Measuring Cyclical Behavior of Islamic and Conventional Financing: Evidence from Indonesian Dual Banking System

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ABSTRACT. A thorough analysis about the financial cycle encompassing several financial variables, most importantly including credit, from a conventional perspective has been carried out by previous studies. These studies revealed that the composite cycle is of paramount importance to issue a proper policy. The boom-and-bust of the cycle must be considered in order to achieve the macro prudential objective of curbing excessive credit growth and preventing the build-up of systemic risk. To that end, in the context of the dual banking system where Islamic and conventional banks operate side by side under similar financial circumstances, it is crucial to assess whether the Islamic financing cycle behaves as its conventional counterpart. Given the fact that most of the literature has focused on the cyclical behavior from a conventional perspective, this paper assesses the characteristics of both Islamic and conventional financing cycles. This analysis will help in framing adequate policy implementation of macro prudential policies for the dual banking system. Following the methodology employed by Drehmann, Borio, and Tsatsaronis (2012) in forming the common cycle, this paper concludes that Islamic banks functioning under the same environment as their conventional counterparts, appear to have a similar peak-and-trough cycle but different amplitude. This means that macro prudential policy, particularly countercyclical capital buffer (CCB) policy is deemed crucial to be adopted in Islamic banking as set out in the Islamic Financial Services Board document, IFSB-15 (IFSB, 2013).

KEYWORDS: Credit cycle, Countercyclical Buffer, Dual Banking, IFSB-15.

JEL CLASSIFICATION: E30, E32, E58, G29

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1. Introduction

It was commonly believed that safeguarding macroeconomic stability was sufficient by solely implementing monetary policy (interest rate) to promote price stability in the economy (Agung, 2010; Agung, Juhra, Harmanta, & Tarsidin, 2016). In other words, the soundness of individual financial institutions, called as micro prudential framework, is adequate to preserve financial stability. The previous paradigm had been prevailing among regulators to maintain the economic stability before the eruption of severe financial crisis in 2008. This paradigm was considered as pre-crisis standard. However, the pre-crisis model was not able to withstand the severe shocks which in turn led to the recent financial crisis in several advanced economies. As a result, there is a post-crisis paradigm which is not so much a new model, but fine-tuning the old concept to safeguard the financial system stability from adverse shocks. The post-crisis view posits that financial stability should be maintained by strictly monitoring the behavior of financial variables, most importantly credit. That being said, repeated financial crises have transformed and improved the regulatory aspect of the current banking system by requiring banks to maintain higher capital (Quarles, 2019, p.5). Such a post-crisis model has gradually been of great concern for policy makers in many developing countries.

Since then, there is a growing amount of literature which aims to examine extensively the post-crisis view by exploring the role of financial variables in increasing the possibility of crises (see for example, Aikman, Haldane, & Nelson, 2015; Claessens, Kose, & Terrones, 2011a; Dell’Ariccia et al., 2012; Drehmann et al., 2012; Jordà, Schularick, & Taylor, 2015; Pontines, 2017; Jordà, Schularick, Taylor, & Ward, 2019). From the regulatory point of view, the Basel Committee on Banking Supervision (BCBS) has issued guidance for the national authorities of countries to implement macro prudential policy called countercyclical capital buffer regime, which has been introduced to attain broader macro prudential purpose. That document sets out the principles that have to be taken into account by the authority responsible to address the main purpose of adopting countercyclical capital buffer (CCB), which is to safeguard the banking sector against substantial losses caused by the excessive credit growth that closely coincides with the build-up of systemic risk (BCBS, 2010, p. 3).

Given the primary objective of the regime, it can be stated that the implementation process of macro prudential policies in the banking sectors is related closely to the excessive growth of credit. To identify the periods of buoyant credits in the economy, it is important to analyze the cyclical behavior of credit, as the boom of the credit cycle precisely coincides with the dramatic rise in credit expansion. Hence, the activation of macro prudential tools depends upon the movement of the cycle. For instance, CCB is activated during the boom period when rapid credit growth takes place so as to give the banks enough time to hold some of their capital as a buffer, enabling them to conduct business during the recession.

As many previous works have shed some light on the credit or financial cycle from the conventional perspective, this paper attempts to characterize the cyclicality of conventional and Islamic financing in the dual banking system perspective using the standardized methodology. This is motivated by the essential nature of Islamic banking. Shari’ah principles mandate that all financial activities, especially financing conducted by the bank, be free from interest rate, speculative transactions, and based on the real sector. Despite the distinct features of Islamic banks from their conventional counterparts, there are two contentious views on whether the behavior of Islamic bank financing is pro-cyclical or countercyclical. The recent study by Ascarya, Rahmawati, and Karim (2016a), and Widodo (2018) revealed that financing extended by Islamic banks, which is currently dominated by murābahah contract, tends to behave in a pro-cyclical manner. On the other hand, the key findings of the studies by Ibrahim (2016), and Sakti and Zulkhibri (2018), demonstrated the countercyclicality of Islamic bank lending. It is because of this reason the study of the credit cycle becomes relevant in the context of the dual banking system, contributing to the scholarly debate on this issue.

In terms of methodology, the construction of the credit cycle can be done, following previous literatures on the financial cycle, by employing a number of methods; the turning-point method (Claessens et al., 2011a; Claessens, Kose, & Terrones, 2011b; Jordà et al., 2015; Jordà et al., 2019); or by applying both frequency-based filter and turning point method.
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(Drehmann et al., 2012); by relying on frequency based analysis (Aikman et al., 2015); and by using autoregressive moving average (Strohsal, Prouño, & Wolters, 2015; Pontines, 2017). Regarding the variables, credit growth in its broad definition or bank credit is the main variable assessed to construct the model. In some studies, it is deployed in tandem with other financial variables, e.g., property prices and equity, among others. The main findings from those previous works show that the peaks of credit cycles are highly correlated with systemic banking crises thereby resulting in enormous losses on the whole financial system.

To put this into perspective, this study is aimed to fill the existing gaps in recent literatures described previously: it first attempts to identify the cyclical behavior of Islamic and conventional financing in a dual banking system by employing standardized methodology to construct the cycle, i.e., band-pass filter coupled with turning point algorithm that has been widely used in identifying the business and financial cycles. Secondly, this study aims to look more carefully at whether the resulting financial/credit cycle in a dual banking system is able to identify the period of boom and bust and to gauge the extent to which the credit cycle is expanding or contracting.

2. Literature Review

2.1 Financial Cycle in a Global Context

Prior to the financial crisis of 2008, the business cycle, and macroeconomics in general, have mostly been studied by solely considering the principle role of real variables rather than financial factors, in particular credit. However, in the last ten years, it has become essential to understand the macroeconomic fluctuation by analyzing the financial cycle. Hence, in this section, we need to first explain the main definition of the financial cycle and its primary characteristics and principle features. The key findings from previous studies will also be discussed.

The definition of the financial cycle may vary widely, but it can be summarized to what Borio (2012, p. 2) has emphasized, denoting that the financial cycle is “self-reinforcing interactions between perceptions of value and risk, attitudes towards risk and financing constraints”. Such interactions result in booms followed by busts that seem to have led to the cyclical fluctuation in the economy that has prevailed after the severe financial crisis of 2008. Given this definition, the studies on forming financial cycle should be based on several variables that can explain properly the risks and economic agents’ reaction to such risks as well as financing constraint. As such, many attempts were made by previous studies to capture more comprehensively the relationship between the above-mentioned three parameters through incorporating several primary financial variables, e.g., property or house prices as a proxy of the perceptions, and financing constraint as could be portrayed by credit in characterizing the financial cycle.

On the other hand, the seminal works have mostly been undertaken from the conventional perspective, among others by Claessens et al. (2011a); Claessens et al. (2011b); Drehmann et al. (2012); Aikman et al. (2015), and more recently by Strohsal et al. (2015). The countries covered by these works have mainly been developed countries. Hence, countries that have adopted a dual financial system, mostly emerging economies, have yet to be fully addressed. Given that, the previous studies are highly beneficial to which this study will refer to set the wider framework for carrying out a thorough macroeconomic analysis in a dual banking system.

The works on business cycle which covered a large number of countries have long been conducted by many economists, yet the works on the financial variable along with related aspects was partly analyzed. Against this backdrop, Claessens et al. (2011a) sought to fill the gaps of existing literature by identifying more aspects of the financial cycle, encompassing interactions between the perceptions of risk and financial constraint as represented by asset, equity prices, and credit growth with the cross-country analysis (21 advanced countries from the OECD were included). Given the large dataset used, this study was also able to better document the determinants of duration and amplitude – both are the main features of financial cycles – after identifying the peak-and trough of the financial cycle by using established methodology.
The major features of the financial cycle can be distinguished into three parts. First, in terms of frequency, the financial cycle appeared to be prevailing in the pre-globalization era compared with that in the financial liberalization era (1986-2007). Second, the time spent in the downturns of the cycle had been less protracted than the upturns, lasting about 5 to 8 quarters for the former and 8 to 22 quarters for the latter, respectively. Third, regarding the amplitude of the cycles, the upturns and downturns of the credit cycle were much deeper in the pre-1980’s period in contrast to what happened to equity prices which had been increasing in the globalization period. Furthermore, the result was appealing when it came to deal with the cycle synchronization within countries, proving that the credit and house prices were perfectly correlated while the equity prices seemed to be less pronounced. In fact, such a situation might not persist across countries’ synchronization as credit tended to be highly synchronized with equity prices.

Since the previous work has yet to investigate in greater detail the importance of the correlation between the real economy and the financial market, Claessens et al. (2011b) complemented their prior study by augmenting the business cycle in their model and analyzed how both the business and financial cycles were correlated to each other and varied across the phases of the cycles. Regarding the data used, they tried to cover more countries in their latest study. They studied 21 advanced economies as well as 23 emerging markets countries. The primary results revealed that the synchronization level between credit and the business cycle (as portrayed by GDP) was much higher compared with the concordance between the business cycle and equity prices.

Relying greatly on related literature that had been undertaken, Drehmann et al. (2012) sought to do a more thorough analysis, particularly on the comparison of the length and amplitude of both the business and financial cycles across advanced economies. To that end, they employed several main variables, which were mainly based on prior researches, incorporating credit, property/house prices, equity prices (as discussed before by Claessens et al., 2011a, 2011b), credit-to-GDP ratio, and aggregate price index in characterizing what they called as c movement of medium-term cycle, known later as the financial cycle. Hence, GDP as a proxy for business cycle was treated with short-term cycle lasting between 1 to 8 years. Related to the period studied, they divided the sample into two eras, namely pre-1985 and post-1985, enabling them to fully grasp the financial liberalization.

Unlike some previous works which used the traditional-dating algorithm known as turning point, Drehmann et al. (2012) employed both turning point and band-pass filter so as to point out essential features of the financial cycle more comprehensively. The results demonstrated several key findings that could be summarized as follows. First, the volatility of medium-term cycles, particularly credit and house prices, in post-financial liberalization era appeared to be higher than in the first era. Second, the systemic crises had coincided precisely with the peak of the cycles in medium-term credit and residential prices and that such association became more pronounced in the post-liberalization era. Third, medium-term of cyclical behaviors resulting from credit and property prices could best capture the financial cycle compared to the rest of the financial variables. Fourth, it was apparent that a peak of the financial cycle which had greater amplitude seemed to be close to a crisis period.

Furthermore, Aikman et al. (2015) highlighted the existence of the medium-term cyclical component that could be characterized mainly by financial variables, notably real credit growth and credit-to-GDP ratio and then compared it with the cycle in real business. They drew upon the long run dataset compiled by Schularick and Taylor (2012) for 14 developed countries over a century spanning from 1870 to 2008, and focused their study on the UK and the US. Their findings indicated that both cycles had been totally different phenomenon in which the amplitude of the credit cycle had quadrupled compared with the business cycle. Given these results, they also attempted to investigate in more detail whether there was intimate association between the systemic banking crisis and the credit cycle and explained that the credit growth (denoted by ratio of credit-to-GDP), exceeded the money growth, and thus, it might become a key indicator for financial crisis.

Since rarely have researchers utilized common econometric model, Strohsal et al. (2015) then sought to explore the financial cycle characteristics by time series method namely ARMA. The results demonstrated the significant change of the cyclical behavior of the financial cycle post-financial liberalization era.
which was generally the same as the business cycle length during the pre-1985 era. This study therefore yielded an interesting insight to the behavior of the financial cycle after financial liberalization in the UK, US, and Germany, that the typical duration of the financial cycle has increased in recent times currently lasting around 15 years. This implied the principal effect of liberalization to the behavior of credit.

### 2.2 Procyclicality and Macro prudential Policy in a Dual Banking System

The concept of cycle is associated closely with the term procyclicality, which can be defined as the fluctuations of financial variables that are able to amplify the economic cycle (Landau, 2009, p. 1). As such, during expansion phase of the economy, credit tends to excessively grow to a considerable extent, making the economy prone to severe recession during the bust period. The concept of procyclicality is in line with what Minsky (1986), and Kindleberger and Aliber (2005, pp. 7-10) explained in their seminal work, showing that the period of economic euphoria is associated closely with the buoyant credit, and coinciding with the expansion phase of the business cycle.

A growing number of studies in a dual banking system have examined whether the behavior of Islamic bank financing is procyclical, and hence there being a need to impose macro prudential tools that aim to limit excessive credit growth. There are two strands of literature which comprehensively analyze the cyclical behavior of Islamic bank lending. The first line of study emphasizes that Islamic financing extended by Islamic banks tends to behave in a procyclical manner, meaning the growth of financing relies greatly on the movement of the business cycle. Using time series data, Ascarya et al. (2016a), and Widodo (2018) reveal that the procyclicality of Islamic bank financing exists in the context of the dual banking system in which Islamic banks operate side by side, and in a similar environment to their conventional counterparts.

The second strand of literatures, however, raises doubt as to whether the behavior of Islamic bank lending is pro-cyclical. A recent study by Sakti and Zulkhibri (2018) examines extensively how Islamic financing behaves in the Indonesia dual banking system by employing panel data. The study demonstrates that the conventional bank lending is procyclical as evidenced from the positive relation between bank lending and economic growth (business cycle). In contrast, there is no evidence which supports the pro-cyclicality behavior of Islamic bank financing in Indonesia. This finding is in line with the conclusion of a similar study by Ibrahim (2016) which analyses the behavior of bank lending in the Malaysian dual banking system.

The contentious views on the cyclical behavior of Islamic bank financing stimulates a growing debate about the relevance of implementing macro prudential policies in the Islamic banking system. Zulkhibri (2019, p. 69) explains the presence of different views among scholars concerning the adoption of macro prudential tools in the Islamic financial system, similar to those in the conventional system. The proponents of the use of macro prudential policy argue that Islamic finance may be exposed to several shocks which emanate from its deviations from Sharīʿah norms. Similar to this view, Ascarya, Rahmawati, and Karim (2016b, p. 1) also stress that it is likely that Islamic banks – when functioning in a dual banking system – face financial imbalances, and hence, the macro prudential tools should be introduced in the system to prevent the systemic risks and to strengthen the stability of the Islamic banking system.

Other scholars argue against the previous view, emphasizing that the salient features of Islamic banking, namely, prohibition of excessive risk-taking and speculative transactions, and adherence to the Sharīʿah norms, makes the macro prudential policy irrelevant to be enforced within the system (Zulkhibri, 2019, p. 69). As Islamic banks have clearly different features compared to their conventional counterparts, particularly which relate to cyclical behavior, Sakti and Zulkhibri (2018, pp. 35-36) conclude that it is necessary to develop a sound framework for macro prudential policy that is suitable for Islamic banking within a dual banking system.

### 2.3 Indonesia Credit Cycle Behavior and Macro prudential Regulation

In the context of Indonesia, the studies of financial cycle coupled with the business cycle have been conducted but are limited. The study by Alamsyah, Adjamanti, Yumanita, and Astuti (2014) first aimed to fill the gaps in the recent literatures in Indonesia. Using the similar financial variables and methodology as in Drehmann et al. (2012), they showed that the credit growth and credit-to-GDP ratio – in the narrow and broad definition – could be the best indicators for
the financial cycle, whereas property and equity prices exhibited relatively weak concordance index. Since Indonesia has been a bank-based economy, narrow credit could better characterize the financial cycle rather than broad credit. Importantly, it was worth emphasizing that the financial cycle could be used as an early warning indicator for financial crisis. Furthermore, their study is in line with other previous literatures that suggested the length of the business cycle was much smaller than that of the financial cycle.

Later on, this study was complemented by Harun, Taruna, Nattan, and Surjaningsih (2014) in several respects, notably the attempt to forecast the financial cycle so as to propose useful guidelines on CCB implementation. The result from forming the financial cycle documented a similar pattern as in Alamsyah et al. (2014) while the forecast of the cycle suggested the predictive power of financial cycle and other stress indicators to be one of the obvious references to applying CCB.

Despite the aforementioned explanation, studies on the credit cycle in a dual banking system wherein conventional and Islamic banks function together are rather rare. Such a system, however, has been adopted within their financial system by several countries, predominantly those having more Muslim populations, Indonesia being one of them. In terms of regulation and guidance, the Islamic Financial Services Board (IFSB) has introduced some regulations in its recent document, IFSB-15: Revised Capital Adequacy Standard for Institutions Offering Islamic Financial Services. The document contains a set of regulations concerning the capital standard that encompass capital conservation buffer and countercyclical buffer, which is needed given the fact that Islamic banks tend to behave in a procyclical manner (IFSB, 2013, pp. 18-19).

Accordingly, Bank Indonesia has recently enacted the requirement of holding amount of capital as a buffer (CCB) for both conventional and Islamic banks in Indonesia which is heavily relied on the financial cycle indicators, as has been enshrined in the Bank Indonesia Regulation No. 17/22/PBI/2015 (Bank Indonesia, 2015). The CCB that has to be held by both conventional and Islamic banks is time-varying ranging from 0% to 2.5% of risk-weighted assets. Since this regulation will be implemented for Islamic banks operating in Indonesia, it is therefore crucial to assess the characteristics of the credit cycle in the dual financial system because most of studies have focused their research on similar conventional financial system.

The recent study on this issue was recently done by Widodo (2018). He attempted to fill that gap by building the cycle model from bank credit in Indonesia and used it to evaluate how effective macro prudential and monetary policies can be implemented in a dual banking system. However, the study relies on one variable only, namely credit, ignoring the rest of the financial variables, notably the credit-to-GDP ratio, which is considered consistent internationally to be the main indicator for CCB implementation. As has been detailed in BCBS (2010, p. 3), credit-to-GDP ratio is an early standard reference in considering buffer decision. This common indicator is also employed in gauging the imposition of CCB as documented by IFSB (2013, p. 134).

3. Data and Methodology

3.1 Data

In order to characterize the cycle, this study attempts to analyze the behavior of four variables for both conventional and Islamic banks from the period 2004 up to 2017 on a quarterly basis. The selected variables are mainly based on data covering the period of the 2005 mini crisis and the 2008 global financial crisis. This study seeks to identify the main features of the financial cycle in a dual banking system during both crisis periods in Indonesia, and also to assess whether the financial variables included are able to be a preliminary indication as to when CCB shall be imposed. As suggested by Aikman et al. (2015), and Schularick and Taylor (2012), it is vital to include the credit and credit-to-GDP ratio as the main variables. However, according to Drehmann et al. (2012), the financial cycle can be best characterized by credit and credit-to-GDP ratio that capture funding risk and asset price as the representatives of price and risk perception. Based greatly on the previous study of Aikman et al. (2015), this study, however, will include only two variables from the other financial variables, namely: credit/financing and credit/financing-to-GDP ratio, given the fact that the source of credit in Indonesia is mostly dominated by bank credit, well above 60 percent (Alamsyah et al., 2014, p. 21).
Table (1) Data used for characterizing Major Feature of Credit cycle

<table>
<thead>
<tr>
<th>Data</th>
<th>Source</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio Credit-to-GDP</td>
<td>Same as above</td>
<td>2004.Q4 – 2017.Q1</td>
</tr>
<tr>
<td>Ratio Financing-to-GDP</td>
<td>Same as above</td>
<td>2004.Q4 – 2017.Q1</td>
</tr>
</tbody>
</table>

Source: Prepared by author.

The credit date used covers all types of credit offered by both conventional and Islamic banks to the private sector. As for Islamic banks, the financing data includes muḍārabah and mushārakah types, based on IFSB-15 (2013, p. 131). Arguably, Islamic financing is more likely to be distributed in the real-based investment which may not result in credit or asset price bubbles as erupted in the conventional system during the recent financial crisis. Yet, investing in the real sector, importantly real estates, tends to have a cyclical manner that leads to a condition so-called procyclicality (IFSB-15, 2013, p. 18). Considering this fact, it is advisable to include both types of financing in the process of constructing the credit cycle.

3.2 Methods of Constructing the Cycle

3.2.1 Band Pass Filter

The growing body of literature concerning the business cycle has commonly employed the filtering methods to isolate both high and low cycle frequency. To that end, the common method used is HP Filter – a procedure proposed by Hodrick and Prescott (1997) to generate the trend of time series variables and the cyclical counterpart. This procedure has primarily been employed for investigating the cycles from the real side of the economy encompassing national consumption, investment, inflation, money, productivity, and employment. While the HP filter has gained widespread acceptance among the bulk of literatures focusing on business cycles, there was another alternative tool that could, to some extent, perform better in isolating the frequency of cycle components, namely band-pass filter which was developed by Baxter and King (1999) and later on by Christiano and Fitzgerald (1999 & 2003).

According to Baxter and King (1999), there was a shortcoming from deploying the HP method compared with the filtering method that they proposed. In the HP method, there was a difficulty to properly judge the parameter, denoted by \( \lambda \), as HP necessitates a different \( \lambda \) when applied in different periodicities such as annual, quarterly, or monthly. The Band-pass filter might certainly be flexible and easier to be used at any periodicity given. The proposed filtering method was then further refined by Christiano and Fitzgerald (2003) who designed another band-pass which was capable of remedying the shortcomings of the previous HP filter. When applied to study the behaviors of cyclical components stemming from money and inflation, and compared to the previous methods, this filtering method yields several results that are worth noting. In some cases, particularly which related to real time, Random Walk filter – one of the types in the band-pass introduced by Christiano and Fitzgerald (2003) – could perform better than the HP did. Regarding the capability of Random Walk to be adopted in a lower frequency compared to other alternatives, it has been relatively easier to deploy in daily, weekly, monthly, and annually periodicities.

The implementation of this filter can be illustrated as follows: \( x_t \) is the component to be isolated in two specific periods: \( p_t \) and \( p_u \), in which \( 2 \leq p_t < p_u < \infty \). For quarterly data as used in this present study, it is crucial to note that if \( p_t = 6 \) and \( p_u = 32 \), then the component is isolated between 1.5 to 8 years. The resulting component of this filtering process is denoted by \( y_t \), generated from the following equation (Christiano & Fitzgerald, 2003, p. 437):
\[ \hat{y} = B_0 x_t + B_1 x_{t+1} + \ldots + B_{T-1} x_{t-1} + B_T x_T + B_{T-1} x_{T-1} + \ldots + B_{T-2} x_2 + B_{T-1} x_1 \]

for \( t = 3, 4, \ldots, T - 2 \) \hspace{1cm} (3.1)

Based on the aforementioned explanation about the filtering method, this paper deploys the band-pass filter that was developed by Christiano and Fitzgerald (2003), primarily due to the following reasons. First, this filtering method has proved to be working better and has been excellent in lower frequency data. As the main aim of this study is to isolate the medium-term cyclical behaviors which last between 8 to 20 years, it seems capable of achieving such objective. Second, in recent literatures, there is an increasing trend to deploy this band-pass to address the recent issue of credit and business cycle that is more pronounced after the Great Recession in which advanced economies suffered the most. Because the cyclical behavior of credit, as described by Drehmann et al. (2012), and Aikman et al. (2015), has been regarded as the low frequency – termed medium-frequency component as opposed to high-frequency by Comin and Gertler (2006) – the use of this filtering method is able to accurately identify the unique characteristics of the credit cycle in the dual banking system in Indonesia.

3.2.2 Turning Point Algorithm\(^{(2)}\)

This study also applies other quantitative methods as commonly used by many researchers, namely turning point analysis, following Bry and Boschan (1971) that was later developed by Harding and Pagan (2002) to be used in quarterly basis, so as to obtain the state in which the credit/financing has reached its peak or trough. By employing such a traditional method for dating the cycle, we can examine whether such credit booms precede a financial crisis. In determining the period of crisis, this paper follows Alamsyah et al. (2014) who had demonstrated there were two periods to be studied: first, 2005.Q3 – 2006.Q1, when the Indonesian economy underwent a mini economic crisis and second, 2008.Q4 – 2009.Q4 when Indonesia had been hit by the global financial crisis.

The question whether the peaks of the credit cycle accord fully with the crisis dating will be addressed by using the so-called BBQ that stands for *Bry and Boschan Quarterly*. It needs the local maxima and minima over the time frame (window) and then at the second step the censoring rules can be enforced to assess the minimum duration of the cycle by calculating the change of two peaks as well as the duration phase (the time spent from peak to trough, and *vice versa*) (Drehmann et al., 2012, p. 27).

As discussed earlier, the business cycle is isolated in the short-term cyclical pattern thereby requiring the minimum phase (the length between peak and trough) and cycle which determines the time spent between two consecutive peaks or troughs to be at least two quarters and five quarters, respectively. While the medium-term periodicity is applied in the financial variables employed to characterize the financial cycle which lasts between 8 up to 30 years. Hence, 9 quarters and 5 years period are used for imposing the minimum phase and cycle of the financial cycle, as suggested by Drehmann et al. (2012, p. 27).

3.2.3 Concordance Index

Constructing the common cycle, which is the combination of several variables that move together, it is necessary to select what variables will be included to compose the credit/financial cycle: both credit and credit-to-GDP ratio or only one variable (credit). Thus, to identify the co-moving degree of variables toward one another, the concordance index (CI) as developed by Harding and Pagan (2006, p. 64) is used. The estimation can be written as follow (3.1)

\[
CI_{xy} = \frac{1}{T} \sum_{t=1}^{T} [C^x_t C^y_t + (1 - C^x_t)(1 - C^y_t)] \hspace{1cm} (3.2)
\]

where, \( C^x_t \) and \( C^y_t \) are the binary value (0 or 1) for series \( x \) and \( y \) with notes:

\[
C^x_t = \{0 \text{ when } x \text{ is contracting at } t; 1, \text{ when } x \text{ is expanding at the period } t \}\]

and

\[
C^y_t = \{0 \text{ when } y \text{ is contracting at } t; 1, \text{ when } y \text{ is expanding at the period } t \}\]

The result of this index may vary ranging from 0 percent to 100 percent; the greater the value of the index the better co-movement between variables will be. Thus, both series are determined to be co-moving if they have the index’s value which exceeds 50 percent (Claessens et al., 2011a, pp. 9-10; 2011b, p. 12; Alamsyah et al., 2014, p. 25).

\(^{(2)}\) The original version of this algorithm has been available in the MATLAB and GAUSS, later on it was written by Philippe Bracke (2012) in the program package of STATA.
4. Results and Analysis

4.1 Characterizing the Cycles

Before discussing further the characteristics of the so-called high-frequency component and the low frequency one, the explanation of individual series is divided into the following parts. First, the cycle constructed from the conventional model, consisting of real credit and credit-to-GDP ratio. Second, the resulting cycle of Islamic financing model, derived from real financing and financing-to-GDP ratio. Following Drehmann et al. (2012), and Comin and Gertler (2006), this study treats both cycles as medium-frequency component which last between 8 to 20 years. Furthermore, the real cycle represented by real output (GDP) is isolated in the high-frequency cycle, lasting between 8 to 32 quarters.

In terms of crisis data, this paper selects the period when the economy experienced the shocks and recessions (shaded area in the graphs that follow) that were caused by massive capital flows as in the 2005 mini crisis which led to an increase in the current account deficit, exchange rate, and stock depreciation. The 2008 global financial crisis was also triggered by a similar source, which was household credit, known as the subprime mortgage. The present study seeks to extensively explore the behaviors of the credit cycle when coinciding with the economic recessions.

The cyclical patterns of conventional credit which consist of medium-term credit (graph 1) and ratio credit relative to GDP (graph 2) have been almost the same throughout the time frame. There seems to be a slight difference in the peak and trough of the cycles. Looking more carefully at both figures, it is apparent that both cycles were at the contraction phase during the mini crisis in 2005, although the trough periods of credit cycles have differed several quarters: 2004Q1 for credit and 2005Q1 for ratio credit to GDP. In subsequent quarters when Indonesia faced the 2008 global financial crisis, credit cycles reached the lowest level in somewhere between 2007Q2 and 2009Q1, during which most of the advanced economies had suffered the world’s major recession after the Great Depression. In the same period, Indonesia was also hit the most by the significant drop in the financial market – IHSG (abbreviated version of Indeks Harga Saham Gabungan) reached the lowest level since the end of 2005, by exchange rate depreciation and the acquisition of one bank by the Indonesia Deposit Insurance Corporation (Lembaga Penjamin Simpanan).

Afterwards, another recession happened in 2013 due primarily to the tapering off issued by the fed, affecting a number of emerging countries including Indonesia. This caused the credit cycles to rise, attaining the peak of medium-term credit and credit-to-GDP in 2012Q1 and 2014Q1, respectively. In addition, the medium-term financing cycles derived from real financing (graph 3) and financing-to-GDP ratio (graph 4) have a similar pattern in terms of peak and trough, while the period has been varied. The cycle faced the contraction phase during the global financial crisis, and peak again at the 2013Q2 and 2014Q4 coinciding with the stress in the financial market.

Meanwhile, the resulting cycle of the traditional business cycle (graph 5) seems strikingly different from both conventional credit and financing cycle as this business cycle, following Drehmann et al. (2012), is isolated in the high-frequency. This implies that the duration of both expansion and contraction fluctuates and is relatively shorter than that of the credit and financing cycles. During the mini crisis, the cycle tended to be plummeting and peaked again during the global financial crisis (2008Q1) before it reached a trough in 2009Q3.
Source: Estimated by author.

Note: The crisis date is denoted by the shaded area. The periods of peak and trough of all individual variables are written at the top and bottom of the respective cycles. The medium-term cycle is formed by isolating the variables in 8-10 years owing to the data availability, as is the case with the short-term cycle isolated between 1.5-8 years.
Measuring Cyclical Behavior of Islamic and Conventional Financing: Evidence from Indonesian Dual Banking System

Graph (6) Turning Point of Credit

Graph (7) Turning Point of Credit-to-GDP ratio

Graph (8) Turning Point of Financing

Graph (9) Turning Point of Financing-to-GDP ratio

Graph (10) Turning Point of GDP (Business Cycle)

Source: Estimated by author.

Note: Green, Black and red bars denote the peak and trough in both short- and medium-term cycles respectively, which are identified by turning point algorithm, while the crisis dates are marked by the shaded-grey area. The solid blue line indicates the growth of each variable included in explaining the business and financial cycles. All data are in percentage points.
Based on turning point analysis, graphs 6 to 9 depict the information necessary to initially identify respective characteristics of those cyclical components that are divided into two distinct systems adopted in Indonesia; it first addresses the cyclical behavior of the conventional system and then deals with the Islamic counterpart. By looking at graphs 6 and 7 that demonstrate the results of subset peak and trough for credit and ratio of credit-to-GDP derived from turning-point method, it can be argued that the peaks of both medium-term dating algorithms coincide with the crisis date. The peak in credit is associated with the 2005 mini crisis, while credit-to-GDP ratio peaks at the time when the 2008 financial crisis looms. Also, it is worth emphasizing that the trough of credit closely relates to the global financial crisis resulting in a relatively more severe crisis. Moreover, both financing and financing-to-GDP ratio for Islamic banking seem to have remarkably similar patterns – capturing the crisis date both in the 2005 mini crisis and the 2008 global financial crisis as well. The peaks of both cycles precede the mini crisis that occurred between 2005Q3 and 2006Q1. Importantly, both cycles hit the lowest level (trough) in the 2008 financial crisis while peaking, later on, in 2013Q3.

The aforementioned results show a relatively similar cyclical behavior among medium-term cycles of credit and financing, implying that peaks of cycles tend to coincide with as well as precede the 2005 (mini) crisis. This is particularly the case for credit (conventional), financing and financing-to-GDP ratio (Islamic) where their peaks are followed by the mini crisis. However, credit-to-GDP ratio hits a peak prior to the 2008 global financial crisis. In addition, there is in fact concordance between the troughs in all financial variables and the 2008 global financial crisis. This result confirms what Claessens et al. (2011b) found in their research suggesting the severity of the crisis when it was associated closely with the trough in the financial cycle.

Graph 10 paints a different picture from the cycles explained before. It illustrates the set of peaks and troughs in short-term GDP which seems to be able to capture the mini crisis and the 2008 financial distress well, seen from the trough in short-term cycle which coincides precisely with the crises that Indonesia has experienced.

Turning to the more specific characteristics of the cycles, table 2 provides the main information about the amplitude and duration of both financial and business cycles that has been obtained from turning point method. At a glance, the amplitude of cyclical components of financial variables tends to be much longer than that of the expansion phase. This is evident particularly for the contraction phase of Islamic banking financing (consisting of financing and ratio of financing-to-GDP) which doubles compared to the expansion phase.

<table>
<thead>
<tr>
<th>Table 2: Turning Point of Medium- and Short-term Cyclical Components</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amplitude (Mean)</strong></td>
</tr>
<tr>
<td>Expansion</td>
</tr>
<tr>
<td>Medium-term behaviour</td>
</tr>
<tr>
<td><strong>Credit</strong></td>
</tr>
<tr>
<td><strong>Credit-to-GDP</strong></td>
</tr>
<tr>
<td><strong>Financing</strong></td>
</tr>
<tr>
<td><strong>Financing-to-GDP</strong></td>
</tr>
<tr>
<td>Short-term behaviour</td>
</tr>
<tr>
<td><strong>GDP</strong></td>
</tr>
</tbody>
</table>

Source: Estimated by author.

Note: (1) Measured by percentage change of peak to the next trough (contraction) and of trough to peak (expansion).
(2) Time spent from trough to attain the subsequent peak and from peak to trough, with the duration spent from two consecutive peaks (troughs) termed a cycle.
In addition, it is also important to highlight the duration of cycles which substantially differs between medium term cyclical components and short-term cycles. The former is likely to last for 7 to 8 years which has been almost triple compared to the latter (3 years). These imply that financial and business cycles are somewhat different phenomenon, as previously explained by Claessens et al. (2011b), Drehmann et al. (2012), and Borio (2012). Looking carefully at table 2, the amplitude of the expansion phase derived from turning point for conventional credit is lower than that of its financing counterpart, with the change of 121 and 205, respectively. This result is also similar to the credit to GDP ratio and financing to GDP ratio. Such conditions also prevail when both cycles undergo the period of contraction phase. In general, the features of the amplitude are the same as what Drehmann et al. (2012) explained that the expansion phase of the cyclical component seems to be larger than the contraction one.

### 4.2 Forming the Common Cycle

Before constructing the common cycle, it is first important to calculate the concordance index (CI) aimed to show the degree of co-movement among variables. As stated earlier in this paper, the variables included to form the cycle are credit and credit-to-GDP ratio for conventional financing and financing-to-GDP ratio for Islamic banks. As shown in table 3, variables that can be included as common cycle are variables which have the result of CI more than 50 percent, indicating that the concordance between the two variables is not totally independent. The expansion and contraction phases derived from both band-pass filter and turning point analysis are assessed to show the consistency of the variables that co-move at the same time and to examine whether there is a markedly different result of concordance between the two said methods.

<table>
<thead>
<tr>
<th>Method</th>
<th>Variable</th>
<th>Credit/Sector</th>
<th>Financing/Sector</th>
<th>Common Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Based Filter</td>
<td>Credit/GDP</td>
<td>71.7%</td>
<td>79.2%</td>
<td>• Credit-Credit/GDP</td>
</tr>
<tr>
<td></td>
<td>Financing/GDP</td>
<td></td>
<td></td>
<td>• Financing-Finance/GDP</td>
</tr>
<tr>
<td>Turning Point (BBQ algorithm)</td>
<td></td>
<td>67.9%</td>
<td>94.3%</td>
<td>• Same as above</td>
</tr>
</tbody>
</table>

*Source: Calculated by author.*

Note: The first row of the table displays the results of synchronization index based on the cycle which is generated from the band pass filter; the second shows how the variables are synchronized using turning point method.

The most striking result shown in table 3 is that all variables can be involved in characterizing the common cycle since the calculation of the concordance index reveals that there is a close correlation between credit and credit-to-GDP ratio around 71.7 percent and 67.9 percent for frequency-based filter and turning point (TP), respectively. Moreover, the index also indicates the similar pattern in Islamic banking financing which was synchronized with financing-to-GDP ratio ranging from 94 percent (TP) to 79.2 percent (band-pass). It can be concluded from these results that credit and financial cycles are compiled from two variables of each system: credit and credit-to-GDP ratio (conventional); financing and financing-to-GDP ratio (Islamic).

Furthermore, graph 11 depicts the common cycle in a dual banking system constructed from credit and credit-to-GDP ratio (conventional) as well as financing and financing-to-GDP ratio (Islamic) by using frequency based filter and turning point. Credit and financing cycles identified by the frequency-based cycles are denoted by blue line for the conventional and green line for the Islamic system. Both are the average of the medium-term cycle in credit, credit-to-GDP ratio, financing, and financing-to-GDP ratio. The business cycle (dark green) is also reported, which is the short-term frequency cycle of GDP. The set of peaks and trough of credit and financing cycles is derived from the turning point method.
The result of both cycles is relatively consistent with the Indonesian financial cycle that was constructed by Alamsyah et al. (2014). During the period of mini crisis, credit and financing cycles seem to peak at a quarter (credit) and a year (financing) prior to such economic distress. However, both experience (at the same time) a deep contraction between 2008Q3 to 2009Q2, and then peak between 2012Q3 for credit to 2013Q2 for financing. Hence, it can be concluded that the credit and financing cycles in a dual banking system closely follow the Indonesia financial cycle; there is no exception for the Islamic banking system. This means that there can be a close relation between the characteristics of the credit cycle and the features of the financing cycle. This can be seen from the association between the two consecutive peaks and troughs that coincided with financial distress, except for the 2005 mini crisis, in which the financing cycle appears to be leading compared to credit, reaching a peak before the crisis. Nowadays, credit cycles are still in the contraction phase. This may happen particularly due to a significant decline in credit growth in the beginning of 2016.

Graph (11) The credit/financing and business cycles in the Indonesian dual banking system

![Graph](image)

Source: Estimated by author.

Note: Black and yellow lines denote the peaks and trough of the financing cycle, identified by turning point, while the set of credit cycle’s peaks and troughs is portrayed by purple and red lines, respectively. Shaded area is a crisis/financial distress period based on Alamsyah et al. (2014, p. 23).

It can be clearly seen from graph 11 above that the medium-term credit/financing cycle is a relatively different phenomenon compared with the business cycle as accentuated by Drehmann et al. (2012, pp. 15-20). Both may differ in several respects. Across the sample, credit and financing cycles have prolonged duration than the traditional (business) cycle. The business cycle lasts somewhere between 1 and 3 years, while the standard length of credit cycles is between 7 and 8 years. In addition, based on the frequency-based filter, the average duration of credit and financial cycles is two times much longer than that of the business cycle, lasting between 37 to 38 quarters (or 9 to 10 years) (see table 4). The amplitude of constructed cycles deserves an emphasis. While individual series of Islamic medium-term cyclical behavior derived from turning point analysis (see table 4) appear to be more expansive and contractive, the final common cycle formed by the concordance index reveals that – when all variables combined in accordance with the level of the concordance index, the conventional cycle tends to have a larger amplitude, in terms of both the expansion and the contraction phases compared with the Islamic counterpart.
Furthermore, Ascarya et al. (2016a) found that both Islamic and conventional credit tended to follow the cycle since there was a significantly positive relationship between credits/financing and the real GDP, commonly referred to as pro-cyclicality. This means the performance of the credit (conventional) and financing (Islamic) relied greatly on the condition of boom-and-bust of the business cycle. The result of this study is thus corroborating the previous findings, despite that the amplitude of the financial cycles (both conventional and Islamic) may differ from the business cycle, as can be seen from Table 4. The common credit cycle produced from conventional and Islamic variables appears to have a longer duration compared to the business cycle: 2.23, and 2.17, respectively. Arguably, the results of this study can be another specific measure of the credit cycle in the dual banking system of Indonesia in which several macro prudential policies are also adopted to mitigate the excessive credit.

<table>
<thead>
<tr>
<th>Cycle</th>
<th>Average duration (in quarter)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Business Cycle</td>
</tr>
<tr>
<td>Peak to peak</td>
<td>18</td>
</tr>
<tr>
<td>Trough to trough</td>
<td>17</td>
</tr>
<tr>
<td>Cycle</td>
<td>17</td>
</tr>
<tr>
<td>Credit cycle/ Business cycle</td>
<td>2.23</td>
</tr>
</tbody>
</table>

Source: Calculated by author.

Note: The duration presented in the table is calculated from the band pass filter method, based on graph 11. Cycle is the average duration of peak-to-peak and trough-to-trough. The last row reveals that the duration of the credit cycle is two times longer than that of the business cycle, calculated by dividing the duration of the credit cycle by the business cycle.

Finally, based on the frequency-based filter, the characteristics of the cycle that have been derived from financing and credit (conventional) in dual banking tend to be similar. This might be the case for Islamic banks. Several aspects must be considered. First, in a completely similar financial circumstance and policy imposed by the monetary authority in a country, Islamic banks may have yet to fully implement the Islamic banking system. For instance, most of the Islamic banks cannot avoid using fractional reserve banking that is capable of generating money from nothing, which has been very detrimental for the financial system stability. With particular regard to the financing cycle, it is highly likely that Islamic banks have been deviating from the principle norms derived from the Sharīʿah (Zulkhibri and Sakti, 2017a). There has been a growing amount of literature concerning this issue from the Islamic perceptive. In a recent study, Zulkhibri and Naiya (2016) argued that the system has been based mostly on the *muraibahah* contract, which is the primary purpose for mark-up profit. Hence, the difference compared to its counterpart cannot easily be identified.

From this point of view, the cycles constructed can also be used as an indicator of financial vulnerabilities as previous researchers have confirmed. Drehmann (2013), for instance, found that broad credit gap and total bank gap could be the informative variables and at the same time be the early warning indicators for the crises as they can accurately provide the information; roughly 67 percent (two-third level as a minimum criteria). That said, forming both financial cycles can provide very useful guidance for the authorities to set out effective policies to deal with current macroeconomics condition under a dual banking system.

Due to the consequences of the characteristics of the cycle explained previously, there are several macro prudential tools that have been adopted in the Indonesian dual banking system. These include Loan-to-Value and Financing-to-Value for housing loan as studied by Ascarya et al. (2016b), and Loan-to-Funding ratio based on reserve requirement (RR-LFR) as researched by Zulkhibri and Sakti (2017b). Later on, the previous studies were complemented by Widodo (2018) who tried to look at the effectiveness...
of macro prudential policies when the two said tools are adopted and how they interacted with the monetary policy in Indonesia. It can be argued that both conventional and Islamic systems have indeed a significant contribution to the whole financial system. However, at the same time, carrying out surveillance system by implementing macro prudential policies aimed to reduce the systemic risks is urgently needed in both systems.

4.3 Analysis of Policy Implications

The resulting cycle (graph 11) sheds some light on the need for more macro prudential tools to be applied in the context of the dual banking system since both systems seem to be procyclical, i.e., the countercyclical buffer which was strongly emphasized by the IFSB (2013) as well as by Bank Indonesia regulation. This regulation mandates Bank Indonesia to govern both conventional and Islamic banks (article no.1) to hold the amount of capital as buffer to be employed in the wider macro prudential purpose of maintaining the supply of credit during the stress period.

Quarles (2019) in his remarks contends that the main purpose of adopting countercyclical capital buffer (CCB) is to enhance the resilience of the financial sector when the systemic risk tends to materialize in the expansion phase since it can control the credit growth. In recent years, several countries, he adds, have imposed CCB above zero up to a maximum percentage of 2.5 percent to reduce the growth of credit. The rate of CCB may differ in several countries due to the different level of vulnerabilities generated from credit growth.

Hence, countercyclical buffer (CCB) implementation is, as discussed earlier, greatly based on the peak-and-trough of the cycle besides other complementary indicators emanating from the condition of the macro economy, e.g., economic growth, exchange rate, inflation, banking sector, and asset price (Bank Indonesia, 2017, pp.187-191). Following is the table that shows current implementation of CCB, first imposed on January 1, 2016:

<table>
<thead>
<tr>
<th>Date</th>
<th>January 1, 2016</th>
<th>May 23, 2016</th>
<th>November 21, 2016</th>
<th>May 19, 2017</th>
<th>November 16, 2017</th>
<th>May 17, 2018</th>
<th>November 15, 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCB</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>


Based on table 5, it is interesting to note that during the first implementation until recently in 2018, the level of the buffer has been zero and the resulting cycle (graph 11) has also been in a contraction phase both for the credit (conventional) and financing (Islamic) cycles. This condition, therefore, confirms that in a dual banking system, the credit cycle, coupled with other tools, can be a basic frame work for authorities to make a preliminary judgement about imposing and determining the level of the buffer. However, to deal with it more properly, further study must be conducted in a separate paper.

Despite the fact that the conventional cycle has a pattern similar to that of Islamic financing, the financing cycle differs in several respects. First, during the contraction phase, the financing cycle experiences downturn which is less severe than the conventional. Secondly, when it reaches a peak in the mid of 2013, it seems less pronounced compared to its counterpart. This implies that the implementation of CCB can be different between Islamic and conventional banks, based on the characteristics of both cycles, notably the peaks and the troughs to gauge the level of buffer that has to be imposed for both banks.

5. Conclusion

The main purpose of this study is to address the crucial research question of what is the behavior of the credit cycle in a dual banking system, and to assess whether the cycle constructed is able to show the peak (boom) and trough (bust) periods. After constructing the credit cycle and conducting several analyses, there are several important points as follows. First, the different phenomenon between the business cycle and the credit cycle is also true in a dual banking system; the credit cycle has been double compared to the business cycle.
Secondly, the results of the concordance index demonstrate that the variable of conventional credit is highly synchronized with the ratio of credit-to-GDP, and the concordance of the Islamic bank financing and financing-to-GDP ratio is also high. This means that the construction of the cycle in a dual banking system is formed by two main variables, namely credit and credit-to-GDP Pratio. In addition, it is found that the peak and trough of the cycle are crucial to be used in monitoring the economic condition. As can be seen, the crisis becomes severe when coinciding with the contraction phase of the cycle.

As for regulators, since the behavior of the Islamic financing cycle has certain similarity with conventional credit cycle, it is possible to adopt the macro prudential policy which has previously been introduced by the Basel Committee for Banking Supervision (BCBS). Consequently, it is appropriate for international regulators of Islamic finance to consider the Basel III regulations (BCBS, 2011) along with the IFSB-15 document (IFSB, 2013) as a guideline to formulate the countercyclical capital buffer that can be applied for Islamic banks functioning under a dual banking system.

References


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قياس سلوك التمويل الإسلامي والتمويل التقليدي:
دليل من النظام المصرفي الإندونيسى المزدوج

عارف ويدودو
متدرب في الإدارة، هيئة الخدمات المالية، إندونيسيا

المستخلص.
تم إجراء تحليل شامل للدورة المالية التي تم إنشاؤها عبر تضمين العديد من المتغيرات المالية. في الكثير من الدراسات السابقة التي تناولت التمويل التقليدي، فقد تم الكشف عن أن الدورة المركبة ذات أهمية قصوى لإصدار سلسلة مناسبة. من خلال النظر في الطفرة والكساد لتحقيق هدف الاقتصاد الكلي الذي يتمثل في بنجاح زيادة التمويل المفرط ومنع تراكم المخاطر، ولتحقيق هذه الغاية في سياق النظام المصرفي المزدوج حيث تعمل المصارف الإسلامية في ظل ظروف مالية مماثلة، ياتى من الضروري تقضي ما إذا كانت دورة التمويل الإسلامي تسير وفق ما عليه الحال في التمويل التقليدي وذلك بالنظر إلى حقيقة أن معظم الدراسات السابقة ركزت على السلوك الدوري من منظور تقليدي. تهدف هذه الورقة إلى تقسيم خصائص دورات التمويل الإسلامي والتقليدي بهدف المساعدة في وضع إطار لتحليل التنفيذ المناسب لسياسات الحكومة Drehmann, Borio, and Tsatsaronis (2012) في تشكيك الدورة المشتركة وتحقيق الورقة إلى أن الصارف الإسلامية التي عملت في ظل بيئة مماثلة لديها ذروة وثبات مشابهة، مع اختلاف السماكة كما هو في الجانب التقليدي. مما يعني أن سياسة النحوت الكلية لا سيما سياسة استعداد رأس المال من مواجهة الدورات الاقتصادية تعتبر حاسمة ومقولة لتم الاعتماد في المصرفية الإسلامية كما هو واضح في وثيقة مجلس الخدمات المالية الإسلامية (2013, 15).

الكلمات الدالة: دورة الائتمان، مواجهة النقلات الدورية، المصرفية المزدوجة، مجلس الخدمات المالية الإسلامية.

تصنيف: JEL
E30, E32, E58, G29

تصنيف: KAUJIE
I31, I32, L12, L32