute to smoothing out the upswing in the credit cycle. Basel III envisages a so-called capital conservation buffer, a countercyclical buffer as well as a systemically important financial institutions (SIFI) surcharge, which can all be seen as macroprudential tools. The preference among policy makers for capital-related instruments seems to follow a political and economic rationale. Being familiar with capital regulation as a microprudential tool, regulatory and supervisory bodies are confident to successfully deploy this instrument also within a macroprudential framework. In addition, regulators see a benefit in increasing precautionary buffers in the financial sector, as it is argued that the primary goal of macro-prudential regulation should be to increase resilience of the financial sector, rather than to control the credit cycle or manage asset price risk. These buffers in the form of equity capital can be build up either by financial institutions, e.g., through higher capital requirements, or by the non-financial sector, e.g. through lower loan-to-value ratios.

Some have argued that broad-based counter-cyclical capital buffers may not be able to achieve this task to the desired extent and that other instruments should be considered more carefully. Especially in an economic downturn, when economic risks are mounting, banks may find it increasingly difficult to raise fresh capital and feel more comfortable with a buffer in excess of what is necessary for regulatory purposes. In this case, banks may chose to maintain the countercyclical buffer until business prospects look rosier again and release it only once markets have picked up or keep it even longer. As a consequence, the expansionary effect will not be as strong as intended or will even be reversed. During a boom phase, countercyclical buffers may not be suited to actively dampen credit supply to the desired extent either. Segment-specific buffers can have the advantage of targeting excessive developments in a more direct manner. The effectiveness of segment-specific buffers ultimately depends on whether the supervisor is able to define relevant market segments and to identify unhealthy developments in

a timely fashion. Segment-specific buffers would require detailed judgement of market risks and a micromanagement of capital requirements on the part of the supervisor. This includes the management of market expectations, which can ultimately be prone to errors of judgements.

Countercyclical risk weights might prove beneficial by allowing the authorities to manage capital requirements more quietly and to target cycles in specific market segments more directly. Countercyclical risk-weights could be designed to fluctuate around a long-term average which reflects through-the-cycle default probability. Raising risk weights during a boom phase would force banks to raise additional capital or to reduce asset volumes, with the effect being similar to raising headline capital requirements. By contrast, reducing risk weights during a bust phase, would automatically release equity capital and have an expansionary effect on bank balance sheets. Of course, managing risk weights instead of headline ratios does not eliminate the possibility that banks do not respond in the desired fashion. However, reducing risk weights would allow banks to strengthen their capital base, without having to reduce the size of their balance sheet or to go to the market for additional funding.

Dynamic or statistical provisioning can be used to smooth reported profits over the cycle and to provide a further buffer in addition to equity capital. The intuition behind using provisions as a macroprudential tool is as follows: Bank profits depend on the credit margin, which covers expected as well as unexpected losses, i.e. the former reflected by the risk premium and the latter by the assumed cost of capital. If the expected losses are earned by the bank, there shall be no problem with respect to loan valuations. However, losses are not evenly distributed over the cycle so that profits fluctuate. Statistical provisioning can be used to hold back profits in a boom phase, when losses are below the long-term average, and released in a bust phase. This shields bank capital in a downturn, which would otherwise have to bear the brunt and banks may be less inclined to reduce credit in a bust phase. Furthermore, the percentage share of provisions can vary over the cycle. Typically, statistical provisions are based on a portfolio's loss history of the past three to five years.

3.4 *Credit-based instruments*

Credit-related instruments such as loan-to-value or debt-to-income ratios, or outright lending limits, can be used to control lending more directly over the cycle. Unlike for capital-related instruments, the effect on capital is a rather indirect one, as precautionary buffers are built up by the borrower rather than by the lender. Lending limits impose direct restrictions on credit quantities. As such, they have the potential to affect the credit cycle. In addition, they generally increase borrowers' resilience by lowering their probability of default and/ or increase banks' resilience by lowering the loss given counterparty default. Restrictions on the level of debt tend to reduce the overall riskiness of a bank's loan portfolio, which reduces delinquency rates and preserves bank capital in a crisis.

Standard loan-to-value (LTV) ratios are a common instrument in the residential mortgage business. They are established either by legal force, i.e. to ensure prudent lending practices, or by private initiative, i.e. to ensure appropriate collateralisation of loan exposures. A number of countries use LTVs, but the typical threshold varies amongst them. Banks in English-speaking countries are generally prepared to lend up to 85% and sometimes more than 100% of the property value, whereas in continental Europe, thresholds are commonly set at 80% or below. In some cases the ratio varies over the cycle, usually along with general lending standards, in others, the ratio is kept constant over the cycle. Even if the LTV ratio is not allowed to fluctuate with the cycle, LTVs tend to affect lending in a pro-cyclical manner: With a constant or increasing LTV ratio, the amount that can be borrowed against a specific property increases along with a rise in the property's value. In a boom phase, borrowers may thus be able to take out additional loans, whereas banks may be forced to cut back on lending if property valuations fall.

Dynamic haircut-setting and margining are generally used in residential and commercial mortgage lending. However, systemic risks can build up also in financial markets, such as derivatives or securities lending markets. In fact, the dynamics that lead to pro-cyclical behaviour of financial markets are quite similar to those of bank lending. In many cases, haircuts

on collateral value and margin requirements limit the maximum exposure that market participants can take, i.e. analogous to LTV ratios in bank lending. Typically, haircuts and margins are set by a dealer or central counterparty to manage and limit their exposure in dealing with clients. An increase in asset price volatility and counterparty risk can lead to a situation in which margin requirements are raised automatically, reflecting higher risk. In such a situation, banks and other market participants may be forced to post more collateral or to reduce their exposure. From a macroprudential perspective it makes sense to reduce hair-cuts and margin requirements in a countercyclical manner in order to avoid a squeeze in market liquidity.

4. Macroprudential Policy in Dual Banking System

Most countries with the presence of Islamic banking have financial stability enshrined in their legislations. In some countries, a formal mandate is established explicitly in the law with “financial stability” stated as an objective, and the powers of responsible agencies clearly defined. Although the both conventional and Islamic finance share the same key risk categories, the growing share of Islamic finance in these countries requires further improvements in areas of risk management practices that are still weak or less developed in the case of the latter compared to the former, such as liquidity and risk management. In this section, we provide a case for selected countries which having a dual banking system name Malaysia, Indonesia and GCC countries.

Malaysia

In Malaysia, the mandate for financial stability is specified in the Central Bank Law and the Bank Negara Malaysia (Central Bank) is charged with the responsibility of ensuring financial stability in the economy. In an effort to strengthen the financial stability framework since the global financial crisis, the government amended the legislation to make the mandate more explicit. The amended Central Bank Act 2009 (CBA) boldly stated that its principal objectives “shall be to promote monetary stability and financial stability conducive to the sustainable growth of the Malaysian economy” (Lim, et al. 2013). The design of macroprudential policy in Malaysia focuses on 4 key elements: discretionary, targeted, allow for calibration and

coordinated with other policies. The whole process is supported by strong institutional arrangements and governance framework to manage complex policy trade-offs. Under macroprudential policy measures, the existence of Islamic bank in Malaysia is treated the same as the conventional banks to regulatory arbitrage.

The CBA has accorded the Bank Negara Malaysia all the powers to implement macroprudential policy alone or in conjunction with other regulatory agencies. However, BNM has so far been implementing macroprudential measures independently without involving other agencies. Examples of the macroprudential instruments implemented in Malaysia in the 1990s¹ include to curb speculative inflows (1994), maximum LTV of 60% on purchase of selected properties (1995) to curb excessive lending for consumption purposes as well as to contain systemic impact of correction in domestic property market, sectoral lending limits (broad property sector, purchase of shares and unit trust funds) (1997) to limit banks' exposures to the equity market/broad property sector and reduce speculative and investment activities, and exchange control measures (1998) to discourage large scale inflows of short-term funds.

The macroprudential framework in Malaysia has evolved substantially over the years and the strategy adopted has been all-encompassing in terms of the framework and infrastructure development, capability enhancement, governance structure and communication. These changes are aimed at ensuring that the macroprudential framework remains dynamic and relevant in addressing the present and future challenges. Some of the macroprudential measures implemented by the central bank since the last global financial crisis include, revision of eligibility requirements for credit cards in 2011, and tightening the lending conditions on mortgages three times by adjusting the LTV ratios in 2010 and 2011.

Indonesia

Like Malaysian and other Asian countries, macroprudential policies are not new to Indonesia. Recently, Indonesia has changed its institutional framework for financial stability by creating an independent financial regulatory agency, Otoritas Jasa Keuangan (OJK), to regulate and

¹ Yunus, N. S. M. (2012). Country Experience with the use of Macroprudential Policies – Malaysia.

supervise the activities of banks, capital markets, insurance, pension funds, and other financial institutions. This law also introduced a macroprudential policy framework which has the Forum of Financial System Stability Coordination with the mandate of monitoring, evaluating and maintaining the stability of the financial system.

A number of policy instruments were used since the Asian financial crisis and after the financial crisis in 2008. Indonesia has implemented various macroprudential policy measures to complement other measures to maintain financial stability in the economy. In other words, Indonesia adopted policy mix to address policy challenges that emanated since the global financial crisis. The rationale was that given the nature and composition of the challenges, interest rate policy could not be solely reliable to contain the inflation pressures. Rather, some macroprudential measures were also used to complement the interest rate policy to manage capital flows and domestic liquidity.

Some of the macroprudential policy measures implemented in conjunction with other measures in Indonesia recently. Increase Rupiah reserve requirement from 5% to 8% effective November 2010, which was adopted to absorb domestic liquidity and enhance liquidity management of the banks, without exerting negative impact on lending that are needed to stimulate growth. The central bank introduces new LTV for lending to automotive and property and loan to deposits ratio (LDR) for strengthening banking intermediation. Moreover, tightening the standards for credit cards to reduce excessive lending to these sectors while maintaining the overall lending growth to be consistent with macroeconomic outlook. Finally, introduce the Credit Base Rate Transparency (CBRT) aims to mitigate credit risk exposed in banking by promoting sound and competitive environment as well as increases good governance in banking industry.²

Gulf Cooperation Council (GCC) Countries

² Warjiyo, P. (2013). Indonesia's Monetary Policy: Coping with Volatile Commodity Prices and Capital Flows. BIS Papers No.70.

GCC countries are characterized by high dependence on exports of hydrocarbons and operate fixed exchange rate regime, which makes fiscal policy their first choice in managing cycles associated with the volatility associated with changing conditions in global energy markets. However, fiscal policy, by its nature, is not sufficient in preventing credit booms and the buildup of systemic risk that occur in the financial sector. Therefore, other tools such as macroprudential policy are needed to complement fiscal policy in managing financial cycles associated with changes in energy price. Some of the key macroprudential policy instruments being used by the GCC countries include LTVs, Debt/Loan-to-income ratios, limits on loan-to-deposit ratios, liquidity requirements, caps on foreign currency lending, and limits on exposure concentration.

Other key characteristics of the GCC economies include limited monetary policy independence, underdeveloped domestic fixed income markets, weak corporate governance practices and high credit concentration, and the growing dominance of Islamic finance. Limited monetary policy independence and high liquidity during boom periods make it difficult to manage aggregate demand and contain credit expansion, while lack of developed fixed income markets such as bonds and derivatives markets limits the functions of the financial sector's tools such as interest rates and liquidity risk management (Arvai, et al. 2014). The heavy concentration of the GCC economies on export of hydrocarbons at the expense of other key economic sectors led to the dominance of real estate lending which undergo cycles thereby raising systemic risk of the financial system.

Although various macroprudential policy instruments have been used over the years by GCC central banks, the mandate has not been legally organized in all the countries with exception of Qatar. The government has vested its Central Bank the mandate to regulate and supervise its financial system through a formal structure, which enables it to coordinate with other institutions under the Financial Stability Committee. The central banks in Kuwait, Oman, and Saudi Arabia carry out the key function of regulating the financial system through bank supervision while the capital market authorities regulates the capital market institutions. The Central Bank of Bahrain is the only institution tasked with function of regulating the financial system, while in the UAE, a number of institutions including the central bank, the stock

exchanges, and the Insurance Authority are jointly responsible for the regulation of the financial sector.

It could also be observed that there are no specific macroprudential policy instruments used in these countries for regulating Islamic banks. This might stem from the fact that macroprudential policy the countries treat both the conventional as well as the Islamic banks equally in dealing with the financial stability. However, this does not underscore the need to pay attention to some systemic risks that are peculiar system. For instance, given the growing relevance of the Islamic banks in the financial sectors of these countries, the issue of liquidity risk that face the sector need to be closely monitored and macroprudential policies need to be devised to control it.

5. Conclusion

Macroprudential approaches to regulate the financial system against systemic and other economy-wide risks are widely adopted by many central banks and regulators. They are regulatory policies that aim to reduce risks, ensure stability of the financial system as a whole against domestic and external shocks, and ensure continuous effective functioning of the system. Despite the importance of macroprudential policy framework to the stable functioning of the financial system and the economy in general, research in this area especially pertaining to Islamic financial institution is limited.

In the preceding sections, we provide a synthesis the going literature on macroprudential policies for countries with conventional banking system and for some countries that have a blend of both conventional and Islamic banks systems. Macroprudential policies are carried out by either a centralized authority or a decentralized body in form of a committee of institutions established by the government. Among the macroprudential tools, loan-to-value (LTV) or debt service-to-income (DTI) are the most common tools use by the central banks or regulatory authorities.

It is observed that countries that operate dual system (conventional and Islamic banking) do not distinguish separate macroprudential policies for risks from the two different types of banking systems. Countries mostly apply international bank supervisory standards to Islamic banks, with adjustments. However, since Islamic banking is started to capture a share within the financial systems of these countries, there is the need to provide macroprudential policies for risks that are peculiar to Islamic banks of which might affect the entire financial system.

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