JoMSS

JOURNAL OF MANAGERIAL SCIENCES AND STUDIES

www.jomss.org

ISSN: 2988-6619

DOI: 10.61160

IMPACT OF FUNDAMENTAL MACROECONOMIC FACTORS, COST EFFICIENCY, FIRMS POLICIES WITH SYSTEMATIC RISK AS MEDIATOR ON ISLAMIC FINTECH WELFARE PERFORMANCE: EVIDENCE FROM AN INDONESIA'S ISLAMIC FINTECH INSTITUTION

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Info Article

History Article:
Submitted
Revised
Accepted

Keywords:
Macroeconomics fundamental factors, systematic risks, firm policy, firm performance, and firm value.

Abstract

This study tries to answer some questions on the impact of Fundamental Macroeconomic Factors, Cost Efficiency, Firms Policies to Islamic Fintech Walfare from economically emerging country like Indonesia. The analysis was conducted gradually by placing systematic risk and firm performance as intervening variables. This research, in specific, aims to test the gradual effect of macroeconomic fundamental factors on firm performance and firm value.

The theoretical base applied to support this research was two established financial theories, such as agency and capital structure theory. This study used the samples of the Islamic Fintch Institution that listed in Indonesia's stock exchange, which the stocks actively traded in Indonesia's Stock Exchange. The data used was panel data, namely, the data of cross section and time series from the period of 2017 to 20019.

The research results are; first, the macroeconomics variables (inflation, interest rate, exchange rate, and economic growth) have significant effect on systematic risks. On the other hand, systematic risks have significant effect on firm performance, and firm performance has significant effect on firm value. Second, the variables of firm policy (manager incentive and financial leverage) have significant effect on firm performance, and firm performance has significant effect on firm value.

However, capital expenditure has insignificant effect on firm performance and firm value rather than manager incentive and financial leverage. Third, special findings from this research are that there is gradual process in influencing firm value so that firm performance has the role as intervening variable, which is the variables mediating the effects of macroeconomic variable (exchange rate), systematic risk, and firm policy (manager incentive) in Islamic financial technology welfare.

INTRODUCTION

Financial technology is one of the most widespread term used for research in finance industry in present time. Financial Technology (FinTech) is the use of modern innovative technology in the field of finance. It is basically the use of innovative and disruptive technology for providing the financial services. Fintech as a concept peaked up the in the late 2010s (Haddad, 2018). Fintech catered to this need of more security for the investors by providing innovative and secured financial services. The other reason for the emergence of Fintech could be attributed to the need for the financial services at more affordable cost which provides mobility and faster pace (Anikina et al., 2016). The primary reason for the emergence of FinTech has been the global financial crisis of 2008 (Haddad, 2018). Global Financial crisis was the period where people lost confidence in the financial system and were looking for something which gives them more assurance in terms of their investment. The severity of financial crisis in 2008 has laid the way for Islamic Financial systems to emerge as the vehicle of recovery from financial crisis (Hussain, 2010).

The answer to the reason why FinTech is happening now is that FinTech innovations are more genuine and they are unlike the previous innovations in the financial services (Rupeika-Apoga et al., 2018: Thalassinos et al., 2015a; 2015b). These innovations are changing the lives of the people and they associated the common people they are genuine, having an infrastructure effect (Schindle, 2017). Islamic FinTech (Financial technology) is any Fintech catering to the needs of the Islamic financial institutions and are designed to asper the principles laid down by sharia. Milian et al. (2019) FinTech can be defined as following: “FinTech is the fusion of Information Technology and Finance in sharia finance system for providing the financial services at an affordable cost with a seamless user experience .

The future of Islamic finance especially Islamic FinTech is very good in Indonesia. The development of mobile and smartphone has paved way for the growth of FinTech in these country. Of course, these opportunities are not without challenges the biggest challenge for the Islamic FinTech companies are about regulation and lack of good and authentic research in the Islamic Fintech sector (Brian, 2017; Firmansyah and Anwar, 2019). Another study (Firmansyah and Ramdani, 2018) argued that the presence of Islamic Fintech companies can help the startups in an effective way. It will be a good boost for the young graduates as there is a lack of organizations who support the young graduate aspirants with sharia compliance financing.

Islamic FinTech is based on the ethos and value of Sharia and it has the ability to lead the finance world across the globe. The biggest advantage with the Islamic Fintech is that it is transparent, accessible and easy to use (Laldin, 2018; Wintermeyer, 2017). The global financial crisis has not affected the financial performance of the Islamic banks because of the nature of the Islamic finance, it has emerged as an alternative to the conventional finance. With the emergence of Islamic FinTech, it provides Islamic banks an opportunity to make the finance world better and

emerge as an alternative finance with more transparency and ethical values (Satyawati et al., 2017). Technological changes are just the beginning of the things to come the innovation in finance and banking industry (Arize et al., 2018). It is really important for the Islamic financial institutions to be prepared and embrace the changes. Sharia compliance Islamic FinTech has the capability to attract 150 million new customers in the next 3 years (Wonglimpiyarat, 2017; Chen, 2018).

However, it is expected to grow further as we are expecting the explosion in the growth of Muslim population as the Muslim population is expected to reach 3 billion by 2060 (Cooper, 2018). Till that date, Malaysia, UK and Indonesia are holding the first three position in terms of Islamic FinTech startups (Cooper, 2018). Another study (Rusydiana, 2018) concluded that the biggest obstacle for developing the Islamic FinTech has been the lack of trained human personnel and clear policy from the government.

What most empirical studies have done is to examine the relationship between market power and cost efficiency in a bid to test the validity of four competing hypotheses (i.e., structure-conduct-performance (SCP) hypothesis, the relative market power hypothesis, the quiet life hypothesis, and the X-efficiency hypothesis) to explain this phenomenon (Tu and Chen, 2000; Weill, 2004; Maudos and De Guevara, 2007; Solis and Maudos, 2008; Delis and Tsionas, 2009; Fu and Heffernan, 2009; Ariss, 2010; Aboagye, 2012; Williams, 2012; Alhassan and Ohene-Asare, 2016; Almounsor and Mensi, 2016). We extend and complement this extant literature by examining the relationship between the consequential social cost of market power (i.e., welfare performance of banks) and cost efficiency. Our motivation is that market power in banking systems cannot be done away with completely, and as suggested by Sarpong-Kumankoma *et al*.system. Thus, society would have to endure the consequential social cost (welfare loss) of banks' market power. Recent studies have shown that the process of deregulation has had limited success at restraining the prowess of bank market power (Ho, 2012; Williams, 2012; Detragiache *et al*., 2008). These studies have confirmed, however, the existence and relevance of the concept of mutual exclusivity between welfare gains from reduced market power and cost-efficient banks. The available empirical evidence shows that welfare gains occasion loss of bank cost efficiency at the macro-level (Maudos and De Guevara, 2007).

However, it is unclear how welfare gains and cost efficiency relate at bank-level. Extending this link to the bank-level is important because in banking, competition or market power takes place at a much lower level than the macro level

FinTech companies need to be more alert regarding the massive transformation going in the industry as it will impact the Fintech companies and they have to find ways to deal with these transformations (Lee and Shin, 2018). Since FinTech is at the early stage of innovation so instead of putting this into rigorous regulation, a more flexible and principle-based strategy are to be adopted. In order to bridge this gap, this paper investigates the relationship between banks' welfare performance and cost efficiency based on Fintech that is carried out by Indonesian Islamic

Fintech Institution. The fast and rapid development in Fintech can be equally disruptive if it is not regulated properly (Vijayanti, 2017). As the FinTech is in its early stage of development and the impact of FinTech on various stakeholders can only be understood by using the dimensions such as regulation (Sangwan, 2019).

This research is different from previous research, since this study will explain in stages (path analysis) macroeconomic fundamentals factors, cost efficiency and firm policies against Systematic Risk as Mediator on Islamic Fintech Welfare Performance. This research also places a risk systematic and company performance as a mediating or intervening variable. Risk systematically mediating the influence of macroeconomic fundamental factors on performance firm and firm value, while firm performance mediates the influence macroeconomic fundamental factors, systematic risk, and company policies to company value.

Previous research has never been done, therefore research this tries to bridge the previous studies in search clarity of influence of fundamental macroeconomic factors, systematic risk, policies company and company performance against firm value.

Theoritical Background

Digital Finance

From a practitioner's viewpoint, digital finance is financial services delivered through mobile phones, personal computers, the internet or cards linked to a reliable digital payment system. Similarly, a McKinsey report identify digital finance as "financial services delivered via mobile phones, the internet or cards" (see Manyika et al, 2016: p.4) in (Ozili, 2018). According to Gomber et al (2017) in (Ozili, 2018), digital finance encompasses a magnitude of new financial products, financial businesses, finance-related software, and novel forms of customer communication and interaction - delivered by FinTech companies and innovative financial service providers. While there is no standard definition of digital finance, there is some consensus that digital finance encompasses all products, services, technology and/or infrastructure that enable individuals and companies to have access to payments, savings, and credit facilities via the internet (online) without the need to visit a bank branch or without dealing directly with the financial service provider.

Internet has emerged as a widely recognised distribution channel for the banking industry, and all traditional banks as well as new players, are discovering its effectiveness compared with other channels (Barbesino, Camerani and Gaudino, 2005) in (Ozili, 2018). The goal of financial services made available via digital platforms is to contribute to poverty reduction and to contribute to the financial inclusion objectives of developing economies (United Nations, 2016) in (Ozili, 2018). Ideally, there are three key components of any digital financial service: a digital transactional platform, retail agents, and the use by customers and agents of a device – most commonly a mobile phone – to transact via the digital platform (CGAP, 2015) in (Ozili, 2018).. To use digital financial services (DFS), the DFS user will have an existing bank account which they own (or third-party

accounts with approved permission to use them) and should have available funds (or overdraft) in their accounts to make cash payments (outflows) or to receive revenue (cash inflow) via digital platforms including mobile devices, personal computers or the internet (Ozili, 2018).

This refers to arrangement of some blend of money related and installment benefits that are conveyed and oversaw utilizing portable or Web advances and a system of specialists (Peake, 2012) (Michelle, 2016). As per the World Bank (2015) in (Michelle, 2016)), computerized money related administrations allude to the utilization of advanced innovations (web, versatile correspondence innovation) to get to monetary administrations and execute budgetary exchanges. Thus, digital financial services generally refer to the far-reaching technologies available to perform financial services from a widespread range of providers to an extensive category of recipients. This is possible by use of digital remote means including e-money, mobile money, card payments, and electronic funds transfers (Asian Development Bank, 2016) in (Michelle, 2016). Computerized Financial Services (DFS) are basically about sparing cash, getting to credit and protection, and performing exchanges through advanced channels like cell telephones, cards, PCs, tablets, et cetera (Martin et al., 2016) in (Michelle, 2016). Digital financial payment products allow users to access funds from far-flung business people, relatives and friends during moments of crisis, reducing the likelihood that they will fall into poverty, to begin with (Klapper, ElZoghbi & Hess, 2016) in (Michelle, 2016). Advanced budgetary administrations, for example, versatile cash furnish people with more prominent accommodation, protection, and, as a rule, improved security contrasted with putting away money at home or going with money (Villasenor, Darrell & Lewis, 2015) in Michelle (2016). Computerized back likewise assumes an essential part for little organizations as it gives them access to fund alongside secure budgetary items, electronic installment frameworks and an opportunity to assemble a money related history (Mujeri, 2015) in (Michelle, 2016).

Macro Fundamental Factors

As explained above, the stock price in the capital market is based on general is influenced by fundamental factors, which can be grouped in macro fundamental factors and micro fundamental factors. Macro fundamental factors comes from outside the company, such as; economic, environmental, political, legal, social, cultural, security, educational, etc. These factors cannot be controlled by the company but the effect is very big if there is a change. Analysts as well as capital market players in general emphasize the analysis of fundamental factors macro on macroeconomic fundamental factors, due to macroeconomic factors touch directly and more measurably, namely through indicators of inflation, interest rates, exchange rates, and economic growth.

Macroeconomic conditions, such as: inflation, interest rates, exchange rates, and economic growth received serious attention from both analysts and capital market players. Capital market players as investors before deciding what investment will be taken, will first see

the prediction of movement inflation, interest rates, exchange rates, and economic growth. This is caused by the growth and development of investment is largely determined by volatility on inflation, interest rates and exchange rates as well as prospects for future economic growth come. Inflation volatility, interest rates, exchange rates and economic growth can be has the potential to increase or decrease systematic risk or risk market, due to movements in inflation, interest rates, exchange rates and economic growth is outside the control of the company, and all companies will be affected.

Economic theory states that, the movement of inflation, interest rates, exchange rates and economic growth has the potential to increase or decrease investment in the real sector, and this will have an impact on market performance capital, where investment in the capital market becomes more risky if the volatility of the movement is high. Although every company experiences different impacts from movements in inflation, interest rates, exchange rates and economic growth, but on generally every company will feel it.

High and low risk for the company as a result of change Macroeconomic conditions are highly dependent on the internal conditions of the company. A financially sound company may not have that great impact, it will but for companies that are less healthy financial conditions can occur otherwise. Companies become difficult to move to develop their business, so that the performance will decrease. If so, then it is difficult for managers to increase company value or shareholder prosperity.

Economic growth as a variable of macroeconomic factors is an external variable which is actually an outcome variable, because This variable is a result of government policy through fiscal policy as well monetary policy to control the money supply. Therefore, fiscal policy and monetary policy are carried out with the aim to stabilize economic activity. According to Sadono (2000), fiscal policy can implemented by making changes in government spending and changes in the taxes levied, while monetary policy can be made by influencing interest rates and influencing the money supply.

Systematic risk or market risk is also the outcome variable macroeconomic conditions that are uncontrollable. Macroeconomic conditions are important factors that must be considered, because these factors are part of the condition caused by the condition of the company's external factors such as; political stability and security, legal, social, cultural, education as well environmental uncertainty. This factor has colored a lot of company policies, particularly in terms of the use of external funds. Instability of factors external will make investment more risky, and it will an impact on the decline in capital market performance.

Macroeconomic performance has very broad implications, among others on company policies, capital market performance and microeconomic performance. Company performance (ROA) as an element of micro fundamental variables (internal micro) originating from within the company will be directly affected, because company performance is the result of policy implementation company.

Therefore, company performance can be variable intervening which can mediate macroeconomic variables and policies companies in influencing stock prices as an indicator of company value. Several previous studies concerning the problem of inflation, interest rates, exchange rates, economic growth and systematic risk have been numerous carried out, among others; research conducted by Claude, et al (1996), Eduardus (1997), Suryanto (1998), Gudono (1999), Shin & Stulz (2000), Syahib (2000), Hutchinson (2001), Dewi (2001), Sudjono (2002), Anuchitworawong (2004), Ritter (2004), Coles, et al (2004), Siti (2004), Nieuwerburgh, et al (2005), Robiatul and Ardi and Dedi and Riyatno (2007). The number of research problems This shows that the problem of macro fundamental factors, especially factors or macroeconomic conditions are very important factors related to company performance and company value.

Research results from Eduardus (1997), found that GDP and inflation has a negative but not significant effect, and the interest rate has a positive effect nor is it significant for systematic risk. Sudjono (2002), found that the exchange rate (exchange rate) and the interest rate have a negative effect on stock prices.

Cost Efficiency and Welfare Gain

The empirical evidence concerning cost efficiency as a mechanism to mitigate welfare losses from bank market power is complex and mixed. One school of thought suggests that market power and cost efficiency co-evolve while the other school of thought suggests that market power and cost efficiency compete. The two schools of thought constitute competing views concerning how social welfare loss and cost efficiency relate.

On the one hand, Koetter et al. (2012) examined the quiet life hypothesis for cost and profit inefficiencies among US commercial banks. The results showed that a quiet life does not exist for cost inefficiencies. In other words, the market power of banks does not exacerbate their cost efficiency but rather confines management to their comfort zone about their growth strategies. Maudos and De Guevara (2007) studied the relationship between market power and efficiency in the EU-15 countries over the period 1993-2002. The results revealed that there exists a positive relationship between market power and cost Xefficiency, suggesting that banks in the EU-15 do not operate a quiet life. It must be noted that the estimated welfare loss due to market power was 0.54 percent of the GDP of the EU-15 countries in 2002. Also, welfare gain was associated with reduced market power and loss of bank cost efficiency. On the other hand, Berger and Hannan (1998) have shown that banks operating in more concentrated markets exhibit lower cost efficiency, which implies the presence of a quiet life in the US banking system. Using the European Economic and Monetary Union (EMU) bank data, Delis and Tsionas (2009) demonstrated that efficiency and market power were negatively related, which is in line with the quiet life hypothesis. Coccorese and Pellecchia (2010) investigated the quiet life hypothesis in the Italian banking industry using data for the period 1992–2007. Their findings established that banking firms with market power are

less efficient. In other words, a quiet life exists in the Italian banking system. From the above literature, the scholarly emphasis has been inconclusive and mixed, at least, in developed economies. Färe et al. (2015) pointed out that these variations were due to the level of market power, the component of efficiency evaluated (cost, technical or allocative) and the type of banking firm (commercial bank or savings bank), suggesting that the quiet life might be a reality only for some financial institutions

Hipothesis

Hypothesis 1 (H1): There is a negative and significant relationship between cost efficiency and islamic financial technology institution welfare performance (an inverse form of social welfare loss).

Hypothesis 2 (H2): Macro economics factor has a positive effect on the relationship between cost efficiency and islamic financial technology institution welfare performance.

Hypothesis 3 (H3): Firms policies factor has a positive effect on the relationship between cost efficiency and islamic financial technology institution welfare performance.

Hypothesis 4 (H4): Systematic risk moderating the impact of macro economic factor, cost efficiency and firm policies on islamic financial technology institution welfare performance.

Methodology

Data and Sample Selection

The structure of the Islamic financial technology institution in Indonesia is relatively small consisting of 21 banks which are carried over by OJK (Indonesian Financial Autyhorities) at year-end December 31, 2019. The sample period spans three years, from 2016 to 2019

Empirical Methods

Consistent with prior studies and the need to control for several heterogeneities in our data set, we employed the (i) baseline Ordinary Least Squares (OLS), (ii) the Quantile Regression (QR) estimation technique, and (iii) Fixed Effect (FE) regression. The use of multiple estimation strategies was motivated by the need to ensure the robustness of our findings, provide increased room for policy relevance and consistency with recent studies (Dick, 2008). As an additional test of robustness to further possible endogeneity concern in reverse causality, the Two-Stage Least Squares Instrumental Variable (2SLS-IV) regression technique was adopted. Our instruments for cost efficiency in the 2SLS-IV regression included tangibility (proxied as the natural logarithm of fixed assets) and directors fees in natural logarithm. We conducted a specification test to ensure the validity of instruments and endogeneity of the variable. The Wooldridge's over-identifying restriction test (Wooldridge's OIR) was employed to

assess the validity of instruments. For the potential endogeneity of the variables, we conducted Wooldridge's robust score test for exogeneity and robust regression exogeneity test. The null hypothesis in both tests was that the variables are exogenous.

Ordinary Least Squares and Fixed Effects regressions

Following prior studies (e.g., Kwan, 2006; Dick, 2008; Petersen, 2009), the baseline OLS
specification with heteroscedasticity robust standard errors clustered at institutional level is presented as follows :

$$WelfareLoss\%TA_{i,t} = \alpha + \beta_1 Avg.\,Cost\,Efficiency_t + \sum_{j=2}^{8} \beta_j W_{j,i,t} + \varepsilon_{i,t}$$

where is the inverse form of welfare $WelfareLoss\%TAi,t$ performance of bank i in year t; α is an intercept, $Avg.\ Cost\ Efficiencyt$ is the average cost efficiency of the sample banks in year t, W is a vector of mediating variable and $\varepsilon i,t$ is the error term.

The baseline OLS regression specification above accounts for observed bank characteristics but not the unobserved bank-specific fixed effect. Therefore, the error term $\varepsilon i,t$ includes the unobserved bank specific fixed effect. To account for this unobserved heterogeneity, the alternative panel fixed effect regression is specified as follows:

$$WelfareLoss\%TA_{i,t} = \alpha + \beta_1 Avg.\,Cost\,Efficiency_t + \sum_{j=2}^{8} \beta_j W_{j,i,t} + \eta_i + \varepsilon_{i,t} \quad \text{Eq.8}$$

Where is the inverse form $WelfareLoss\%TAi,t$ of welfare performance of bank i at year t; α is an intercept, $Avg.\ Cost\ Efficiencyt$ is the average cost efficiency of the sample banks in year t, W is a vector of mediating variabel and ηi is the unobserved bank-specific effect and $\varepsilon i,t$ is the error term.

Result

On the macroeconomic variables, the statistically significant negative coefficient on Ln_Institutional Quality in all specifications implies that a high level of institutional quality incentivizes welfare losses in the Islamic financial system systems of developing countries. Although the established negative sign is counterintuitive, it would be due to the low level of institutional quality which is suggestive of some restrictions on Islamic financial system activities. GDP per capita affects welfare performance negatively. This is statistically significant at 1 percent across all three specifications. The significant negative coefficient on
Ln_GDP per capita suggests that, as income level improves, the appetite for credit by households and firms increases because they are well-positioned to payback. Therefore, the bigger the income, the bigger the credit that can be accessed, and the greater the welfare loss extracted by Islamic financial system.

The study examined the relationship between the consequential social cost of market power (i.e., welfare performance of banks) and cost efficiency using data covering the periods 2009 to 2017 from the

Indonesian Islamic Fintech institution. The results reveal that there was a welfare loss of about 2.3 percent of observed total assets. Encouragingly, cost efficiency in the Islamic financial system fits well within the world's mean efficiency. Applying the OLS regression and FE regression procedures, we find that greater cost efficiency hedges welfare losses. Also, we find evidence that the sensitivity of welfare loss estimates to cost efficiency is more pronounced in banks with high market knowledge. Further, findings from the QR estimation suggests that where welfare loss is low (Q.25) to the median (Q.50), cost efficiency is a necessary but not a sufficient condition to hedge the losses from the market power of banks. Results on the other mediating variables shed some important insights. On the one hand, both foreign banks and market knowledge exacerbate welfare losses in Islamic financial system. On the other hand, we observed that both highly liquid banks and well-capitalized banks serve as effective constraint mechanisms on bank welfare losses. Interestingly, greater bank stability is paid for by financial consumers through increased welfare losses. Further, the results suggest that greater institutional quality worsens welfare losses in Islamic financial system. Also, the negative impact of GDP per capita suggests that the bigger the income, the bigger the credit that can be accessed, and the greater the welfare losses extracted by Islamic financial system.

Conclusions

The issue of welfare loss from mispricing due to the exercise of market power of Islamic Fintech in Indonesia can be minimized. It should, however, take into consideration the advent of cost-efficient banks and efficient knowledge about local market dynamics. In other words, banks with the highest market knowledge and are cost-efficient are better placed to protect financial consumers. Further, there is heterogeneity in the impact of cost efficiency on banks' welfare performance. Specifically, cost efficiency has a significantly larger hedging impact on welfare losses in banks with extreme losses to financial consumers. Therefore, cost efficiency effect on banks' welfare performance is conditioned on the level of welfare losses in the financial sector. Additionally, if welfare gain is synonymous with cost-efficient banks, then the presence of a quiet life is typical of financial consumer protection.

Implications

The results presented in this paper have important theoretical and policy implications. The theoretical implications of this study relate to literature on the existence and relevance of the concept of mutual exclusivity between welfare gains from reduced market power and cost-efficient banks. This debate revolves around the view that welfare gains from reduced market power occasion loss of bank cost efficiency. Our results regarding the welfare gain effect of cost-efficient banks suggest that welfare gains and cost-efficient banks may not be mutually exclusive, and it is conditioned on the level of welfare losses.

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