CHAPTER 3

THE SCOPE, PROSPECTS AND IMPLICATIONS OF NEW FORMS OF FINANCIAL INTERMEDIATION FOR MONETARY POLICY IN INDONESIA

3.1 Background

The world is currently seeing an unprecedented growth in technological innovation. In the last decade, low-cost sensors, rising computer power and faster broadband internet have boosted dramatic changes in consumer behaviour and business models. Interest in new forms of financial intermediation has increased due to recent developments and rapid advances related to the digital revolution 4.0. This trend has been followed by tremendous changes in the scope of, and prospects for, financial intermediation and its implication for monetary policy in Indonesia. One interesting phenomenon has been the conduct of banking activities via financial intermediation by non-bank financial institutions or what is known as shadow banking. These shadow banking institutions, frequently supported by financial technology (FinTech) may be defined as a new form of financial intermediation. This Chapter uses this concept to analyse the current condition of – and prospects for – new forms of financial intermediation by shadow-banking institutions in Indonesia.

In Indonesia, various non-bank financial entities, such as finance companies, insurance companies, pension funds, mutual funds, securities companies, private equity, hedge funds and the savings and loans cooperatives, have been involved in the practice of shadow banking (Ministry of Finance, 2013). However, shadow banking in Indonesia is currently still not as advanced as in developed countries, where non-bank financial institutions can securitise their financial assets and sell them to investors. In Indonesia, shadow banking activities, which channel credit to the economy, is predominantly undertaken by finance companies. The outstanding amount of credit disbursed by finance companies grew from IDR302 trillion in 2012 to over IDR427 trillion in 2018 Q2. The growth level, however, has slowed down from an annual growth level of 15.2% in 2013 to some 3.0% in 2018 Q2. While the growth of credit provided by finance companies is always lower compared to that disbursed by commercial banks, the outstanding level has been growing over time, steadily increasing to reach a proportion of close to 8.5% that of the outstanding credit by commercial banks.

Furthermore, the current digital transformation has simultaneously changed the behaviour of consumers and created new forms of demands (Nemet, 2009). This phenomenon has been accompanied by a significant increase in the number of FinTech providers. According to Accenture (2017), global investment in the FinTech area has increased substantially, from USD930 million in 2008 to more than USD40 billion in 2017. The total global FinTech transaction value is estimated at USD3,446 billion in 2017 and is expected to reach USD8,000 billion by 2022. With 80% of total transactions in 2017, digital payments dominated the total, as reported in the FinTech Report (2017).
The World Economic Forum (2015) projected that this disruption would not be a one-off affair. Instead, the effect will be uninterrupted. Therefore, business entities will be forced to innovate continuously. Furthermore, Davis et al. (2017) argued that for an emerging country like Indonesia, FinTech comes with both bigger opportunities but also bigger risks and negative implications than for developed economies. Financial technology has been utilised by regulated and unregulated financial intermediaries such as shadow banks. This can be seen from the share of shadow banking asset to total assets of financial corporations and GDP, which has risen from 2002 to 2017 (Figure 3.1).

Figure 3.1

![Figure 3.1](image_url)

Source: FSB.

Figure 3.1 illustrates the trends of total assets of financial corporations and the shadow banking industry. We find that assets of financial corporations have increased from USD142.1 billion in 2002 to USD913.8 billion in 2017, with a marked tick-up in growth after 2010. Shadow banking asset (including insurance, pension funds, public financial institutions and other financial intermediaries) have increased from USD12.6 billion in 2002 to USD196.7 billion in 2017. Figure 3.2 reveals that the share of shadow banking assets to financial corporation assets has increased from 9% in 2002 to 22% in 2017, and the share of shadow banking assets to GDP has increased markedly from 3% in 2002 to 18% in 2017. Overall, the share of shadow banking to financial corporation assets and GDP has risen, which means that the participation of shadow banking in the Indonesian economy has also increased and might affect the monetary system. Taking a cue from the experience and the lessons from other countries such as China which has seen a much higher shadow-banking growth than Indonesia, shadow-banking activities in Indonesia must be regulated by strengthening reporting, monitoring, supervision and better integration of regulation into the existing framework.
FinTech and shadow banking have grown dramatically, both for large- and small-scale of businesses. The increasing tendency of people to use new (digital) forms of financial intermediation will eventually affect microeconomic and macroeconomic dynamics, including the role of the central bank in economic system, as supported by Zhang and Wan (2017). These authors stated that monetary policy pursued by the central bank would no longer be effective in controlling the financial system. This could occur in case the demand for money was decreasing (Figure 3.3). Figure 3.3 illustrates GDP, broad money and the share of broad money to GDP. We can see that Indonesian broad money increased from
USD98.2 billion in 2002 to USD400 billion in 2017. Although broad money from 2002 to 2017 was lower than GDP, the share of broad money to GDP grew from 20% in 2002 to 37% in 2017. The increase in broad money reduced the velocity of money and, decreased the demand for money, could lead to inflationary pressures and a subsequent impact on the monetary system.

Figure 3.4 shows the growth of the broad money supply and the inflation rate in Indonesia from 2002 to 2017. Contrary to the previous statement, Figure 3.4 reveals that inflation has remained in the corridor given by the inflation targeting (IT) framework, meaning that it has not really been affected by the growth of broad money. Hence, it is not solely a monetary phenomenon. Moreover, the evidence shows that it might be time to reformulate the monetary policy framework as the financial environment has changed. More specifically, it has become more complicated and more varied in recent years. Furthermore, the wave of financial innovation and the massive growth in shadow banking entail difficulties and introduced complexities into the monetary system. As a result, controlling the broad money supply has become harder. The velocity of money and the money multiplier can be expected to decrease and may no longer be stable, which would contradict the basic assumption of the Fisherian quantity theory of money (Zhang and Wan, 2017).

Based on such developments, the need for comprehensive research to better understand new forms of financial intermediation from the macroeconomic and monetary policy perspective has become more urgent, timely and relevant. Although there exists research related to new forms of financial intermediation (especially in the shadow banking area), such analysis is lacking for Indonesia and the little that exists does not really offer a deep analysis for the specific case of Indonesia. For instance, FSB (2014) discussed the development of shadow banking in Asia (including Indonesia) and the FSB also monitors shadow banking more generally on an annual basis. Further, many researchers conduct studies of the shadow banking sector in other countries, most notably China. Notable studies include Ehlers et al. (2018), who attempted to map the shadow banking system in China, and Zhang and Wan (2017), who discussed the impact of Chinese monetary policy on shadow banking. Furthermore, a lot of research discusses shadow banking in general and does not focus on specific country cases. Hence, this study is intended to fill this gap by mapping the new forms of financial intermediation and discuss its scope, prospects and implications for Indonesia.
3.2 Macromapping of New Forms of Financial Intermediation in Indonesia

3.2.1 New Forms of Financial Intermediation in Indonesia

As mentioned before, financial intermediation has been conducted by non-bank financial institutions, which are also known as shadow banking institutions. This bank-like financial intermediation by shadow banking institutions is supported by Financial Technology (FinTech), which can be defined as a new form of financial intermediation. This new form of financial intermediation consists of intermediation performed by traditional shadow banking institutions, which is enabled by financial technology and genuine new forms of financial intermediation such as P2P lending and crowdfunding. In general, the definition of shadow banking always refers to the case of developed countries and is less suitable for developing countries such as Indonesia. Hence, this research is going to develop a definition of shadow banking that provides a comprehensive explanation of the characteristic structure of shadow banking in Indonesia. FSB (2012) states that shadow banking is “a credit intermediation involving entities and activities (fully or partially outside regular banking).” Regarding this definition, Otoritas Jasa Keuangan (OJK) issued a list of non-bank financial institutions that could be categorised as shadow banks. This is described in Figure 3.5.

It can be argued that the definition of shadow banking given by FSB (2012) is too general and broad. In consequence, it may make monitoring inefficient by capturing NBFIs which do not pose systemic risk. For that reason, FSB (2014) published a shadow banking report for the Asian region, including Indonesia. In this report the FSB stated more specific definitions of shadow banking by proposing a two-stage approach for monitoring the shadow banking system.
First, authorities should cast the net wide, looking at all non-bank credit intermediation to ensure that data-gathering and surveillance cover all the activities within which shadow banking-related risks might arise. Second, authorities should narrow the focus, concentrating on the subset of non-bank credit intermediaries where maturity or liquidity transformation and/or flawed credit risk transfer and/or leverage create important risks. Moreover, in order to follow up the two-stage approach in defining shadow banking, there are several additional criteria, such as the economic substance of NBFIs, the credit intermediation activities of NBFIs, the involvement of NBFIs in maturity/liquidity transformation, leverage and credit risk transfer, the connection of NBFIs with regulated financial entities, the creation of systemic risks by NBFIs, the extent to which systemic risks are mitigated, the existing prudential regulation of NBFIs, the regulatory regime in place and the adequacy of oversight, and the potential risk of regulatory arbitrage posed by NBFIs (FSB, 2014).

In order to examine the distinction between NBFIs and shadow banking, FSB (2014) identified two sets of indicators, beginning with the systemic risk indicators (SRs): maturity transformation, liquidity transformation, credit risk transfer and leverage. The proposed assessment framework developed by the FSB’s work stream 3 to categorise shadow banking is based on five economic functions (EFs): management of collective investment vehicles with features that make them susceptible to runs, loan provision that depends on short-term funding, intermediation of market activities that depends on short-term funding or on secured funding of client assets, facilitation of credit creation, securitisation-based credit intermediation and funding of financial entities.
Furthermore, this report surveyed each Asian country, given that each country has different definitions of shadow banking, instruments and entities. For Indonesia, the FSB (2014) found that shadow banking exists where OFIs are involved in maturity transformation, leverage and credit risk transfer, not subject to prudential supervision and regulation, and their failure or distress would create systemic risk.

This Section begins by looking at shadow banking at the company-level by obtaining the balance sheet data of each entity from OJK. Based on the constituted balance sheets, we find that the important factors related to this study are cash in- and outflows as well as the allocation of assets of each shadow-banking entity. This facilitates the mapping of the shadow banking sector in Indonesia.

### 3.2.2 The Dynamics of Indonesian NBFIs

In order to build a comprehensive mapping model, we use the approach developed by Ehlers et al. (2018) for the case of shadow banking in China. China’s shadow banking is not as complicated as shadow banking in the United States, because the steps involved in credit intermediation are fewer and there are not as many types of entities. Adrian and Ascarft (2016) suggested that the process of shadow banking credit intermediation in the United Stated comprises of seven steps. In contrast, shadow banking credit intermediation in China involves just one or two steps in the intermediation process. For this reason, shadow banking in Indonesia can be regarded as more similar to China, albeit with some minor differences.

Ehlers et al. (2018) developed a mapping model based on activities. It is divided into three parts: a creditor stage as a source of funding; a banking sector (banking and shadow banking) as the recipient of funding and as the source of transformation of several shadow-banking assets (which assumes the existence of relationships and linkages between regular banks and shadow banking entities); and the borrower stage where the shadow funding source ends. Each of these three stages of shadow credit intermediation has specific instruments for its activities.

To begin with, at the ultimate creditor stage, shadow banking is primarily funded directly by depositors or the investors who purchase its products. Therefore, bank-like credit intermediation more adequately describes shadow banking in Indonesia. As a result, collateralisation and securitisation is not required at this stage. For that reason, shadow banking in Indonesia has a structure more akin to that in China than the United States, owing to the fact that Indonesia displays a lack of collateralisation and securitisation on the liabilities side.

Furthermore, banks provide wealth management products (WMPs) that are seen as alternative saving instruments providing higher returns than traditional bank deposits/savings. There are two main types of WMPs, which are the principal- or return-guaranteed WMPs that require full bank guarantees either on the principal or on the return. In practice, banks offer non-principal guaranteed WMPs without explicit bank guarantees which are not recorded on banks’ balance sheets. In this case, companies usually hold the underlying investment of the non-principal guaranteed WMPs such as bank’s investment or wealth
management assets. Practically, banks represent asset managers, charging fees to investors without being subject to regulatory restrictions. Besides WMPs, there are trust products that act as financial instruments similar to shadow credit that are issued by trust companies. In their financial activities, they also perform credit intermediation like commercial banks do. Trust companies offer the single investor several financial market instruments/services that function as trust products, including corporate securities, investment funds, pension funds and insurance products as well as collective investor trust products that have a larger number of underlying assets.

In Indonesia, shadow banking is not dominated by banks – this contrasts with China where banks do play a central role in shadow banking activities. However, banks still play some part in the shadow banking system in Indonesia. If the shadow banking entity is connected to a bank, the system may still be able to channel funds so that they are intermediated from banks to shadow banking entities. This activity boosts the shadow system’s credit volume, because the funds thus raised are effectively redirected into shadow banking instruments by banks, which creates strong bonds between banks and shadow banking credit intermediaries. Besides the strong ties between banks and shadow banks, the growth of linkages between shadow banking savings instruments and capital markets, especially the bond market, is another vital recent phenomenon. In fact, these shadow banking savings instruments constitute an enormous portion of purchases of newly issued bonds and equities.

The stylised Indonesian financial institutions map given by Figure 3.6 is a modified version of the map created by Ehlers et al. (2018). The orange, pink, red and purple arrows depict the main shadow banking instruments and the resulting claims. Formal credit intermediation by banks is represented by the blue arrows. The green arrows stand for shadow credit intermediation through the bond market. In order to facilitate the analysis of the structure, we distinguish between three main stages of shadow credit intermediation. The ultimate creditor stage depicted on the right-hand side of Figure 3.6 represents the source of funding, consisting mainly of private and corporate depositors. The most relevant shadow savings instruments are represented by the orange arrows. At the intermediate stage (represented by the middle part of Figure 3.6), the funds received are then intermediated and transformed into different shadow banking assets. The various forms of shadow banking credit intermediation generate tight interlinkages (pink and red arrows) among banks and other shadow banking entities (trust companies and securities companies, including banks’ wealth management arms). The ultimate borrower stage on the left-hand side of Figure 3.6 is the destination of shadow credit, represented by the purple arrows.
We hide the traditional banking activities in Figure 3.6 to highlight shadow banking activities in Figure 3.7. Even then, arrows remain, indicating that traditional banks remain involved in shadow banking activities as a source of funds for subsidiaries of the banking sector itself. Since shadow banking activities offer large benefits, and the banking sector is hampered by regulation, banks create subsidiaries in order to run their own shadow banking activities.

Many shadow banking activities occur in areas like insurance, pension funds, etc., but in this study, we are primarily looking at the investment managers as the ones who really Conducts shadow banking activities, because they fulfil the FSB’s criteria of narrow shadow banking.

Furthermore, online platforms are a completely new form of financial intermediation. There are still doubts as to whether this platform performs shadow banking activities or otherwise. Indonesia’s Financial Services Authority, for example, stated that these platforms cannot be categorised as shadow banking entities because they do not raise funds, but only connect lenders and borrowers. Moreover, online platforms are subject to strict regulations that prevent them from engaging in shadow banking activities.
Section 3.2.3: Shadow Banking Asset Composition

Figure 3.8 shows the composition of assets in the Indonesian shadow banking system, based on the disaggregated balance-sheet dataset released by the Indonesian FSA. The Figure illustrates the asset composition and its changes between 2002 and 2017. We find a diminishing share of pension fund assets, while the share of public financial institutions and insurance corporations has grown slightly. In addition, the share of other financial institutions (OFIs) has remained roughly constant. With a share of about 45%, OFIs\(^1\) have the biggest asset proportion of shadow banking assets, followed by insurance corporations with 25%, public financial institutions (22%) and pension funds (8%).

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1. Other Financial Intermediaries (OFIs) include investment funds, captive financial institutions and money lenders, broker-dealers, money market funds (MMFs), hedge funds, structured finance vehicles, trust companies, financing companies, real estate investment trusts and real estate funds, and central counterparties (FSB, 2018).
3.2.3.1 **Insurance Companies (EF4)**

Insurance companies are those financial institutions that provide insurance policies to protect individuals or businesses against the risk of financial loss. For that purpose, insurance companies issue an insurance product with a premium to transfer the risk of a potential loss and the duty of care. Basically, insurance companies are a form of risk management to hedge against the risk of financial loss. Consider an individual or a company as a premium holder that use an insurance product to minimise the risk of an unmanageable loss, such as an accident, death, disease, etc. These kinds of risks are more prevalent in developing economics, so that insurance becomes more important. Furthermore, for a country that has frequent natural disasters, the need for insurance is increased and developing countries need to foster the creation and subsequent development of risk-sharing catastrophic insurance products.

A well-developed insurance market has a lot of advantages. Many economic theories and concrete evidence show that an insurance company’s ability to share risks is needed to improve welfare and growth. In addition, a developed insurance market also reduces dependence on the government in providing guarantees against natural disasters. In addition, liabilities from insurance companies such as life insurance are long-term, so they can be used for long-term investments. Consequently, the accumulated assets under management by an insurance company have the potential to contribute to the development and growth of financial markets. Insurance companies have a very large impact on the development of domestic fixed income as well as equity markets. Because of this activity, insurance companies facilitate credit intermediation, which falls under Economic Function 4 of shadow banking activities as classified by the FSB (2018).

The typical business operations of insurance companies in Indonesia tend to have few savings elements, so insurance companies intermediate few long-term resources. As in most developing countries, the evolution of the insurance business in Indonesia has focused on the development of the insurance industry. In general, the relative aggregate size of insurance companies in Indonesia is still relatively small compared to other countries.
Figure 3.9 shows the growth of total assets of insurance companies in Indonesia and the composition of assets according to each type of insurance company. From January 2016 to December 2018, the assets of insurance company experienced an increase of IDR840 trillion to IDR1,210 trillion. Furthermore, the life insurance sector has the highest share of total assets of insurance companies in Indonesia. The proportion of total assets per sector are 43% for life insurance, 30% for social insurance, 13% for general insurance, 12% for mandatory insurance and 2% for reinsurance.

**Figure 3.9**
Proportion of Insurance Assets and Total Assets in Indonesia

![Figure 3.9 Proportion of Insurance Assets and Total Assets in Indonesia](image)

Source: OJK.

Figure 3.10 presents the composition of the insurance companies’ assets at the end of March 2019, obtained from data published by OJK. We observe that 86% of insurance companies’ assets are allocated in investment and the remaining 14% in non-investment activities. Some 27.9% of investment assets are allocated to state securities (bonds), 23.5% to mutual funds, 21% to shares, 11.9% to deposits, 10.5% to corporate bonds and 3.6% to direct investment. Meanwhile, medium term notes and asset backed securities were 0.29% and 0.31% respectively, i.e., well below 1%.

The allocation of 86% of insurance assets to investment is a form of indirect lending that could be classified as financial intermediation from either funders (the premium buyer) or the customers who want insurance companies to manage their assets. Although insurance companies do not bring together debtors and creditors, by steering the purchases of obligations or stock, this activity belongs to shadow banking activity.
3.2.3.2 Pension Funds (EF4)

A pension fund is a form of financial scheme that provides retirement income. Pension funds play an important role as a source of income for retirees, thereby reducing the risk of old-age poverty. Hence, to achieve this objective, the pension fund system needs to be well-designed and sustainable. The attention given to the pension fund industry around the world has risen since the early 1990’s in line with the greater emphasis on policy issues related to improving the benefits for the elderly in their retirement.

With the age group below 24 constituting around 40% of the population, and the age group between 25 and 43 representing another 43%, Indonesia is in a unique demographic position. The latter will contribute to the country’s short-term economic development, but the situation will turn around since the average age is increasing rapidly. As time goes by, as fertility decreases and the standard of living increases, life spans will also likely increase which will in turn contribute to the further aging of the population. Therefore, it is essential for Indonesia to place attention on a pension system that can provide income security during retirement as the population is aging rapidly.

The business model of a pension fund rests on the existence of a “float”: the contributor makes regular payments to the pension fund for a period of 30 to 40 years while in employment and does not draw down his pension until retirement, meaning that these payments will be available to pension fund companies for investment. Because of this, pension funds play an important role as an institutional investor from the perspective of the financial sector. If the pension system is well-structured, it can mobilise valuable long-term domestic resources. The overall effectiveness of capital in the economy is increased because of the pension funds’ long-term investments. In fact, this activity occurs in Indonesia as well as many other developing countries. Because of this activity, pension fund companies facilitate credit intermediation, which falls under Economic Function 4 of shadow banking activities as classified by the FSB (2018).
Figure 3.11 shows the growth of asset of Indonesian pension funds. Retirement assets increased from IDR212 trillion in January 2016 to IDR274.5 trillion in March 2019. Figure 3.12 shows the corresponding composition of assets of pension fund companies at the end of March 2019, derived from data published by OJK. As much as 96% of pension fund companies’ assets are allocated to investment, and the remaining 4% in non-investment activities. Within investment assets, some 23.3% of assets are allocated to state securities (bonds), 6% to mutual funds, 12% to shares, 27.6% to deposits, 21.9% to corporate bonds and 8.64% to direct investments. In terms of other investments, roughly 0.1% went into medium-term notes, 0.4% into asset backed securities and 0.2% into cash and savings in banks. The allocation of 96% of pension fund assets into investments constitutes a form of indirect lending that could represent financial intermediation from funders (the premium buyers) or the customer who wants pension fund companies to manage their assets. Although pension fund companies do not bring together debtors and creditors, by channelling the funds into purchases the obligation or stock, this activity falls under the shadow banking activity.

![Figure 3.11 Pension Fund’s Asset Development](image)

Source: OJK.
3.2.3.3 Financing Companies (SR 1, SR 2 and EF 2)

Financing companies, including other financial intermediaries, constitute the largest share of the shadow banking system in Indonesia. Figure 3.13 shows the development of financing companies’ assets and the composition of each type of financing company. From September 2016 to March 2019, the highest proportion of total assets of financing companies, at 87%, was allocated to public financing companies. Furthermore, infrastructure financing companies and capital venture financing companies accounted for the remaining 11% and 2% respectively.

Figure 3.14 shows the proportion of the use of financing companies’ assets. A relatively high proportion of 87% of financing companies’ assets are used to conduct debt financing. These debt financing assets are allocated to various activities: 59% for multipurpose financing, 31% for investment financing, 5% for capital financing and 4% goes to other forms of financing. Moreover, 13% of total assets are used for other activities.

Financing companies do not channel shadow banking loans to corporate trust companies and insurance companies that engage in purchasing securities such as bonds and stocks as the means for shadow banking intermediaries (Figure 3.15). This can be seen from the small amount of assets allocated to the purchase of these instruments. Financing companies focus on channelling capital through debt financing. Furthermore, financing companies have liabilities on domestic banks (48%), foreign banks (28%), foreign NBFI (3.7%), domestic NBFI (0.3%) and securities issued (21%). Financing companies report dominant liabilities from banks which are supported by the issuance of securities as an alternative funding source. The latter can be purchased by other shadow banking companies, such as insurance companies (Figure 3.15).
Based on the individual firms’ balance sheet data as well as the classification from the FSB, we can define financing companies as financial institutions that perform shadow banking activities, since their capital (liabilities) is obtained from market funding and marketable securities, which they then transform into debt financing. Therefore, financing companies could be regarded as falling under Systemic Risk number 1 (maturity transformation), Systemic Risk number 2 (liquidity transformation) and Economic Function 2 (loan provision that is dependent on short-term funding).

**Figure 3.13**
Financing Company Assets

![Chart showing financing company assets over time](source: OJK)

**Figure 3.14**
Financing Companies’ Assets (Left-Hand Side) and Debt Financing Asset Composition (Right-Hand Side), March 2019

![Pie charts showing asset composition](source: OJK)
3.2.3.4 Pawnshop Companies (EF 2)

Pawnshop companies in Indonesia are dominated by government pawnshops, which account for 99% of total assets. For that reason, only government pawnshop companies will be discussed in this paper. Figure 3.16 shows the development of pawnshop companies’ assets. Assets increased from IDR47.7 trillion in March 2017 to IDR55.4 trillion in March 2019. While very gradual, there is a still an upward trend throughout the period, indicating that the Indonesian pawnshop industry is expanding.

Figure 3.17 reveals that 77% of the total assets of pawnshop companies are allocated to loans, indicating that pawnshops behave like a bank. Other than that, the funding sources of pawnshop companies are dominated by banks with a share of 65%, and by issuing securities (22%) and medium-term notes (1.4%). In addition to the strong relationship with the banks, pawnshops also receive financing from the securities they issue.

Based on the individual firms’ balance sheet data as well as the classification from the FSB, we can define pawnshop companies as financial institutions that perform shadow banking activities. Their capital (liabilities) is obtained from bank funding, government and marketable securities which is then transformed into loans. Therefore, pawnshop companies fall under Economic Function 2 (loan provision that is dependent on short-term funding).
3.2.3.5 Guarantee Companies (EF 4)

Figure 3.18 shows guarantee companies’ assets and investment composition. Guarantee companies allocated 65% of their total assets to investments. Other than that, non-investment assets are used for reserves and other purposes. From their total investment assets, guarantee companies allocated 59% to deposits, 15% to mutual funds, 13% to government bonds, 6.9% to corporate bonds, 3.3% to direct investments, 2.8% to stocks, 0.5% to asset-backed securities and 0.02% to property. A large portion of the assets of the guarantor company is entrusted to banks. Other investment destinations are mutual funds and government bonds, which means they represent a source of financing for shadow banking activities.
3.2.3.6  *FinTech Lending (EF 2)*

Both the development of technology and information systems and the number of internet users in Indonesia have increased dramatically. On average, there are 132 million active internet users in Indonesia who spend around 4 hours online every day. In 2018, there were 52% more internet users than in 2013, Indonesia could therefore be categorised as a digital country, which indicates the increased degree of local technology utilisation. Consequently, financial technology (FinTech) will continue to make inroads in Indonesia. This kind of innovation has already affected structural changes in terms of reducing costs, improving efficiency and inducing increased and more effective interoperability. In view of this, Zavolokina et al. (2016) convincingly argue that FinTech will have applications in many sectors and industries. This situation will compel the existing financial market to transform systems so as to better meet the demands and the needs of the public.

As mentioned above, Indonesia’s environment encourages the rapid growth of the FinTech industry and heralds a bright future for the country, but it is still not easy to capture the profound practices of FinTech in Indonesia. Quantitative market data are lacking, other data and information are at best scattered and at worst scarce and very difficult to access by the public.

The rapidly growing FinTech lending in Indonesia can be categorised as one of the instruments of shadow banking intermediation. Figure 3.19 shows that aggregated FinTech lending transactions increased from 2.3 million in June 2018 to 15.7 million in March 2019. Furthermore, the aggregated borrowing transactions increased from 3.2 million in June 2018 to 22.7 million in March 2019. Total loans provided also increased from IDR7.6 trillion in June 2018 to IDR33.2 trillion in March 2019. Although FinTech lending in Indonesia has developed rapidly, it retains a narrow scope, focusing mainly on short-term lending to individuals. FinTech lending works as an intermediary function that brings together borrowers and lenders. As such, FinTech lending does not extend for more than two days due to regulations of the OJK. This limits the existence and management
of float funds, such that FinTech lending cannot be transformed into shadow banking. Nonetheless, FinTech lending could be classified to fall under Economic Function 2 (loan provision that is dependent on short-term funding) in the FSB’s definition of shadow banking activity.

**Figure 3.19**
*FinTech Lending in Indonesia, June 2018 to March 2019*

On the supply side, P2P lending platform providers have continued to grow, supported by strong innovation, wider access to mobile technology and the inflow of foreign investment, especially venture capital, over the past two years. As of the end of 2017, there were 87 technology-based loan and loan companies operating throughout Indonesia. However, this number is forecasted to increase to more than 164 FinTech companies. Up to April 2018, the OJK noted that 50 companies received business licenses, of which 34 were local companies and 17 foreign companies. OJK data up to September 2018 show that the distribution of funds through FinTech P2P Lending in Indonesia reached IDR13.83 trillion. On the demand side, Indonesian consumers are relatively open to risks, although the uptake of loans is still low. A Bank Indonesia study in 2017 found that consumers’ perceived FinTech to be very competitive in terms of security, efficiency, convenience and speed compared to traditional banking (BI-DKMP, 2018).

### 3.2.3.7 Microfinance Companies

A microfinance institution provides small loans, savings accounts, checking accounts, micro insurance and payment systems targeted at small businesses and those segments of society that lack access to conventional banking and affiliated services. Microfinance in Indonesia is growing rapidly, as can be seen from the growth of total microfinance assets from IDR32.8 billion in 2016 Q1 to IDR748.34 billion in 2018 Q3 (Figure 3.20). Limited companies have the biggest share of these assets, followed by sharia cooperatives and ordinary cooperatives. A limited company (LC) is defined as a type of business structure in which the company limits the amount of liability of the company’s shareholders.
Since the activity of microfinance companies focuses on financing, microfinance companies can be considered to generate systemic risk and fall under several of the FSB’s Economic Function indicators. In general, though, they are subject to regulation and pose minimal systemic risk and regulatory arbitrage. Because of this, Indonesia does not consider microfinance companies as shadow banking institutions.

![Figure 3.20](image)  
**Figure 3.20**  
**Microfinance Assets in Indonesia,**  
**2016 Q1 – 2018 Q3**

Source: OJK.

Figure 3.21 presents the composition of the cooperatives’ assets. We find that cooperatives allocate most of their funds in the provision of debt (66%), followed by savings in banks (12%), cash (12%), deposits (3%) and others (8%). These numbers reveal that cooperatives are not directly involved in the funding of shadow banking activities.

![Figure 3.21](image)  
**Figure 3.21**  
**Cooperative Asset Composition at End-2018 Q3**

Source: OJK.
Moving on, Figure 3.22 shows the asset composition of sharia cooperatives. The numbers show that sharia cooperative companies allocate some 33% of their funds in deposits, with another 23% in savings at banks. This enhances the relationship between sharia cooperatives and banks indirectly because sharia cooperatives provide financing to banks. In addition, sharia cooperatives also allocate 19% of their assets to debt, 16% to financing, 2% to cash and 8% to other instruments. This shows that sharia cooperatives are not directly involved in the funding of shadow banking activities.

**Figure 3.22**
Sharia Cooperative Asset Composition at End-2018 Q3

![Sharia Cooperative Asset Composition at End-2018 Q3](source: OJK)

Finally, Figure 3.23 shows the composition of limited companies’ assets. The data show that limited companies allocate 33% to the provision of debt, 16% to savings, 3% to deposits, 3% to cash and 11% to other instruments. This shows that limited companies are not directly involved in the funding of shadow banking activities.

**Figure 3.23**
Limited Companies’ Asset Composition at End-2018 Q3

![Limited Companies’ Asset Composition at End-2018 Q3](source: OJK)
3.2.3.8 Mutual Funds (SR 1, SR 2, SR 4, and EF 3)

A mutual fund is an investment company that pools money from shareholders and transforms them into investment products in a diversified securities portfolio. Mutual funds encompass professional management, convenience, liquidity, variety, diversification, affordability, transparent record-keeping, tight regulation and full disclosure. Since mutual funds are regulated by governments, every fund is obliged to fulfil standard operations, observe severe anti-fraud rules and publish all information for current and potential investors. Because of the legal obligations, investors are protected from abuse and fraud. As a result, mutual funds provide many advantages, above all simplicity, accessibility and affordability.

Mutual funds have a valuable role to play in the development of capital markets, not only because they are managed, regulated and supervised, but also because they create demand from a new set of investors. Since the launch of mutual funds in Indonesia in 1997, the sector has grown rapidly. Furthermore, the significant increase in fixed-income funds which invest mainly in government securities has led to two significant growth spurts, one after 2002 and another since 2009 (Figure 3.24). In Indonesia, there are five types of mutual funds, namely equity, fixed-income, money market, balanced-mixed and protected funds. Most of the investors in mutual funds are individuals. Figure 3.25 shows the percentage shares of the five types of mutual funds in the overall Indonesia mutual fund industry.

Professional investment management is one of the benefits for the investors who put money into a mutual fund. Investment management requires similar fixed costs as other services as well as annual administration fees. Other charges include fees for selling agents’ services, custodial services and of course charges for fund management itself. Besides, fees are also used for covering the costs of legal counsellors, accountants, public notaries, administration, marketing, registration, transaction of securities, taxes and insurance.

Based on their functioning and the FSB’s definition, we can classify financing companies’ activities as shadow banking. Indonesia considers brokers as shadow banks since brokerage activities fall under Economic Function 3 (intermediation of market activities that is dependent on short-term funding or on secured funding of client assets) and Systemic Risk 4 (leverage). By contrast, Indonesia does not consider money market funds and collective investment schemes as shadow banking, although they perform token shadow banking activities falling under Systemic Risk 1 (maturity transformation), Systemic Risk 2 (liquidity transformation) and Systemic Risk 4 (leverage).

Collective-investment mutual funds are distributed indirectly by institutions such as commercial banks, insurance companies and brokers, and directly by the investment management companies themselves. Commercial banks have a share of more than 75% of the overall net asset value, which makes them the biggest player in this market. Many state-owned banks and insurance companies distribute collective-investment mutual fund products issued by their own investment management subsidiaries, since traditional banking institutions are restricted by regulation from launching their own collective-investment products. Foreign-owned commercial banks, which are often subject to less strict regulations, can offer many kinds of fund families which are distributed by different investment companies.
The products issued by the investment management company must initially be offered at an identical value, which is a net asset value of IDR1,000 per unit, and the maximum number of units depends on the contract between the investment manager and the custodian bank. As long as the units of participation do not reach the maximum number, a collective-investment mutual fund can be continuously offered to the public. Furthermore, the mutual fund product has different minimal amounts pertaining to the initial subscription for each investment management company. Indonesia has five types of mutual fund products and Figure 3.25 shows the composition of mutual funds’ net asset values.

Figure 3.25
Composition of Mutual Funds’ Net Asset Value in Indonesia
3.2.4 Shadow Banking Activities

Shadow banking occurs outside the regular banking system and therefore the regulatory perimeter. Using the broad definition by the FSB, we approximate the overall size of the shadow banking sector by combining the assets of other financial institutions (OFIs) and the investment fund sector, which includes money market funds and entities such as mutual funds, securities company and brokerages.

For the purposes of observing the shadow banking system, it is not enough to just pursue an “entity-based” approach, meaning that we simply look at the balance sheet data of each individual entity to derive the overall fund flows. Such a point of view neither captures the involvement, exposures and specific interactions between entities in the shadow banking system nor does it constitute proper risk analysis for the sector. Furthermore, the credit intermediation process might generate systemic risks accompanied by maturity and liquidity transformation, leverage or imperfect credit risk transfer. Besides that, the interconnectedness between the shadow banking system and the regular banking system may cause these risks indirectly.

Since the “entity-based” approach fails to capture the entire process happening in the shadow banking sector, we provide a wider analysis using an “activity-based” approach. This approach is more fully aligned with both shadow banking monitoring based on economic function as well as analytical and policy work on Securities Financing Transactions (STFs). Furthermore, the distinctiveness of financial stability risks is better captured by an activity-based approach.

3.2.4.1 Securities Financing Transactions

Securities financing transactions (SFTs) are a form of borrowing activity with secured features, which means that the borrower provides collateral to the lender, such as cash or securities. In case the SFT defaults, the borrower is the collateral giver and the lender is the collateral taker. The latter could therefore sell the securities in order to recover their money.

Repurchase agreements (repos), securities lending and margin lending transaction constitute a form of financial contract in SFTs. A repurchase agreement is a two-stage transaction: in the first leg of the transaction, a borrower sells securities to a lender and simultaneously commits to buy back the same securities in the second leg of the transaction at a future date. Securities lending works along the same lines, e.g., it is a transaction under which the borrower commits to return the same securities on an agreed date in the future. As a general contract typically, this contractual agreement entails the payment of a fee which is imposed on the borrower.

Repo markets

A repurchase (repo) agreement is a form of short-term borrowing, although the funding source is rather unstable and tends to dry up in case of a deterioration of market condition. The academic literature suggests that in periods of stress, the trading volume in the repo market remains relatively resilient (Boivin et al., 2015; Perignon et al., 2015).
Securities lending

A securities lending transaction constitutes one of the key elements of the shadow banking system, particularly in the case where collateral is cash. In this case, a kind of credit is created which suggests credit provision in the system. For instance, securities lending can occur with government bonds, corporate bonds and equity lending.

3.2.4.2 Derivatives

A derivative is a contract between two or more parties whose value is based on an agreed-upon underlying financial asset. Generally speaking, derivatives are secondary securities values of which are solely based on, or derived from, the value of the primary security they are linked to. Derivatives can be used to either profit from, or insure against, the possibility of leverage and the exposure to a diversity of markets.

Leverage

Leverage is an investment strategy that uses borrowed money to increase the potential return of an investment. The risk of the excessive leverage to the financial system can arise from procyclicality and contagion. In this process, price fluctuations in asset markets are potentially amplified by leverage in a procyclical way. This happens when liquidity transformation and indirect contagion combine.

Credit enhancement

Credit enhancement is a strategy for improving the credit risk profile of a business, which may be used to reduce the risks to the investor. Credit enhancement can contribute to the increase in credit intermediation through securitisation, credit default swaps (CDS), etc. Thus, it can increase the interconnectedness of each market participant. Therefore, credit enhancement should be considered for the purposes of assessing shadow banking risk.

3.2.5 Regulation

The presence of shadow banking entails potential risks that need to be mitigated. From our data analysis, the activities of shadow banking can be measured, and its potential risks identified. In Indonesia, such a risk assessment requires data sources such as regular reports, periodic surveys, thematic reviews, supervisory assessments and regular engagements with NBFIs (FSB, 2014).

Related to the approaches of risk assessment, various metrics such as the leverage ratio and maturity mismatches of assets and liabilities, are usually employed to undertake risk assessments by the relevant authorities for individual NBFIs at the individual entity level. Furthermore, to control shadow banking sectoral risks to the banking system, and especially to the financial system overall, central banks undertake macroprudential policies. This macroeconomic risk assessment typically requires the use of financial indicators like leverage, credit risk, asset prices and funding liquidity risk.
While potential risks are abundant, there are challenges in monitoring and mitigating shadow banking risks. The main challenge is the problem of collecting relevant data and information for the purposes of shadow banking risk assessments. Where the available quantitative information is limited, it will be difficult to scale the size of shadow banking activities and the degree of risk that is related to financial stability. Other than that, the deficiency of structured data is also an issue for monitoring and conducting risk assessments of NBFIIs, especially for sectors that are dominated by small entities.

Policy actions is needed and indeed applied to diverse NBFIIs in order to prevent the possibility of regulatory arbitrage. The effective collaboration among numerous domestic regulatory agencies is therefore needed. Furthermore, we need to consider not only the benefits of shadow banking activities or entities but also the inherent risks. The regulatory framework should be able to strike the right balance. In other words, the policy measures must be proportional so that they can address potential risks without restricting financial sector growth.

In Indonesia, shadow banks perform their activities through the purchase of securities and the provision of loans, thereby generating short-term safe debt for financial intermediaries through money market funds. These activities generate a maturity or liquidity transformation that could entail systemic risk for the Indonesian financial system. But shadow banking still lack supervision since a shadow banking institution is not a regular banking institution that is overseen by the Indonesian financial services authority (OJK). Moreover, a regulatory problem arises because of technological innovation and its impact on the regulatory system. The technological changes create various new entities, meaning it becomes necessary to continuously review the existing regulations and to reform regulations for the financial services sector as and when required (Wei, 2013).

Furthermore, in the face of potential risks, shadow banking institutions have no access to usual sources of liquidity such as Bank Indonesia and the Indonesia Deposit Guarantee Company (LPS) (Poszar et al., 2013).

### 3.2.6 Surveillance Framework

Otoritas Jasa Keuangan (OJK) is the Indonesian financial supervisory agency that sets financial regulations and conducts financial supervision since its inception in 2011. Shadow banking implies a systemic risk, so authorities use an appropriate integrated supervisory model to mitigate crises and stabilise the financial system (Abubakar et al., 2016). This regulatory authority can take enforcement actions against NBFIIs if necessary and provide protection for investors and consumers. For this purpose, OJK has the authority to issue regulations in order to address potential risks emanating from the shadow banking system and it continues to enhance regulations and supervision of NBFIIs. As such, the authorities would continuously improve current regulations or provide new regulations related to the non-bank financial entities/activities, strengthen inter-agency harmonisation and cooperation, extend legislative changes to empower authorities to gather the necessary data and information and implement other regulatory assessments of NBFIIs.
With regard to FSB (2014), Indonesia has reported that regulatory enhancements are underway for insurance firms, finance companies and financial guarantee companies. This contrasts with capital markets and the conventional banking sector, which has very strict and detailed regulation already. Non-bank financial institutions are subject to multiple rules as presented in Table 3.1.

### Table 3.1

**List of Indonesian Regulations of Shadow Banking**

<table>
<thead>
<tr>
<th>No</th>
<th>NBFIs</th>
<th>Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Insurance</td>
<td>Law No. 40/2014</td>
</tr>
<tr>
<td>2</td>
<td>Pension funds</td>
<td>Law No. 11/1992</td>
</tr>
<tr>
<td>3</td>
<td>Financing institutions</td>
<td>Presidential decree No. 9/2009</td>
</tr>
<tr>
<td>4</td>
<td>Pawnshop institution</td>
<td>Government regulation No. 51/2011</td>
</tr>
<tr>
<td>5</td>
<td>Deposit insurance institution</td>
<td>Law No. 1/2016</td>
</tr>
<tr>
<td>6</td>
<td>Indonesia’s export financing institution</td>
<td>Law No. 2/2009</td>
</tr>
<tr>
<td>7</td>
<td>Secondary housing financing companies</td>
<td>Presidential decree No. 1/s009 and Presidential decree No. 19/2005</td>
</tr>
<tr>
<td>8</td>
<td>Social security agency</td>
<td>Law No. 24/2011</td>
</tr>
<tr>
<td>9</td>
<td>Microfinance institutions</td>
<td>Law No. 1/2013</td>
</tr>
</tbody>
</table>

Source: Abubakar et al. (2016).

However, there still remain business entities or financial service institutions performing intermediary activities that are not covered by the regulatory umbrella. Bearing in mind that the development of the shadow banking system will continue to grow rapidly, special entities offering intermediary services through electronic media are still not fully covered by regulations and FSA supervision. There is a need therefore to integrate the regulations issued by the FSA with those of Bank Indonesia as the central bank.

### 3.3 Prospects for New Forms of Financial Intermediation

The prospects for shadow banking in Indonesia, especially as a new form of financial intermediation, are very promising but also challenging. As part of a global community, along with the worldwide tendency towards an unprecedented advancement in technology as reflected by lower costs, rising computer power and faster broadband internet, technological absorption in shadow banking will be unstoppable. Relative to other sectors, the financial sector is mostly ahead in terms of technology and innovation adoption. However, the financial sector industry is by its nature also sheltered by strict regulations. Lee and Shin (2018) have pointed out that FinTech is one of the critical innovations that has evolved at a high speed and is driven by information technology and regulatory relaxation. This phenomenon will force the banking and financial services industry to change and cut cost significantly, while at the same time try to provide more diverse and convenient services.
The phenomenon of heavy internet usage as a means of communication in Indonesia, with an increase of about 52% in the number of internet users between 2013 and 2018, is indicative of the rapid digital technology absorption by the Indonesian public. The growth of FinTech in Indonesia has become more prevalent in the last couple of years (Iman, 2018), especially in 2015, which saw a growth rate of 78%. Meanwhile, digital payments in Indonesia have reached a total transaction value of USD18 million in 2017. Furthermore, Alimirruchi and Kiswara (2017) pointed out that the development of FinTech was changing people’s lifestyles, improving living standards and introducing society to new kinds of needs which encourage rapid development of mobile start-up payments.

The dramatic changes in both consumer behaviour and business models brought about by the use of technology in financial transactions have been triggered by disruptive innovations that introduced speed, convenience, easy access and efficiency. Innovations and solutions provided by digital technology in financial services have boosted the growth of business networks in Indonesia. The development of FinTech in Indonesia is rapidly making strides along with the establishment of the Association of FinTech in Indonesia (AFI) in September 2015.

Studies such as Putri (2019), Gomber et al. (2017), Ng and Kwok (2017) and Puschmann (2017) show that FinTech can potentially be the best economic solution because of the combination of technology and financial service features that are able change business models and reduce the barrier to entry. However, FinTech-based innovation in Indonesia does not always drive profitability, especially in terms of its return-on-equity (ROE) for a company, which implies inherent risks. It also has a significant influence on its return-on-assets (ROA).

Indonesia presents a unique situation for financial intermediation. According to Global Findex (2018), less than half of its adult population has an account in conventional banking institutions. According to Statista (2019), Indonesia is digitally dynamic, meaning that its population uses mobile phones and the internet extensively. By 2022, the number of smartphones and internet users is expected to increase by two-thirds compared to 2013. The number of mobile users is forecasted to be around 190 million in 2019. It is worth keeping in mind that even 120 million users would suffice to make Indonesia the third largest mobile market in Asia.

The above data indicate a significant gap between the supply and demand for credit, which presents a huge domestic market opportunity for FinTech enterprises to grow rapidly in Indonesia. For that reason, prospects for the continuing development of the digital economy in Indonesia are very promising. This is not only due to the higher demand for digital services that encourages innovation in digital companies, but also due to the strong commitment of the Indonesia government and its affiliated institutions, such as Bank Indonesia, the Financial Services Authority, the Ministry of Communication and Information and the Ministry of Trade. Better collaboration between these institutions could enhance the potential growth and prospects for new forms of financial intermediation. For instance, the development of the payment system infrastructure by Bank Indonesia and the enhancement of broadband speed by the Ministry of Communication and Information will increase the dynamics of FinTech, which in turn will support e-commerce growth that is regulated by the Financial Services Authority and the Ministry of Trade.
Based on the business-to-business (B2B) approach, the collaborative model between banks and FinTech, with a focus on peer-to-peer (P2P) lending, needs enhancement. In order to mitigate the disruptive effect of digital finance development on the overall financial system, this amplification could be based on theoretical perspectives as well as lesson learned from other countries.

Micro-, small- and medium-sized enterprises (MSMEs) contribute more than 60% of Indonesia’s GDP. Indonesian FinTech, especially P2P lending, needs to focus more on financing MSMEs that are not only the primary focus or target of the credit market in Indonesia, but also one of the main means of enhancing financial inclusion. The prospects for new forms of financial intermediation will be discussed further in the next sections.

3.3.1 New Business Models

The unceasing innovation in technology, especially in finance, accelerates the emergence of new entities and instruments that are either directly or indirectly used in financial intermediation. In parallel, the regulatory environment for commercial banking is constantly becoming stricter. Therefore, the number of non-bank financial institutions is growing significantly, which obviously form part of the shadow banking sector. Consequently, the growth of the share of non-bank financial intermediaries (including shadow banking) could approach that of the United States (where shadow banking has a 50% share) and Europe (where shadow banking has a 40% share). Since the shadow banking system exists in a more unregulated environment, it will create systemic risks that must be mitigated.

Other than that, financial technology creates a very competitive environment, involving, for example, low-cost systems and customer-friendly solutions that can be easily accessed from anywhere. Financial technology will also employ Artificial Intelligence (AI) to gain better portfolio revenues and prevent fraud losses. This feature is currently not yet available for every product and the use of AI still needs to be develop, but it does not rule out the possibility in the future.

Concurrently with the presence of financial technology, extraordinary new types of businesses have arisen. For instance, simply by providing a platform in the form of a smartphone application, P2P lending can bring together lenders (investors) and borrowers. This can be regarded as a genuine innovation in the financial system. In addition, by using Big Data, such a platform can validate the feasibility of borrowers.

For now, the total funds collected in P2P lending activities are not that large. Considering the very rapid development so far, however, it is not impossible to imagine that this type of activity will become large and have a significant influence on the financial system in Indonesia. In that case, it will undoubtedly become one of the alternative sources of finance, as happened in Europe, where P2P lending has become the largest category of alternative finance with total assets of around EUR1 trillion. Generally speaking, money markets, capital markets and equity markets work along the same lines, and while they produce the same thing, it can be regarded as an “old” product. The involvement of technology, however, disrupts the process and forces the companies involved to use the technology and create more efficient processes. Thus, the impact on processes can be very fast with automation and AI.
Companies tend to use technology because of the abundance of data. Technology is included in all the processes and optimal decisions are based on data. A company involved will be willing to provide a larger budget to build and develop such technology. Therefore, the company will have to grow in line with the significant increase of savvy internet users in Indonesia.

3.3.2 FinTech Lending Risks and Benefits

We have seen that FinTech has been making steady inroads into all financial sectors, in the process of creating new business models as we discussed earlier. One such business model that is the focus of this study is FinTech lending, which offers bright prospects with a number of potential benefits but also possible risks that might be of concern. As FinTech lending constitutes a genuine new form of financial intermediation, we will discuss the prospects for FinTech lending in more detail. We will also examine the risks and benefits further. While FinTech lending undoubtedly promises great benefits, it simultaneously also involves great potential risks.

3.3.2.1 FinTech Lending Risks

The development of FinTech lending can have both positive and negative effects on the stability of the financial system. Some positive impacts include more financial access, an increase in the speed of intermediation of financial institutions and higher efficiency. BIS (2018) showed that innovations in financial digitalisation encourage the expansion of financial access, including to customers who have not been served by conventional financial institutions. In addition, FinTech also promotes banking efficiency. On the other hand, the negative effects include the emergence of risks such as cyber risk, limited liquidity risk and credit default risk.

Cyber risk is the risk arising from the inclusion of technology in the financial system. One of the variants of cyber risks is a cyber-attack, which is potentially one of the most alarming of such risks. A cyber-attack can paralyse the platform and retrieve the personal data of the platform users. Furthermore, cyber-attacks can steal users’ money or be used to commit other types of fraud. So far, however, this threat has not occurred according to the respondents who had experienced situations where the system went down. The incidence of cyber-attacks on FinTech lending platforms in Indonesia is very low (Figure 3.26). Furthermore, survey results reveal that only 30.8% of platforms had information security management in line with international standards, and 71.8% of FinTech lending platforms still rely on their own IT capabilities in preventing cyber-attacks (BI-DKMP 2018).
Hereinafter, liquidity risk arises from the platform that obtains its funding from private sources. Foreign capital ownership of the respondent platforms is still low (accounting for less than 19% of respondents), which increases the liquidity risk due to the relatively low capital outflows (BI-DKMP 2018). Technological developments enable rapid financial transactions, product development and increased linkages between economic agents. FinTech in Indonesia is also growing rapidly. Kearney (2017) showed that foreign investors view the Indonesian market as a bullish market, especially FinTech and healthcare, so that FinTech lending development is expected to accelerate going forward. At the same time, a relatively fast product development is often not anticipated by regulators. In addition, regulators need to find a middle way between regulatory aspects that mitigate risk without stymying innovation (Tsai and Peng, 2017). For that reason, there is the potential for the rapid development of FinTech that is not accompanied by the development of adequate regulation. FSB (2018) suggested continued attention to inter-country collaboration that encourages financial stability, innovation and risk mitigation. FinTech studies at the domestic level are still limited to regular reports on financial and banking system stability from various institutions, such as the OJK, LPS and Bank Indonesia.

### 3.3.2.2 FinTech Lending Benefits

FSB (2017) observed that although the starting point for FinTech lending was a platform that channels loans from individuals to individuals directly, several platforms obtained funding from institutional investors. By now the traditional P2P lending model has developed into a notary model, guaranteed-return model, balance-sheet model and invoice-trading model. In the United States, FinTech lending providers have even securitised assets to obtain additional funding. As such, a total of USD23.8 billion was issued in 96 P2P lending asset securitisations in 2017. Investment banks such as Goldman Sachs, Deutsche Bank and Morgan Stanley were the largest lead arrangers of these securitisations. This indicates that the development stages of FinTech lending are both accelerating and becoming more complicated.

Furthermore, previous research conducted by the BI-DKMP (2018) summarised some of the advantages of financial technology and the areas that can be expected to benefit the most. FinTech lending in general can increase credit access to people who are not reached by conventional banks. The increased use of technology also lowers transaction...
costs and speeds up service. FinTech lending also increases returns for investors. Finally, FinTech lending diversifies financing products and innovates the credit scoring process and financing approval. Details of the benefits and areas that will benefit are reported in Table 3.2.

### Table 3.2
**Summary of FinTech Lending Benefits**

<table>
<thead>
<tr>
<th>Source</th>
<th>Benefits</th>
<th>Business model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balyuk (2016)</td>
<td>Financial inclusion, Encourage refinancing, Increase consumption for consumer loan debtors</td>
<td>Customers segments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Value proposition</td>
</tr>
<tr>
<td>Ulrich and Bholat (2016)</td>
<td>Increase credit access, Lower interest rates</td>
<td>Customers segments</td>
</tr>
<tr>
<td>Jagtiani (2017)</td>
<td>Financial inclusion, Lower interest rates</td>
<td>Customer segments</td>
</tr>
<tr>
<td>FSB and BIS (2017)</td>
<td>Financial inclusion, Product diversification including financing efficiency</td>
<td>Value proposition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cost structure</td>
</tr>
<tr>
<td>BIS (2018)</td>
<td>Financial inclusion, Cheaper transaction fees, Faster service, Reducing systemic risk from banks, Innovating credit scoring and approval processes</td>
<td>Costumers segments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cost structure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Key resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Key activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Channels</td>
</tr>
</tbody>
</table>


### 3.4 Methodology

Another purpose of this study is to address the issue of the impact of monetary policy on shadow banking through the asset price channel. The potential transmission of monetary policy on shadow banking activity occurs through the asset price channel. Figure 3.27 illustrates the monetary policy transmission mechanism in Indonesia, which proceeds through Bank Indonesia’s policy instrument, the interbank rate. The deposit rate influences financial asset prices and policymakers control shadow bank activity through this link. For that reason, we would like to run an econometric model to assess the influence of monetary policy on shadow banking.
Indonesia has adopted Inflation Targeting (IT) as its monetary policy framework. This framework was formally adopted in July 2005, replacing the previous monetary policy framework of base money targeting. Under the IT framework, Bank Indonesia announces future inflation targets for specific periods. During each period, Bank Indonesia will evaluate whether the inflation projection is in line with the adopted target. If the inflation projection is no longer compatible with the target, Bank Indonesia responds with the monetary policy instruments at its disposal. At the operational level, the monetary policy stance is reflected in the setting of the policy rate (BI Rate) with the expectation of influencing money market rates and in turn the deposit and lending rates in the wider banking system. Changes in these rates will ultimately influence output and inflation.

### 3.4.1 The Impact of Monetary Policy on Shadow Bank Returns

Following Zhang and Wan (2017), we use the Exponential Generalised AutoRegressive Conditional Heteroskedasticity (EGARCH) model. The main reason for using the EGARCH model instead of other empirical models of conditional heteroskedasticity, such as the original GARCH model, is that it is better suited to the high-frequency data we employ. In addition, empirical results suggest that the EGARCH model fits the sample data better than the GARCH model in capturing the volatility of shadow banking asset price returns. The model specification is as follows:

\[
\begin{align*}
\ln(\sigma_t^2) &= \omega + \sum_{j=1}^{q} \beta_j \ln(\sigma_{t-j}^2) + \sum_{i=1}^{p} \alpha_i \frac{u_{t-i}}{\sigma_{t-i}} + \sum_{k=1}^{v} \gamma_k \frac{u_{t-k}}{\sigma_{t-k}} + Z_{m}^\prime X_t^m \quad \text{(4)}
\end{align*}
\]

where the endogenous variable, \(r_t\), is the shadow banking interest rate, equation (3) is the mean equation of the shadow banking interest rate series and equation (4) is the variance equation. \(\sum_{i=1}^{p} \alpha_i \frac{u_{t-i}}{\sigma_{t-i}} + \sum_{k=1}^{v} \gamma_k \frac{u_{t-k}}{\sigma_{t-k}} + Z_{m}^\prime X_t^m\) represents the time-varying mean and \(\sigma_t^2\) is the time-varying variance. The mean is assumed to show persistence in the shadow banking interest rate as well as in exogenous factors that should affect shadow banking, \(X_t^m\) (the exogenous control variable includes the market-based interbank interest rate as the price-based monetary tool, the seven-day repo rate, the benchmark interest rate as the administrative...
monetary tool, the lending rate and the deposit rate) and we also include the nominal effective exchange rate (NEER) as a control variable. The term $X_t^e$ contains the exogenous variable for the variance equation and $y_{-k}$ is the asymmetric impact of positive or negative innovations on the standardised residuals.

3.4.2 The Impact of Monetary Policy on the Size of Shadow Banking Assets Under Management

Since the shadow banking interest rate is a general metric which covers the whole universe of shadow banking products, we thought it was important to examine the responses of specific shadow banking products with their respective asset allocations (debt securities, money market funds and equity) to the exogenous variables (interbank rate, policy deposit rate) to uncover the exogenous factors driving shadow banking asset growth. We employed an ARCH-GARCH model for this purpose because the data is not stationary at levels and displays conditional heteroskedasticity. The model specification is as follows:

\[ a_t = \sum_{i=1}^{\phi_i} \alpha_i a_{i-1} + Z'_m X^m_t + u_t, \quad u_t \sim N(0, \sigma_t^2) \]  

\[ \sigma_t^2 = \omega + \sum_{j=1}^{\phi_j} \beta_j \sigma_{t-j}^2 + \sum_{i=1}^{\beta_i} \alpha_i \sigma_{t-i}^2 + Z'_v X^v_t \]

where the endogenous variable, $a_t$, is the asset growth of specific shadow banking products (which is allocated mostly to debt securities, money market funds and equity), equation (5) is the mean equation of shadow banking asset growth, equation (6) is the variance equation, $\sum_{i=1}^{\phi_i} \phi_i a_{i-1} + Z'_m X^m_t$ represents the time-varying mean and $\sigma_t^2$ is the time-varying variance. The mean is assumed to show persistence in shadow banking asset growth as well as in exogenous factors that should affect shadow banking, the exogenous control variables include the market-based interbank interest rate as the price-based monetary tool, the seven-day repo rate, the benchmark interest rates as the administrative monetary tool, the lending rate and the deposit rate) and we also include the nominal effective exchange rate (NEER) as a control variable. The term $X^v_t$ captures the exogenous variables for the variance equation.

3.5 Data Description

3.5.1 The Impact of Monetary Policy on Shadow Banking Returns

We selected data on the price NAV retail product from Schroders Indonesia and calculated the return for every product and also the weighted total return.\(^2\) We calculate the return based on the annual yield (Figure 3.28). We employed 678 daily returns (based on a five-day week) from January 2017 to August 2019. Summary statistics for the underlying return series and other key interest rate are shown in Table 3.3, and together they provide a general idea of the data. In addition to having the Schroders return series as the endogenous variable, the exogenous control variables include the market-based interbank rate, the seven-day repo rate, the benchmark interest rate as the administrative monetary tool, the lending rate and the deposit rate.) and we also include the nominal effective exchange rate (NEER) as a control variable. The term $X^v_t$ captures the exogenous variables for the variance equation.

\(2\) We weighted the total return by assets under management.
The most representative interbank interest rate is IndONIA. Introduced in early 2017, IndONIA is a daily reference rate based on the interest rates at which banks offer to lend unsecured funds to other banks in the Jakarta wholesale (or interbank) money market as shown in Figure 3.29.

![Figure 3.28: Schroders’ Annual Yield](image)

Source: Schroders’ Indonesia.

![Figure 3.29: Interbank overnight average (IndONIA)](image)

Source: CEIC.

The seven-day repo rate, the lending rate and the deposit rate in Indonesia display a very strong correlation because they move in tandem. For that reason, we will include them in the model one at a time rather than simultaneously to prevent biasing the results. Figure 3.30 shows quite clearly that the Indonesian seven-day repo rate, lending rate and deposit rate have a similar shape except for a level shift.
Because Indonesia is a developing economy which is still affected by the exchange rate, we consider using the nominal effective exchange rate (NEER) as a control variable that may influence the returns of Schroders’ Asset Management products. Figure 3.31 shows a time series of the Indonesian nominal effective exchange rate.

**Figure 3.31**
Nominal Effective Exchange Rate

**Source:** BIS.

### Table 3.3
Statistics for the Yields and Interest Rate

<table>
<thead>
<tr>
<th></th>
<th>IndONIA</th>
<th>Repo</th>
<th>Deposit rate</th>
<th>Lending rate</th>
<th>NEER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>5.01</td>
<td>5.07</td>
<td>4.32</td>
<td>5.82</td>
<td>72.82</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>3.64</td>
<td>4.75</td>
<td>4.00</td>
<td>5.50</td>
<td>72.10</td>
</tr>
<tr>
<td><strong>Std. Dev.</strong></td>
<td>6.31</td>
<td>0.81</td>
<td>0.69</td>
<td>0.69</td>
<td>2.85</td>
</tr>
</tbody>
</table>

Notes: The mean is the average over the sample period, the standard deviation is over the sample period and the NEER enters the econometric analysis as the log difference.
3.5.2 The Impact of Monetary Policy on the Size of Shadow Banking Assets under Management

To evaluate the impact of monetary policy on the size of Schroders’ assets under management, we selected several Schroders’ products which allocated assets mainly in debt securities (Mantap Plus II), money market funds (Dana Likuid) and equity (Prestasi Plus). Because daily data on assets under management are not available in Indonesia, we use monthly data and consider the time period from January 2010 to September 2019 (Figure 3.32). Since the IndONIA rate is only available from 2017 onwards, we use the interbank one-day call money as well as the BI deposit rate (Figure 3.33).

Figure 3.32
Specific Schroders’ Product Growth

3. We use the annual growth rate of assets under management.
3.6 Estimation Results

3.6.1 The Impact of Monetary Policy on Shadow Banking Returns

We present the empirical results for the impact of monetary policy on shadow banking returns in this section. The best model is chosen by considering the significance of the model based on the statistical probability of various $F$-tests, the significance of the AR or MA coefficients used, the smallest log likelihood of the various estimated models and the minimised Akaike Information Criterion (AIC) and Schwarz (Bayesian) Information Criterion (SIC). As before, we selected an Exponential-GARCH (EGARCH) model. We assumed that the errors follow a normal (Gaussian) distribution. Before evaluating the best model, we ensure that all significant AR and MA coefficients are included. We find that the ARIMA (2,1,2) is the best model for the Schroders’ return series. In addition,

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4. The monthly series is constructed from end-of-period daily NEER data.
we make sure that there is neither residual serial correlation in the model nor is there remaining heteroscedasticity in the ARCH part. In other words, the EGARCH methodology can be used. We included the administrative monetary policy tools (benchmark lending rate, deposit rates, seven-day repo rate offered by the BI), followed by price-based policy tools (interbank interest rate: IndONIA).

Because the lending, savings and seven-day repo rates are highly correlated, we run them individually to see which one has the most significant effect on our independent variable. Since these three rates are only separated by a level shift, the estimation results are the same for all three variables. We therefore choose to display results for the seven-day repo rate because the latter better reflects the monetary policy tool. The results show that the repo rate has no significant effect on Schroders’ yield. Remember that the results will be unchanged when we use either the lending or the deposit rate. In contrast to our result, Zhang and Wan (2017) found that the lending rate had a negative relationship with shadow banking asset returns. These results indicate that there is a relationship between central bank actions and the conditions of the retail credit market. This relationship should be positive, meaning that the policy serves as a guide for determining prices when shocks and distortions occur in the economy. But our negative relationship is counterintuitive and difficult to explain. Furthermore, our econometric results show that there was no significant relationship with the lending rate (which also applies to the repo rate and the BI deposit rate), which mean that monetary policy does not serve as a guide for shadow banks. A possible explanation is the lack of regulation in the shadow banking sector, which causes the lack of response of shadow banks to monetary policy.

Table 3.4
Estimation Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Repo rate</th>
<th>Interbank rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean equation result</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-0.000</td>
<td>-0.000</td>
</tr>
<tr>
<td>Interbank</td>
<td></td>
<td>-0.352</td>
</tr>
<tr>
<td>Repo</td>
<td></td>
<td>1.527</td>
</tr>
<tr>
<td>NEER</td>
<td></td>
<td>0.034</td>
</tr>
<tr>
<td>AR(1)</td>
<td>1.440***</td>
<td>1.444***</td>
</tr>
<tr>
<td>AR(2)</td>
<td>-0.932***</td>
<td>-0.931***</td>
</tr>
<tr>
<td>MA(1)</td>
<td>-1.470***</td>
<td>-1.476***</td>
</tr>
<tr>
<td>MA(2)</td>
<td>0.917***</td>
<td>0.920***</td>
</tr>
<tr>
<td>Conditional variance equation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARCH(1)</td>
<td>0.286***</td>
<td>0.286***</td>
</tr>
<tr>
<td>GARCH(1)</td>
<td>-0.414**</td>
<td>-0.425**</td>
</tr>
<tr>
<td>Asymmetric effect</td>
<td>-0.050</td>
<td>-0.045</td>
</tr>
</tbody>
</table>

Note: We use the first difference of the repo rate because of the non-stationarity in the level of the series. We assume a residual normal error distribution. *, **, and *** denote statistical significance at the 10%, 5% and 1% level of significance respectively.
Finally, the interbank (IndONIA) rate has no significant effect on Schroders’ yield either. This result indicates the absence of a link between central bank policy actions and conditions in the retail credit market. This outcome mirrors the estimation results in Zhang and Wan (2017), namely that Shibor has no significant effects on shadow banking asset returns in China. The results are different from the studies by He and Wang (2012) and Porter and Xu (2013), which employ the seven-day repo rate as the market-determined interbank interest rate and disregard Shibor. One possible explanation for the insignificant results for the interbank interest rates and retail returns is that the price-based monetary policy tool is not effective in influencing the shadow banking market due to a lack of connection between them. For administrative monetary policy tools, on the other hand, the elasticity of policy rate indicates an effective transmission of change in monetary policy to retail-market rates.

3.6.2 The Impact of Monetary Policy on the Size of Shadow Banking Assets under Management

This section presents our empirical result for the effect of monetary policy on the size of the shadow banking sector’s assets under management. The best model is chosen by considering the significance of the model based on the statistical probability of various $F$-tests, the significance of the AR or MA coefficients used, the smallest log likelihood of the various estimated models and the minimised AIC and SIC. We choose to employ an ARCH-GARCH model. We assume that the errors follow a normal (Gaussian) distribution. Before evaluating the best model, we ensure that all significant AR and MA coefficients are included. We find that the best ARIMA model for each of the Schroders’ specific products is the ARIMA (2,1,0) model for equity, the ARIMA (1,1,0) model for fixed income and the ARIMA (2,1,1) model for money market funds. In addition, we ensure that there is neither residual serial correlation in the model nor is there remaining heteroscedasticity in the ARCH part, so that the ARCH-GARCH methodology can be used.

Table 3.5
Deposit Rates Estimation Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Equity</th>
<th>Fixed-income</th>
<th>Money markets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean equation result</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>−0.000</td>
<td>0.006</td>
<td>0.012</td>
</tr>
<tr>
<td>Deposit</td>
<td>11.124***</td>
<td>−13.162</td>
<td>−21.783**</td>
</tr>
<tr>
<td>NEER</td>
<td>0.173</td>
<td>0.121</td>
<td>−0.072</td>
</tr>
<tr>
<td>AR(1)</td>
<td>−0.717**</td>
<td>0.178*</td>
<td>0.663***</td>
</tr>
<tr>
<td>AR(2)</td>
<td>0.566</td>
<td>−</td>
<td>0.163*</td>
</tr>
<tr>
<td>MA(1)</td>
<td>−</td>
<td>−</td>
<td>−0.967***</td>
</tr>
<tr>
<td>MA(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Conditional variance equation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARCH(1)</td>
<td>0.241**</td>
<td>0.127***</td>
<td>0.283**</td>
</tr>
<tr>
<td>GARCH(1)</td>
<td>−</td>
<td>−</td>
<td>0.744***</td>
</tr>
<tr>
<td>Asymmetric effect</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: We use the first difference of the repo rate because of the non-stationarity in the level of the series. We assume a residual normal error distribution. *, **, and *** denote statistical significance at the 10%, 5% and 1% level of significance respectively.
In general, monetary policy affects market conditions, which simultaneously changes equity prices as well as the interest rates on money market funds. This might cause investors to reallocate their investments, which will in turn affect the size of Schroders’ assets under management. Our econometric results reveal that the BI deposit rate has a positive effect on financial products that are mainly allocated to equities. A possible explanation is that when the BI deposit rate changes, it will cause a response in the retail deposit rate which causes the change in stock prices. In general, the deposit rate has a negative relationship with stock prices. When the deposit rate rises, it will reduce the stock price, which triggers investors into buying products that are mainly allocated in equities and increase assets under management.

Furthermore, the BI deposit rate has a negative effect on financial products that mainly allocate their assets in the money markets. When the deposit rate is reduced, the size of assets under management will also be reduced. One possible explanation follows from the fact that allocations in money markets are mostly invested in highly liquid instruments, such as highly rated debt-based securities with a short-term maturity and cash-equivalent securities. As a consequence, when the BI deposit rate is raised, it will increase the retail deposit rate and encourage investors to sell their highly liquid assets and place them in deposits instead. Moreover, the results show that the interbank rate has a negative effect on financial products that mainly allocate their assets in debt securities. In other words, when the interbank interest rate increases, it will decrease assets under management.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Equity</th>
<th>Fixed-income</th>
<th>Money markets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean equation result</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-0.001</td>
<td>0.001</td>
<td>0.009</td>
</tr>
<tr>
<td>Interbank</td>
<td>1.567</td>
<td>-5.114***</td>
<td>-4.251</td>
</tr>
<tr>
<td>NEER</td>
<td>0.059</td>
<td>0.095</td>
<td>0.342</td>
</tr>
<tr>
<td>AR(1)</td>
<td>-0.715**</td>
<td>0.216**</td>
<td>0.685***</td>
</tr>
<tr>
<td>AR(2)</td>
<td>0.587</td>
<td>-</td>
<td>0.138</td>
</tr>
<tr>
<td>MA(1)</td>
<td>-</td>
<td>-</td>
<td>-0.959***</td>
</tr>
<tr>
<td>MA(2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Conditional variance equation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARCH(1)</td>
<td>0.206</td>
<td>0.196***</td>
<td>0.283***</td>
</tr>
<tr>
<td>GARCH(1)</td>
<td>0.251</td>
<td>0.763***</td>
<td>0.750***</td>
</tr>
</tbody>
</table>

Asymmetric effect

Note: We use the first difference of the repo rate because of the non-stationarity in the level of the series. We assume a residual normal error distribution. *, **, and *** denote statistical significance at the 10%, 5% and 1% level of significance respectively.
The coefficient of the results may appear large, but they are in line with the high growth rates of the specific Schroders’ products. For instance, the growth rate for each product can exceed 100% in case of Dana Likuid (in the money markets) and reach as high as 300% for Mantap Plus II (debt securities). Overall, the growth rate is very volatile and in fact, can even be negative. Furthermore, the policy rate (BI deposit rate) and the interbank rate are relatively small, e.g., on the order of 4% to 8%.

3.7 Conclusion

The development of new forms of financial intermediation is proliferating. Since the definition of new forms of financial intermediation can be confusing, we characterise shadow banking activity through the use of financial technology, making it an intermediary activity outside the regular banking system. This development can be seen from the significant increase of shadow banking assets as a share of the total assets of either financial corporations or GDP. This evidence is accompanied by the rise in the ratio of broad money to GDP, which indicates that monetary policy has become less effective than before the rise of shadow banking.

In Indonesia, shadow banking entities can be classified into two groups, namely trust companies and security or wealth management companies. Trust companies include insurance, pension funds, microfinance, pawnshops, guarantee companies and FinTech lending. Non-bank financial institutions which perform shadow banking activities have interconnections with the regular banking system via funding and borrowing. There are also common trends in that regular banks establish subsidiaries which engage in shadow banking activities. In general, NBFIs that perform shadow bank activities conduct their operations through bond purchases and loans in the form of securities lending, repurchase agreements, credit derivatives and credit enhancements. NBFIs in Indonesia are not backed by Bank Indonesia for liquidity mismatches or the Indonesia Deposit Insurance Corporation (LPS) for bank liquidations. Nevertheless, shadow banking regulation is quite advanced, with the Financial Services Authority (OJK) overseeing the sector’s activities. All NBFIs, barring the mutual fund companies in Indonesia, are carrying out shadow banking activities as classified by the FSB, but since they are covered by adequate regulations, NBFIs are no longer categorised as shadow banks.

Furthermore, the new forms of financial intermediation herald an undoubtedly bright future for Indonesia and the growing number of internet users. It encourages financial institutions to adopt financial technology and develop new forms of financial intermediaries. These trends are expected to lead to the development of broader and deeper varieties of financial products which could enhance financial inclusion. While the growth of this phenomenon is accompanied by substantial innovations and benefits, it also creates heightened risks which need to be mitigated. Consequently, this situation presents an opportunity for non-bank financial institutions to create various new products. In the absence of regulation and oversight by the authorities this may lead to regulatory arbitrage. Ultimately, NBFIs that are eliminated as being shadow bank entities can return as new forms of shadow bank entities.
Moreover, the rapid growth of new forms of financial intermediation has implications for the effectiveness of monetary policy. We use an econometric analysis to assess whether monetary policy instruments (policy deposit rate, policy lending rate, policy repo rate and interbank interest rates) influence the shadow banking system. We find that monetary policy does not have a significant impact on the shadow banks’ returns (we use NAV from Schroders’ Indonesia as a proxy for shadow banking returns). For Schroders’ assets under management growth, however, the policy rate has an impact. More specifically, the BI deposit rate has a positive impact on a shadow bank’s products which are allocated mainly in equities, and a negative impact on the products which are allocated mainly in money market funds. Finally, the interbank rate has an impact on products which are allocated mainly in debt securities.

3.8 Policy Recommendations

New forms of financial intermediation, which we define as new shadow banking activities if they are accompanied by financial technology, have proliferated significantly over time. While some of these activities are regulated by the Indonesian Financial Services Authority (OJK), there still appears to be a lack of regulations and supervision for these new entities, especially the ones who use and develop such technology. Thus, they can develop their business by exploiting regulatory arbitrage. Therefore, we recommend that the OJK and Bank Indonesia step up their efforts to improve regulations and supervision by bringing shadow banking entities under the regulatory umbrella, to better understand their business models as well as to obtain the data necessary to boost regulations or other policy responses.