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CONTRIBUTING FACTORS TO THE SUCCESSFUL OF SMALL AND MEDIUM ENTERPRISES (SMES) IN KELANTAN

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Abstract: *This study attempted to examine the factors that are contribute to the successful of small and medium enterprises (SMEs) in Kelantan. The main purpose of this study is to provide the guidelines on how people should start and manage their business by looking at all of the factors that are contribute to the successful of their business. The objectives of this study is to examine the factor of market, financial assistance and environment can influence the business success of SMEs in Kelantan. It's also to identify the main factor that can contribute to the business success of SMEs. This is to ensure that the failure of the business can be reduced, meanwhile enhance the chances for the business success. Therefore, this study had identified three (3) factors that are contribute to the successful of SMEs. Among them are: Market, Financial Assistance and Environment. The conceptual framework has been developed and the questionnaires were prepared based on the factors that have been mention earlier. In addition, there also three (3) hypotheses were designed in order to disclose the factors that are contribute to the successful of SMEs in Kelantan. The three (3) hypotheses were successfully tested with SPSS and all of them were accepted.*

Keywords: *Small and Medium Enterprises; Successfulness; Market; Financial Assistance; Environment.*

Introduction

In the recent years, the role of Small and Medium Enterprises (SMEs) in the national economy has been highly regarded as it become more and more conspicuous. In addition, the understanding on importance of promotion of small and medium enterprises also has been growing internationally. This can be seen throughout many countries, whereby the governments are making efforts to tailor their SMEs' policies to creating new small and medium sized companies as well as nurturing them (Organization for Small & Medium Enterprises and Regional Innovation, 2008). In Malaysia, SMEs are the main contributor of bolstering the economic growth (Abdul & Ahmad, 2013). According to them, Malaysian government has started to pay their attentions toward SMEs' development since the early of 1970s. Generally, SMEs have been contributed to 97.3% of the total establishments in our

country and it also has been contributed to 31% of the Gross Domestic Product (GDP) of the nation. In addition, SMEs also play an important role for both employment and export sectors, which they account for 56% and 19% respectively. Department of Statistics has conducted a research and the results revealed that the total number of SMEs in Malaysia is amounting to 645,136 in which representing 97.3% of total business establishments. Meanwhile, regarding to the gross output, SMEs have been contributed 28.5 per cent or RM 507,089 million towards the economic growth (Economic Census Report, 2011). Meanwhile, in year 2016, the department revealed that there is an incremental of SMEs' business in our country, whereby representing 98.5% business establishments in Malaysia (Economic Census Report, 2016).

Basically, examining the factors that can contribute to business success is useful in order to determine the factors of business failure because the deficiency of success factors will lead to failure business (Abdul & Ahmad, 2013). Therefore, the business success and business failure studies actually can be said as the contribution toward the same aim and objective. The study has been conducted in order to determine the factors that contribute to the successful of SMEs in Kelantan as perceived by SMEs owners and managers surveyed by distributing them with questionnaires. The individuals were required to answer the questions regarding to their perception of their business performance and success as there are many factors that are contributed to their business success, such as environment, market and financial assistance.

Small and Medium Enterprises (SMEs)

According to Bank Negara Malaysia, the definition of SMEs has been simplified under two categories, namely: Manufacturing, whereby the sales turnover not exceeding RM50 million or full-time employees not exceeding 200 workers and Services as well as other sectors which the sales turnover not exceeding RM20 million or full-time employees not exceeding 75 workers.

The economic activities are moving towards the direction of globalization, in which the system of production and distribution is evolving worldwide (Zulkifli et. al, 2010). Moreover, globalization also had made the business' resources to become more mobile and transferable beyond the borders and has result the competition for resources such as materials and capitals to become increased in many Asian countries, including Malaysia. Basically, the traditional virtues of SMEs have started to destroy with the advancing process of globalization (Sayed, 2006). According to him, as the economic integration and free trade have become more enhanced, SMEs in Malaysia are facing with the global competition not only in exports, but also throughout the liberal imports. SMEs have to compete not only with the other firms, but also with the global production system at large (Sayed, 2006). In addition, besides of all the good deeds, globalization as well as liberalization also may harms local SMEs as they have to compete with cheaper and more innovative incoming foreign products or services as well as compete for the resources and capitals (Zulkifli et. al, 2010). Rather than that, globalization also promotes the rapid innovation in the business, easy entry as less government protection and convergence across industries due to less trade barriers within region, constant arrival of new range of products and liberalization that may open up for the new economies (Oloruntoba, Thompson & Felicia, 2001).

Several of existing literature emphasize that various challenges facing by the SMEs in a globalized environment for example from difficulty in facing recession, barrier from global sourcing, low productivity, lack of managerial capabilities lack of financing, difficulty in accessing management and technology, heavy regulatory burden and others (Muhammad, 2010). According to the Organization for Economic Co-operation and Development (2009), the main problem is strongly exacerbated by the financial and economic crisis which occur due

to globalization, as SMEs and the entrepreneurs have suffered a double shock, in which there is a drastic drop in demand for goods and services and a tightening in credit terms, whereby directly has affecting their cash flows.

Business Success of SMEs

Business success can be measure according to the business performance of the organization. Those who pursue their career as an entrepreneur is not only operating a business, they just take a risk to manage that because doing business creates a career for him and also creates job opportunities for the others. A successful entrepreneur is able to increase their business and in fact able to increase the income and community and national income. Therefore, entrepreneur is those who creating something new for the benefits of the society and country using all the resources and come out with an innovative and creative idea which aim to increase the wealth. Every scholar has their own perspective and view about the definition of the business success of SMEs. According to Greene (2000), entrepreneur can be defined as people who run their own business while Nor Aini Idris (2003) and Wim Naude (2010) survey that entrepreneur is a group of businessman and traders that willing to take risk and come out with innovation.

In Malaysia, SMEs is one of the sectors that contribute to the Gross Domestic Product (GDP) of Malaysia and the economic growth of Malaysia. According to the World Bank (2016), SMEs become a backbone of Malaysia's economy. SMEs drive the Malaysian economy since 1990s and increase the employment rate and growth. Based on the Economic Census 2016, SMEs currently make up 98.5% or 907,065 business establishments in Malaysia. In 2016, SMEs contributed 36.6% to the national Gross Domestic Product (GDP) and 18.6% to the country's exports while providing 65.3% of total employment. Anabel Gonzales (2016) surveyed that Malaysia are moving towards a high-income nation and highly depend on the SMEs contribution as they play a significant role by creating an opportunity for the youth especially. Therefore, government need to take indigenous action to attract people to participate in SMEs sector. This sector helps the Bumiputera's entrepreneurs to wider their business globally. The successful of SMEs can be seen throughout several driving factors.

Many authors stated that there is no universal definition of small businesses but offer various criteria to describe it including size, number of employees and financial turnover per annum (Mahmood and Hanafi, 2013). However, few scholars argued that there is a lack of reliability with financial ratios and accounting data as small businesses do not have a formal reporting requirement (Riquelme & Watson, 2002). Following to that, it is possible for the business to have a standards and requirement to obtain reliable information to measure the business success.

According to previous research conducted by Onkelinx et al. (2015) stated that the business performance of a small firm is affected by the culture and environment which driven by the entrepreneurial orientation. An organisation can be considered as successful when they are able to achieve the goals and objectives of the company (Ngwangwama, Ungerer & Marrison, 2013). While Marom & Lussier (2014) stated that business success can be categorized to the ability to create actions and outcomes. Basically, there is no universal definition of business success and majority of the management revealed that business success are based on the perspective of firm's performance. Suraiya Ishak et.al, (2012) revealed that a successful entrepreneur is those who are able to pass the challenges situation and they have their own turning point or transition point which is from the beginning until the success of the business.

According to the previous research, most of the researcher stated that challenges to the growth and viability of SMEs are arising from globalization, increased customer expectations,

technological advances, and increased competition. Globalization and the pace of economic change are forces that are driving towards a better management in order to gain business success (Burke, 2002). As the world economy is moving towards more global, many companies cannot avoid from the effect of globalization. Globalization has caused business decision or action at one part of the world to have significant impacts in other parts of the world. As the world is becoming more connected to one another, especially with the advance in information technology, it has created a new level of competition among the industry players. Therefore, SMEs cannot ignore the needs for them to improve their performance in terms of quality, cost and delivery. This is because in order for firms to compete successfully, they will need to reduce their costs and at the same time improve their quality and delivery performance (Bane, 2002; Gulbro et al, 2000).

Market

Market is the first factor that influences the business success SMEs in Kelantan. The development of the market is very essential for retaining the high growth in the business (Mead & Liedholm, 1998; Swierczek & Ha, 2003). This is because the market can act as one of the most important analytical tools to speculate and scrutinize the competitive constraints that a firm faced (OECD, 2012). Therefore, the market segment with a high market growth must be chosen by the entrepreneurs because it may influenced the success of Small and Medium Enterprises (Kunene,2009).

Basically, a major factor that contributes to a failure of business in SMEs is vulnerability of the market (Zulkifli & Nurdiana, 2015). According to them, the entrepreneurs are failed to distinguish a real target market, whereby they treated everyone as their target customers or consumers. Rather than that, SMEs also cannot counter proactively towards a rigid competition in the market (Indarti & Langenberg, 2004). This is because they are unable to meet the demands of the customers, which later may cause the customers to shift their preferences towards the other sellers (Zulkifli & Nurdiana, 2015). Basically, a low market selection with a high market imperfections and too much market diversity with limited market size will negatively affected the entrepreneurship operation, whereby it later may lead to the failure of the business (Kunene, 2009).

In addition, the SMEs is increasingly becoming globalized, whereby they are changing from traditional domestic markets into the global markets (OECD, 2000). According to Kunene, (2009), the accessibility to the market and marketing brokers as well as the competency to conquer obstacles to enter into a specific business is crucial for strengthen the entrepreneurship and the business success of SME (Kunene, 2009). Basically, when the entrepreneurs are more concern about the market condition, there will be more tendency of the business success as the market strength was found to be a significant in driving towards the business success of SMEs (Indarti & Langenberg, 2004). In order to maintain a competitive advantage such as innovation, expansion of productivity and marketing, SMEs are urged to seek for various ways of doing business, so that they can achieve a business success (Aksoy, 2017). According to him, in order to have an effective business success, SMEs also can implement a market innovation, whereby they can try to sell innovative products in local or international market. Besides, the firms are required to look through for the customer demands, wider the boundary of information and established an adaptive quick response towards them, in the context of high dynamic market (Seo & Chae, 2016). According to them, these actions may help the entrepreneurs to compromise with the customer's preferences accurately and cope with the market situations, in order to ensure the business success of SMEs.

Based on the previous research, which conducted by Jasra et.al (2011), the results has revealed that the independent variable, which is market has a correlation with the dependent variables. P-value of market is 0.002, which shows there is a significant impact on the business success of SMEs. Besides, in the previous research, which conducted by Mchome (2016), shows that 96.7% cumulative agreed that location of market affects performance of SMEs, whereby this result indicates that in Mtwara Mikindani Municipal, the SMEs' activities are influenced by place of selling their goods. In addition, Indarti & Langenberg (2004) provide that the multiple regression analysis has been conducted to investigate the relationship between nine independent variables and surprisingly, the result revealed that marketing affected the business success significantly in positive directions. However, there is also a research conducted by Aliyu and Rosli, (2014), whereby they found that market orientation had no significant impact in describing the business performance of SMEs.

Financial Assistance

Financial assistance is the second factor that is influenced the business success of SMEs in Kelantan. Financial assistance refers to the funds, either debt or equity based, which is usually designed to support businesses of different sizes, different stages of growth or development (Robert, 2013). In addition, the financial assistance also indicates the grant of money, guaranteeing of a loan and securing of any debt or liability. Basically, when the financial assistance is being provided towards the entrepreneurs or business, there will be a broad opportunity for the entrepreneurs to broaden their business, which later on may lead to the business success.

The main financial constraints for SMEs in Malaysia are lack of capital and inadequacy of access to capital (Zakaria, Norhayati, Kaushal, Leena, 2017). They stated that non-availability of financial assistance has become the most frequently cited problem faced by SMEs as this problem may lead failure to their business. According to Doh and Kim (2014), they stated that SMEs are peculiar risk group, because of the insufficient funds of their own, which only dependence on a few clients and lack of collateral. Bankers in the market usually impose high interest rates for the SMEs to have the financial assistance. Hence, the government provides the financial incentives as well as assistance for SMEs, in order to achieve the business success (Doh & Kim, 2014). According to Zulkifli, Kamal, Rushdan, and Zakiah (2010), there are 26 agencies, 2 ministries and 9 banking institutions involved in supporting the financial assistance to SMEs, in form of soft loans, grants, venture capital, tax incentives and etc. According to them, the financial assistance given towards the SMEs are purposely for the entrepreneur development, marketing and promotion, product development, as well as for ensuring the business success of SMEs.

However, according to a research conducted by Kepteyn and Wah (2016), a majority of SMEs in their sample are depend on personal funds as startup capital in order to ensure the sustainability of the business. They found that 89% of respondents used personal funds or family funds, meanwhile only 5% of them used the bank loan for the startup of the business. This is because the entrepreneurs having the difficulties to gain the financial assistance from the governments or the financial agencies (Zulkifli & Nurdiana, 2015). According to them, the financial agencies refuse to give the SMEs' entrepreneurs because they think that those parties unable to expand their business later on. In a simple words, they afraid the SMEs cannot maintain the business success, even they have provided the entrepreneurs with the financial assistance. However, the entrepreneurs believed that if they are having an easy access to financial assistance, they would be able to operate their SMEs in a very competitive level and

also be able to compete with other economic activities in order to maintain a business success (Samad et. al., 2012).

Basically, SMEs need financial assistance in development of their business (Zakaria et. al., 2017). Therefore, the financial assistance can be said as one of a very crucial platforms or determinants for ensuring the business success of SMEs. This can be proven by looking at the previous research, conducted by Jasra et. al., (2011), which have revealed that the financial assistance has the significant relation with the business success of SMEs, as the p-value of financial assistance is 0.000, whereby it is less than the 95% of confident interval. Meaning to say, the result shows that the independent variable, which is financial assistance can give a huge impact on business success. In addition, there is also a research, which has been conducted by Chittithawon, Aminul, Keawchana & Dayang (2010), whereby multiple regression analysis was used to determine whether the eight independent variables, including finance, has a significant effect toward Business Success of SMEs. Surprisingly, that independent variable shows a significant relationship with the business success of SMEs, as the significant value of finance is 0.014. However, there is also a research which has been conducted by Khadijah, Nazri, & Suhana (2017), shows that the business success of SMEs is not depending on the financial resources. In their research, they found that p-value of financial assistance is 0.12, whereby it shows there is no significant relationship between financial assistance and business success of SMEs.

Environment

Environment is the last factors that contribute to the successful of SMEs in Kelantan. Environment condition directly influences the company's ability to reach the goal (Pearce and Robinson, 2000). The external environmental change such as, government policy, public taste, technology and socio-cultural may affect the company's performance. Freeman (2000) concluded that based on observation in some countries, external condition, especially government policy significantly influent performance of SME. The business environment, in general terms, consists of the myriad forces that are beyond the control of firm-level management in the near term; thus, it can create both opportunities and threats for firms (Bourgeois, 1980). The role of the business environment in firms' operations is supported by most previous studies, although their findings are mixed. Previous studies have provided empirical evidence that the specific local business environment in which a firm is embedded can make a significant contribution to its performance (Ng & Kee et.al, 2012). Other studies have found that these factors have an inverse relationship (De Jong, Phan, & van Ees, 2012). These mixed results may implicitly suggest that the effect of the business environment on firms may vary by national or regional economic context (Ng & Kee, 2012). In particular, firms in developed countries are clearly better off when their business environment is certain. However, the effect of their business environment on firms in transition economies, such as China, Thailand, or Vietnam, may be different (Chittithaworn et al., 2011).

It is obvious that hurdles in the business success are far more then it was in previous. The environments as well as and some other factors that are very complex and dynamic. The only thing that is more concerned to the entrepreneur is what he should do to survive in a competitive market. The main external environmental triggers for change identified by Dawson (2001) were listed as government laws and regulations, globalization of markets and the internationalization of business, major political and social events, technological advancements, customer expectations, supplier requirements, increasing competition, organizational growth, and fluctuations in business cycles. These can also comfortably fit within the forces for change categories in the model. The changing demographics and the challenges to SMEs in attracting

and retaining skilled workers were identified as one of the challenges faced. The recruitment and retention challenge is complex for small business and it is expected to continue for the long term. Early warning signs in the external environment are not always apparent to small business owners, so a challenge such as a major shift in the labor market can hit them with surprising force. As well, the multi-tasking responsibilities of small business owners and managers mean that they do not have the time to undertake research on this challenge or to read the research results of others.

Previous researches had consistently showed that most SMEs do not engage in strategic planning (Beaver 2003). According to Gable & Topol (1987), environmental scanning is a necessary process which prelude to strategy formulation to enable the firm to understand its external environment in terms of factors that can influence its resources. This should be done so that SMEs can develop responses to secure or improve its future position to the changes of the environment. Scanning the environment is the first stage in the process of understanding and therefore in the process of linking strategy and the firm's external environment in accordance to Haase &Franco (2011), SMEs suffer from resource constraints, they have lack of infrastructure to obtain and analyze external information, unlike larger companies which are able to obtain external information from specialized sources. Previous research also indicated that SMEs faced with challenges in obtaining specialized external information and in environment of uncertainty.

The findings of this study provide useful guidance on how local government should improve the business environment by contributing to the competitive advantage of SMEs and enhancing their performance. There are few programs that are plan to help and improve the development of SMEs in term of environment and the program that is still ongoing which is development of SME factory and shop lot in Kelantan by Perbadanan Kemajuan Iktisad Negeri Kelantan (PKINK) that will provide conducive manufacturing factories and retail trade premises for SMEs to expand their businesses through construction of SME factories in Pengkalan Chepa and shop lots in Jeli projects respectively (Annual Report, 2016).

The programme has been allocated RM4 million to develop 22 units in total for both premises and upgrading of Business Premises in Kelantan which includes two projects: Upgrading of Wet Market in Berek 12 Kota Bharu to provide conducive retail trade premises to micro entrepreneurs, and Upgrading of Water Breaker in Medan Ikan Bakar to protect existing premises, which consists of 37 entrepreneurs' houses. With a total budget of RM8.9 million, the former is expected to be 58% completed, while the latter is targeted to be fully completed by end of 2016. Previous research conducted by Chowdhury et.al (2013) revealed that the result of the independent variable, which is environment, has a correlation with the dependent variables. P-value of environment is 0.71, which shows there is no significant impact on the business success of Small and Medium Enterprises (SMEs).

Methodology

A cross-sectional design is applied in this study to accomplish the research objective by using the quantitative method. According to Sekaran & Bougie (2009), a cross-sectional survey will be used to answer all the research objectives at certain duration of time based on the data collection. Meanwhile, quantitative method focuses on the information that gathers from the questionnaire by analysing the result from the appropriate analysis (Jasmine, 2015). The instrument of quantitative research is the questionnaires which rely on the primary data from a survey conducted in Kelantan. unit of analysis involved in this research can be referred to an individual. Further, individuals that represent the sample of this research are the entrepreneur in Kelantan.

Findings

Correlation Between factors and Business Success in Kelantan

1. **Correlation between market and the business success of Small and Medium Enterprise (SMEs) in Kelantan.**

Table 1: Correlation Table Between Means of Market and Business Success

Dependent Variable	
MOM	
Pearson Correlation	.661**
Sig. (2-tailed)	.000
N	297

**. Correlation is significant at the 0.01 level (2-tailed).

H_o: There is no significant relationship between market and the business success of Small and Medium Enterprise (SMEs) in Kelantan.
H_1: There is a significant relationship between market and the business success of Small and Medium Enterprise (SMEs) in Kelantan.

Based on the result of correlation above, since p (0.000) < a (0.05), null hypothesis (Ho) is rejected and alternate hypothesis ($H_{1)}$ is accepted.

As a result, there is significant difference between Mean of Market (MOM) and Mean of Business Success (MOBS) (r=.661, p<.05). There is a positive and moderate relationship between MOM and MOBS.

2. **Correlation between financial assistance and the business success of Small and Medium Enterprise (SMEs) in Kelantan.**

Table 2: Correlation Table Between Means of Financial Assistance and Business Success

Dependent Variable	
MOFA	
Pearson Correlation	.440**
Sig. (2-tailed)	.000
N	297

**. Correlation is significant at the 0.01 level (2-tailed).

H_o: There is no significant relationship between financial assistance and the business success of Small and Medium Enterprise (SMEs) in Kelantan.
H_1: There is a significant relationship between financial assistance and the business success of Small and Medium Enterprise (SMEs) in Kelantan.

Based on the result of correlation above, since p (0.000) < a (0.05), null hypothesis (Ho) is rejected and alternate hypothesis ($H_{1)}$ is accepted.

As a result, there is significant difference between Mean of Financial Assistance (MOFA) and Mean of Business Success (MOBS) (r=.440, p<.05). There is a positive and moderate relationship between MOFA and MOBS.

3. Correlation between environment and the business success of Small and Medium Enterprise (SMEs) in Kelantan.

Table 3: Correlation table between means of environment and business success

Dependent Variable	
MOE	
Pearson Correlation	.749**
Sig. (2-tailed)	.000
N	297

**. Correlation is significant at the 0.01 level (2-tailed).

H_o: There is no significant relationship between environment and the business success of Small and Medium Enterprise (SMEs) in Kelantan.
H_1: There is a significant relationship between environment and the business success of Small and Medium Enterprise (SMEs) in Kelantan.

Based on the result of correlation above, since p (0.000) < a (0.05), null hypothesis (Ho) is rejected and alternate hypothesis ($H_{1)}$ is accepted.

As a result, there is significant difference between Mean of Environment (MOE) and Mean of Business Success (MOBS) (r=.749, p<.05). There is a positive and high relationship between MOE and MOBS.

Multiple Regression Analysis

The main objective of Multiple Regression is to see what are the main factor that can contribute to the business success of SMEs.

Table 4: The Main Factor that Contribute to the Business Success of SMEs

Independent Variable	Beta	Sign.
Market	0.233	0.000
Financial Assistance	0.124	0.004
Environment	0.513	0.000

*Dependent Variable: Business success

The above table shows the best prediction of all the independent variable with the dependent variable. It is considered the most influenced factor to the dependent variable if the value of beta is the highest. Since the significant value must be below (p<0.05).

Based on the table above, environment factor shows the highest value of beta which is 0.513 compare with the other factor whereby the beta value for market is 0.233 and financial assistance is 0.124. The entire factor is accepted as the significance value for the factor is less than 0.05 (p<0.05). However, it can be concluded that environment is the best prediction and the most determinant factor among others factor.

Discussion and Recommendation

The finding of the research proved that market also important to the growth and development of the business success in Kelantan. The result is positive and this can be supported by previous

research whereby the findings also show a positive result. Besides, in the previous research, which conducted by Mchome (2016), shows that 96.7% cumulative agreed that location of market affects performance of SMEs, whereby this result indicates that in Mtwara Mikindani Municipal, the SMEs' activities are influenced by place of selling their goods. In addition, Indarti & Langenberg (2004) provide that the multiple regression analysis has been conducted to investigate the relationship between nine independent variables and surprisingly, the result revealed that marketing affected the business success significantly in positive directions.

Regarding to the result obtained financial assistance, the result of mean value is 3.40 and the standard deviation is 0.75. The result show that it is consistent with the previous research as financial sector is contributing to the business success but it is different to state of Kelantan whereby the result showed that this factor does not contribute much to the business success of SMEs since the people tend to borrow money from MARA or any financial assistance as compare from receiving any financial support. The previous research also supported this based on their findings. According to a research conducted by Kepteyn and Wah (2016), a majority of SMEs in their sample are depend on personal funds as startup capital in order to ensure the sustainability of the business. They found that 89% of respondents used personal funds or family funds, meanwhile only 5% of them used the bank loan for the startup of the business. While, for environment factor is 3.43 and the value for standard deviation is 0.83. From this research, environment factor shows the highest value of correlation between the business successes and have a high relationship with the dependent variable. This is due to the environmental factor in that state as most of the people in Kelantan involve in agriculture. As mentioned in the findings, the result show that almost 40% of the people contribute to the manufacturing sector. This factor shows a positive result whereby environment factor contributes to the business success of Small and Medium Enterprises in Kelantan. Meanwhile, the previous research conducted by Chowdhury et.al (2013) revealed that the result of the independent variable, which is environment, has a correlation with the dependent variables. P-value of environment is 0.71, which shows there is no significant impact on the business success of Small and Medium Enterprises (SMEs).

Among the entire three factor which are market, financial assistance and environment, the result and findings for multiple regression showed that environment is the most determinant factor after all. This is depending to the Pearson correlation whereby the result of the relationship between all the factors and business success is revealed that environment factor shows a high relationship between the business successes of SMEs with the value 0.749. Meanwhile the other two factors which are market and financial assistance show a moderate relationship between the business success with the value 0.661 and 0.440.

Basically, in order to ensure the SMEs in Kelantan can continue succeed in the future, they must ensure that the market, financial assistance and environment are highly maintained and developed continuously. SMEs in Kelantan must always invest in market research, R&D, and innovation in order to increase their competitiveness with the other company. Such example, they must create the unique products with a high value added and deliver the superior value to customers more than their competitors are able to do. The entrepreneurs in Kelantan must care about their environment in order to sustain their business. They must able to cope with the uncertainty happen in their business. As for the financial factor, they might have a problem with that as it is very difficult to access to fund. To ensure that, SMEs in Kelantan can continue successful, the government needs to provide fund and support to the entrepreneurs at Kelantan. There must be a platform for the entrepreneur to present their product to Malaysia and also outsides.

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POTENTIAL DEVELOPMENT OF NEGATIVE EARNINGS IPO COMPANY BY USING FINANCIAL PERFORMANCE AND DISCOUNTED CASH FLOWS ANALYSIS (CASE STUDY ON 5 COMPANIES NEGATIVE EARNINGS)

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Abstract: *Every company that wants to get a source of funds through the issuance of shares must make Initial Public Offering to the public. Companies that go public mean that the company offers ownership of the company to be owned by the wider community. IPO assessment is one of the most valuable factors in the market. Such signals can confirm or reject management's beliefs about future growth opportunities - with real implications for the real economy through the work and investment of the company. This study was conducted to answer the problems faced by investors when determining the company that conducts an IPO but its financial statements are losing money or in the development stage. The methodology used is financial ratio analysis with ten metrics and the results are validated with Moody's Financial Metrics™ data report September 25, 2017 and valuation of the five Companies that have negative earnings. The results of this study show that out of 5 companies only one company is categorized as moderate risk whereas from valuation there is a company whose valuation value is higher than the asset value of the company itself.*

Keywords: *Company Valuation, Discounted Cash Flow, Financial Ratio, Initial Public Offering, Negative Earnings.*

Introduction

Initial Public Offering (IPO or go public) is a securities offering activity for the first time carried out by companies (issuers) in order to promote the public in the capital market. The decision to go public in addition to issuing the company can also be done by giving it and trading shares in the market also to improve the company as one indicator of the company's performance. Other companies used to go public with other companies, namely, developing, expanding, and increasing company access.

The Companies that conduct IPOs (Initial Public Offering). In the IPO process, after holding a General Meeting and being used to conduct an IPO, then looking for a company and appointing a company as an Underwriter, supporting the profession and supporting institutions. Supporting professionals and supporting institutions to help create various emission documents for the needs of the IPO, one of which is making financial reports. From financial statements, company management can find out what the fair share price of the company.

One problem in pricing on the market is that there is no relevant information. This is caused by a statement before the decision. Both potential investors and publishers and underwriters both face difficulties in assessing and determining IPO prices. In addition, the term

information about what and who is going to go public makes potential investors have to do the right analysis before making a decision to buy (order) shares.

Indonesia Stock Exchange contains two boards for listings: (i) Main Board; and (ii) Development Board (with the Main Board, each a "Board"). The placement of a prospective issuer and that prospective issuer's listing depends on the fulfillment of the initial listing requirements on each Board.

The Main Board is intended for prospective issuers and issuers of large companies that have track records, while the Development Board is intended for companies that are not yet able to fulfill the listing requirements of the Main Board and companies that are on the state of reorganization.

Additional procedures for listing on the Development Board include:

A prospective listed company which (i) is suffering an operating loss, (ii) has negative profits; or (iii) has been conducting its operations for less than two (2) years, must:

(a) Obtain business profit and net profit in accordance with the financial projection at the end of the second financial year of the listed date at the latest.
(b) For the prospective listed company whose nature of business needs more time to reach a breakeven point (such as: infrastructure, hard plants plantation, concession of the forest management rights or industrial plantation or other line of business which relates to the public services), they could have an extension up to maximum six financial years for them to start obtaining business profit and net profit.

And basically the Indonesia stock exchange allowed Company which is had negative earnings to be IPO in the development board is as follows:

Table 2 – General Requirement in Indonesia Stock Exchange

GENERAL LISTING REQUIREMENTS ON INDONESIA STOCK EXCHANGE	
Main Board	Development Board
A legal Entity in the form of Limited Liability Company (PT) should have: 1. Independent Commissioner consisting of at least 30% of the composition of the Board of Commissioners; 2. Independent Director consisting of at least 1 person of the 3. Audit Committee and Unit of Internal Audit; 4. Corporate Secretary.	
Operational activity in the same core business more than 36 consecutive months	Operational activity in the same core business more than 12 consecutive months
Booking business profits at least in the last 1 financial year	May experience loss, but should have operating & net profit in 2 years based on projection (some particular sectors: at the end of the 6 financial year)
Audited Financial Report over 3 years	Audited Financial Report over 12 months
The last 2 financial years of Audited Financial Report obtain Unqualified Opinion	Audited Financial Report obtain Unqualified Opinion
Net Tangible Asset more than Rp 100 billion	Net Tangible Asset more than Rp5 billion
Number of shares owned by non controlling & non majority shareholder: • Min. 300 million shares • 20% from total shares, for equity< Rp500 billion • 15% from total shares, for equity Rp500 billion - Rp2trillion • 10% from total shares, for equity > Rp2 trillion	Number of shares owned by non controlling & non majority shareholder: • Min. 150 million shares • 20% from total shares, for equity < Rp 500 billion • 15% from total shares, for equity Rp 500 billion - Rp 2 trillion • 10% from total shares, for equity> Rp2 trillion
Number of shareholder more than 1000 parties	Number of shareholder more than 500 parties

Following mutations of companies that are on the Indonesian stock exchange:

Table 1 – Listed Company on Indonesia Stock Exchange

Description		1977	1977-1987	1987-1997	1998	1999	2000	2001	2002	2003	2004
Total emiten		1	24	284	288	277	287	316	331	333	331
Total new emiten		1	23	264	6	9	21	31	22	6	12
Emiten delisting		0	0	4	2	20	11	2	7	4	14

Description		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total emiten		336	344	383	396	398	420	440	459	483	506	521	537	566
Total new emiten		8	12	22	19	13	23	25	23	31	24	18	16	37
Emiten delisting		3	4	8	6	11	1	5	4	7	1	3	0	8

The author then took the population of the company that IPOs in 2017 and early 2018, where the authors found that there were 5 companies that were at a negative earnings position at the time of IPO and 4 years earlier.

Negative earnings and the presence of intangible assets are used by analysts as an excuse to abandon traditional valuation models and develop new ways that can be used to justify investment in small companies.

This search for a new paradigm is misguided. The problem with young companies is not that they lose money, have no history or do not have very large tangible assets. This is that they are much earlier in their life cycle than established companies and often have to be valued before they have a market established for their products.

So the results of this research can be used to know about their potential development by using financial performance and discounted cash flow analysis.

PT Dwi Guna Laksana Tbk

PT Dwi Guna Laksana Tbk. (DWGL) was founded in 1986 as a general contractor. The Company acquired a Mining Business Licence (IUP) in 2007 and two years later signed its first long-term Coal Sales Agreement (PJBB) with PT Perusahaan Listrik Negara (PLN).

On 13 December 2017, the Company listed 3.1 billion of its shares on the IDX or equivalent to 35.9% of the total issued and fully paid-in capital, at the price of IDR 150 per share. The Company also offered 155 million warrants at the execution price of IDR 187, where every 20 new shares are entitled to 1 warrant.

The proceeds from IPO were used for debts repayment and as the Company's working capital, which comprises 53.9% for payment to coal supplier, 39.3% for the repayment of debt principal and interests to creditors, while the remaining, after deduction of emission costs, will be used as working capital.

The company has a shareholder in the mining business sector, PT Energi Baturbara Indonesia (81.01%) which is part of PT Exploitasi Energi Indonesia Tbk. Apart from that, the Company has 3 subsidiaries where 2 have been operating in the port service and mining sector.

The company as one of the coal suppliers to PLN with the largest number of long-term contracts has a plan to increase the volume of supply to 5 million tons per year in the next 20 years. Below is the contract between Company and PLN:

Table 3 – List contract between DWGL and PLN

Status	Location	Consumer	Supplier	Agreement object	Long duration	Due date
PJBB	Middle Kalimantan	PT Perusahaan Listrik Negara	PT Borneo Indobara	265,000 Ton/year	20 years	16/12/2029
PJBB	Kendari	PT Perusahaan Listrik Negara	PT Borneo Indobara	65,000 Ton/year	20 years	16/12/2029
PJBB	Manado	PT Perusahaan Listrik Negara	PT Borneo Indobara	56,000 Ton/year	20 years	16/12/2029
PJBB	Gorontalo	PT Perusahaan Listrik Negara	PT Borneo Indobara	56,000 Ton/year	20 years	16/12/2029
PJBB	Endog (NTB)	PT Perusahaan Listrik Negara	PT Borneo Indobara	140,000 Ton/year	20 years	16/12/2029
PJBB	Rupa (NTT)	PT Perusahaan Listrik Negara	PT Borneo Indobara	45,000 Ton/year	20 years	16/12/2029
PJBB	Ternate (Maluku)	PT Perusahaan Listrik Negara	PT Borneo Indobara	18,000 Ton/year	20 years	16/12/2029
PJBB	Barru (South Sulawesi)	PT Perusahaan Listrik Negara	PT Borneo Indobara	215,000 Ton/year	20 years	23/04/2029
PJBB	Paitton (East Java)	PT Perusahaan Listrik Negara	PT Borneo Indobara	270,000 Ton/year	20 years	26/06/2032
PJBB	Tanjung Awar (East Java)	PT Perusahaan Listrik Negara	PT Borneo Indobara	285,000 Ton/year	20 years	30/12/2033
PJBB	Pacitan (East Java)	PT Perusahaan Listrik Negara	PT Borneo Indobara	475,000 Ton/year	20 years	15/08/2032

PT Indah Prakasa Sentosa Tbk

PT Indah Prakasa Sentosa Tbk hereinafter is a national company which was established on January 15, 1988. Although it was established in that year actually a business started in the 1960s which started with smallscale trading and transportation business by founder company Alm. Mr. Surya Winata and the Company listed 650,000 of its shares in Indonesian Stock Exchange on April 6, 2018.

They developed from small scale trading and fuel transportation and then believed to be a fuel distribution company for Pertamina up to the distribution of lubricants and LPG and eventually developed by entering the distribution line of fuel oil and LPG to retail through gas station and SPBE to date which also opened the business in the field of logistics and warehousing.

In logistics business also increased from year to year with an average growth of about 14.7% per year with value in 2017 around Rp. 2.757 T, in 2018 around Rp. 3.162 T, and in 2019 around Rp. 3,627 T, with a ratio of about 27% (Rp 854 T FY 2018) from the transport sector and 73% (Rp 2,303 T FY 2018) from logistics industry activities. The potential income is still very large from cargo, with the growth of about 5.8% per year, where 2017 is estimated at about 1,117 million tons and 2018 of about 1,182 million tons

PT Kioson Komersial Indonesia Tbk

PT Kioson Komersial Indonesia, Tbk is a technology startup company established in June 2015 by and the Company listed 651,497,700 of its shares in Indonesian Stock Exchange on October 5, 2017. Experts in the fields of e-commerce, telecommunication, finance and merchandising, namely Roby Tan, Viperi Limiardi, and Jasin Halim. Carrying tagline “Semua Bisa Online”, Kioson provides a digital platform to give a business opportunity for the people of Indonesia.

The primary strategic policy carried out in 2017 was the acquisition of PT Narindo Solusi Komunikasi (NSK) using Proceeds from the Initial Public Offering (IPO).

PT Marga Abhinaya Abadi Tbk

Established in 2009, PT Marga Abhinaya Abadi Tbk has built a remarkable journey through both of its property and service businesses with the brands of “Samali Hotels & Resorts” and “Dream Food”. The Company and its subsidiaries had portfolio Hotel and Restaurant as follows:

Table 4 – List of hotels MABA

No	Hotel	Owner	Land Area (Ha)	Status
1	Ammi Cepu	Subsidiaries	6,248	Operating
2	Allium Tangerang	Company	15,429	Operating
3	Allium Cepu	Subsidiaries	5,507	Operating
4	Ammi Medan	Company	15,280	Planning
5	Arum Jogja	Company	1,575	Planning
6	Arum Cepu	Company	2,058	Development

Table 5 – List of Restaurant MABA

No	Restaurant	Owner	Land Area (Ha)	Status	Location
1	Rantang Ibu	Subsidiaries	75	Operating	Jakarta - Kebayoran Baru
2	Rantang Ibu	Subsidiaries	443	Planning	Jakarta - Pasar Minggu

The Company' stocks were traded on IDX under the stock code "MABA". Since its listing on Indonesia Stock Exchange on June 22, 2017, the Company's stocks were suspended twice, they were each on July 10, 2017, and July 13, 2017, due to extraordinary movements that led to significant accumulation on the Company's stock price. At the closing session at end of 2017, the Company's stocks were traded at Rp1,200 per share and hit its highest level in July when it was traded at l Rp2,590 per share.

PT Prima Cakrawala Abadi Tbk

Established in 2014, The Company's shares are listed and commenced trading on December 29, 2017, in the Indonesia Stock Exchange under the code "PCAR".

Supply of crab meat from Indonesia has a significant effect on the international market. As one of the countries with great natural resources, Indonesia has the ability that exceeds other countries to supply crab meat throughout the year. Indonesia contributes to the supply of crab meat around 40% - 50% of the world's total crab meat supply.

The Company made its first export in 2014, the Company already has permanent customers do routine orders every month. The majority of the Company's customers are crab importers ranging from scale small to large scale located in several states in the United States.

The local market customers from the Company are not much because sales to the local market need education related to the crab product itself. Another obstacle is the price of crab which tends to be more expensive compared to the price of crabs, so many potential local customers are not interested in knowing the selling price of the Company's products. The initial sales area of the Company's domestic market is to customers located in Lampung and Jakarta.

Methods

This research will evaluate and assess the financial performance of the IPO firms who had negative earnings and in the end, the result of financial performance will be validating by e Moody's Financial Metrics™ data report September 25, 2017 and valuation of the five Companies that have negative earnings.

The development conceptual framework that made in this study is already designed according to the study purpose. Here are steps that conducting research in this framework:

1. Gathering data Collection from the Company itself such as Prospectus Report, Financial statement audited and etc.
2. Measurement of financial performance will be validating by Moody's Financial Metrics™ data report September 25, 2017
3. Analyze the problem of negative earnings of the Company
4. Calculated the financial performance using discounted cash flow
5. Give an overlook conclusion after research.

Data Analysis

Prospectus reports, which include financial statements, structure shareholders, the objective for the IPO and other data, give the information necessary to evaluate the company and its performance. And the role of the financial report is to provide information about the company performance and financial position that is beneficial to a wide range of users in making economic decisions.

Financial performance is ability from within the company use capital owned to be effective and efficient get maximum results. So in the other words, financial performance is a measure of successful management in managing capital which is optimally owned to maximizing company value. A financial ratio is an assessment to measure a financial position company so that it can provide an overview of the history of the company and to compile new financial statements using past records.

In this study, authors will evaluate the 5 IPO Companies who had negative earnings using financial ratios and validating by the Moody's Financial Metrics™ data report September 25, 2017.

Based on the report of the rating are classified into with the processing:

Table 6 – Rating of each category

No	Category	Rating
1	Low risk	Aaa
		Aa
		A
2	Medium risk	Baa
		Ba
		B
3	High risk	Caa-C

And the variables that will be used in this research will be described as follows:

Table 7 –Formula

No	Formula		
1	EBITA	6	Funds From Operations
	Average Assets		Short-Term Debt + Long-Term Debt
2	EBITA	7	Retained Cash Flow
	Interest Expense		Cash and Cash Equivalents
3	EBITA	8	Short-Term Debt + Long-Term Debt
	Net Revenue		EBITDA
4	Operating Profit	9	Short-Term Debt + Long-Term Debt
	Net Revenue		Short-Term Debt + Long-Term Debt + Deferred Taxes + Minority Interest + Book Equity
5	Funds From Operations + Interest Expense	10	CAPEX
	Interest Expense		Depreciation Expense

Horizontal Analysis

Horizontal analysis is done by comparing the number of current year financial statement accounts compared to the same account in the previous period to determine the increase and decrease that occurs in the account. Increase or decrease the account divided by the previous period and multiplied by one hundred percent to determine the percentage increase or decrease in the account and increase or decrease the number of posts calculated as the percentage increase or decrease.

Horizontal analysis is the development of historical performance that filled by trend measurement, consists of:

1. Horizontal analysis of the asset performance
2. Horizontal analysis of the liability and equity performance
3. Horizontal analysis of the statement of profit or loss.

Negative Earnings: Consequences and Causes

There are many reasons why firms have negative or abnormally low earnings, some of which can be viewed as temporary, some of which are long-term, and some of which relate to where a firm stands in the life cycle.

a. Temporary Problems
For some firms, negative earnings are the result of temporary problems, sometimes affecting the firm alone, sometimes affecting an entire industry, and sometimes the result of a downturn in the economy such as commodity where the price increases and decrease based on market and depends on the weather for the production.

b. Long-Term Problems
Negative earnings are sometimes reflections of deeper and much more long-term problems in a firm. Some of these are the results of poor strategic choices made in the past, some reflect operational inefficiencies, and some are purely financial, the result of a firm borrowing much more than it can support with its existing cash flows such as inefficient operations or poor decisions and too much debt to fund the operations

c. Life Cycle
In some cases, a firm's negative earnings may not be the result of problems in the way it is run but because of where the firm is in its lifecycles such as companies who had huge investment infrastructure or start-up companies.

Valuing Negative Earnings Firms

a. Expected Revenue Growth.
The key to input this valuation such as past growth rate in revenues at the firm itself, the Growth rate in the overall market that the firm serves and Barriers to Entry and Competitive Advantages possessed by the firm.

b. Sustainable Operating Margin.
In many ways, the true test of these valuations is being able to visualize what a young, high growth firm will look like when growth stabilizes.

c. Reinvestment in needs.
Growth in operating income ultimately is a function of how much a firm reinvests and how well it reinvests (measured by the return on capital). This formulation cannot be used to estimate reinvestment needs for start-up firms that are losing money, especially in the years of transition. In steady state, however, the reinvestment needs can be computed using the expected growth rate and the expected return on capital:

$$\text{Expected Reinvestment Rate}_{\text{stable}} = \frac{\text{Expected Growth}_{\text{stable}}}{\text{Return On Capital stable}}$$

To use this formulation author used a variation of the fundamental growth formula that can be put to use to estimate reinvestments in future years. While the return on capital and reinvestment rate will be negative for firms with negative earnings and compute the typical payoff in revenues that given dollar reinvestment in the form of sales to the capital ratio:

$$\text{Sales to Capital Ratio} = \frac{\text{Revenues}}{\text{Capital Invested}}$$

d. Firm Valuation and Equity Valuation.
The data analysis process will be utilizing several formulas and concept, that's commonly used in today's financial industry. Those several formulas that will be used in the analysis process will be:

- Stable investment rate

$$\text{Stable Reinvestment Rate} = \frac{\text{Stable Growth Rate}}{\text{Return on Capital}}$$

- Free cash flow for the firm

$$\text{Free cash flow for the firm} = \text{EBIT}(1-\text{tax rate}) - \text{Reinvestments}$$

- Terminal value

$$\text{Terminal Value} = \frac{\text{Free cash flow for the firm}}{(\text{Cost of Capital} - \text{Stable Growth Rate})}$$

Results and Discussion

The purpose of this study is to analyze and to measure the financial performance of IPO Company who had negative earnings by using financial ratio analysis, which is classified into profitability, liquidity, activity, and solvency ratios. The data were collected from prospectus reports from all financial calculations of the five Companies, it could be concluded the healthy levels as summarized:

Table 8 – Summary of the total score

		DWGL				INPS				KIOS			MABA			PCAR			
Category	Financial ratio	Score SOE KEP-100/MBU/2002				Score SOE KEP-100/MBU/2002				Score SOE KEP-100/MBU/2002			Score SOE KEP-100/MBU/2002			Score SOE KEP-100/MBU/2002			
		2017	2016	2015	2014	2017	2016	2015	2014	2017	2016	2015	2016	2015	2014	2017	2016	2015	2014
Liquidity Ratios	current ratio	1	1	3	5	0	0	0	0	4	1	5	0	0	0	0	0	0	5
	Cash ratio	0	0	0	0	0	0	0	1	2	3	5	1	3	3	4	1	0	0
Activity Ratios	Inventory cycle	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	average collection period	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5
	Total asset turnover	5	5	4.5	4	5	5	5	5	5	5	3.5	3.5	3.5	3.5	5	5	5	5
Profitability Ratios	return on investments	2	1	1	1	5	6	13.5	12	1	1	1	1	1	1	1	1	15	1
	return on equity	0	0	0	0	0	0	7	20	0	0	0	0	0	0	0	0	0	0
Solvency Ratios	Equity divided total assets	7.25	7.25	7.25	10	7.25	7.25	7.25	6	7.5	0	7.25	6	7.25	4	10	0	0	7.25
	Total weight	25.25	24.25	25.75	30	27.25	28.25	42.75	54	29.5	20	26.75	21.5	24.75	21.5	30	17	30	28.25
	Category	Unhealthy			Less Healthy	Unhealthly		Healthy	Healthy	Unhealthly			Unhealthly			Less Healthy	Unhealthly	Less Healthy	Unhealthly
Level		CCC			B	CCC	CCC	BB	BBB	CCC	CC	CCC	CCC			B	CC	B	CCC

Based on table 1 above it could learn that the company who had IPO and negative loss was unhealthy except PT Prima Cakrawala Abadi Tbk, in 2017 was less healthy.

And based on valuation with the discounted cash flow method, it could be concluded the value of the equity Company and the cause of why are the earnings negative as follows:

Table 9 – Summary of valuation of the firm

No	Description	Total assets	Value of the equity	Cause negative
1	DWGL	1,690,096,500,000	958,563,957,714	Temporary problems
2	INPS	434,160,800,338	81,140,470,331	Life Cycle
3	KIOS	44,821,787,626	757,012,161,274	Life Cycle
4	MABA	621,066,261,145	444,985,636,617	Life Cycle
5	PCAR	68,012,462,616	7,615,553,015	Long-term problems

Based on that result from the valuation, we can conclude in the IPO year just PT Kioson Komersial Indonesia Tbk, who had good valuation if we benchmark with the total assets and the cause of negative is because the life cycle, KIOS still develop or penetrate the market but actually the Company has a positive margin in this current year.

The following structure of ownership the Companies before and after the public offering:

Table 10 – Summary of valuation of the firm

Details	Before the public offering			After the public offering		
	Total Share	Price value (Rp100)	%	Total Share	Price value (Rp100)	%
DWGL						
1. Founders	5.537.564.724	553.756.472.400	100,00%	5.537.564.724	553.756.472.400	64,11%
2. Society	0	0	0%	3.100.000.000	310.000.000.000	35,89%
INPS						
1. Founders	500.000.000	50.000.000.000	100,00%	500.000.000	50.000.000.000	76,92%
2. Society	0	0	0,00%	150.000.000	15.000.000.000	23,08%
KIOS						
1. Founders	500.000.000	50.000.000.000	100,00%	500.000.000	50.000.000.000	76,92%
2. Society	0	0	0,00%	150.000.000	15.000.000.000	23,08%
MABA						
1. Founders	4.740.000.000	474.000.000.000	100,00%	4.740.000.000	474.000.000.000	80,00%
2. Society	0	0	0,00%	1.185.000.000	118.500.000.000	20,00%
PCAR						
1. Founders	700.000.000	70.000.000.000	100,00%	700.000.000	70.000.000.000	60,00%
2. Society	0	0	0,00%	466.666.700	46.666.670.000	40,00%

On that table above, we can see if the Company issued the shares for public offering more than 20% so it's already comply with the regulation from PT Bursa Efek Indonesia No. Kep-00183/BEI/12-2018.

The number of shares owned by shareholders is not a Controller and not Main Shareholder after Public Offering or for Public Company in the 5 (five) Exchange Day period prior to the most filing application at least 550,000,000 (one hundred fifty million) shares and fulfills the provisions as follows:

IlI.3.7.l. at least 20% (twenty per hundred) of the total shares paid-up capital, for Prospective Recording Companies that have value equity before the Public Offering up to Rp 500,000,000,000. (Five hundred billion rupiah);

III.3.7.2. at least I5% (fifteen per hundred) of the total shares in paid-up capital, for Prospective Recording Companies that have value equity before a Public Offering of more than Rp 500,000,000,000, (five hundred billion rupiahs) up to Rp.2,000,000,000,000.00 (two trillion rupiahs); or

II1.3.7.3. at least 10% (ten per hundred) of the total shares in paid-up capital, for Prospective Listed Company that has value equity before the Public Offering is more than IDR 2,000,000,000,000.00 (two trillion rupiahs).

In the point of investor retail view, the Indonesia Stock Exchange will specify the category of retail investors as one of the points that will be included in the regulation concerning stock rationing during an initial public offering (IPO). This formula is discussed to avoid the existence of purchases by retail investors in only one or two certain people, because they have large amounts of funds. As a result, the enthusiasm for increasing the number of retail investors has been neglected.

"We are currently reviewing the allocation of shares allotment in the IPO. The portion of fix allotment (pooling allotment) and pooling allotment (centralized allotment) are sometimes larger, while pooling is sold to small communities so that the stock price is less attractive," said Director of Rating IDX company, Samsul Hidayat in Jakarta, Tuesday (5/12) as reported by Antara.

The hope is that retail investors in the future can participate in enlivening the development of the capital market and actively investing in the Indonesian stock exchange. which is currently being formulated by the OJK, SRO and the Indonesian Securities Companies Association (APEI). Now OJK has issued the SEOJK preparation regarding the Implementation of the Initial Bid, Offer, Allotment and Distribution of Equity-Type Securities in the form of Electronic Shares, and intend to request a response to the draft circular letter to the financial service industry and the public with the deadline no later than January 15, 2019.

And about the pricing IPO shares it came from the securities companies as underwriter after negotiate with The Company who want IPO and basically underpricing is a common phenomenon at the initial public offering, but there is no theory that can explain what is the main cause, so now this phenomenon is still controversial. However, a number of explanations regarding the phenomenon of underpricing have been proposed to clarify the IPO process. Brau and Fawcett (2006) formed eight sub-groups of underpricing categorized based on the underlying premises. The premise underlying the explanation of the underpricing phenomenon is: information asymmetry (Baron 1982), information asymmetry (Rock 1986), legal protection, functions of marketing, liquidity, spinning and flipping, and premise based on behavioral theory.

This study explains the phenomenon of underpricing based on the premise of information asymmetry Benveniste and Spindt (1989), which is nothing but the development of the premise of information asymmetry Rock (1986). Benveniste and Spindt (1989) developed a theoretical model that explained the IPO underpricing and its relation to partial adjustments. The essence of this model is: underwriters should reward investors for their willingness to honestly show interest in buying shares during the book-building period. Benveniste and Spindt (1989) argue that the existence of book-building practices makes it possible for underwriters to gather information from informed investors. When the offer price range has been determined in the short prospectus (preliminary prospectus), the underwriter and the issuer continue the "road show" to market their company's shares to prospective investor. During the "road show" the underwriters estimate the strength of demand for shares, which they then mark as an indication of the interest of potential investors. If there is strong demand, the underwriter will set a higher stock bid price. If potential investors are aware of these price changes and remain willing to pay the price requested by the underwriter, then naturally the underwriters provide more attractive returns. Underwriters must offer several

combinations of benefits, including a combination of allocation or rationing of IPO shares and initial stock price fixing that "invites" underpricing. In this case when the underwriter knows that stock demand tends to increase, the bid price will be corrected up, but not at the full market value level. In this case the bid price is only partially corrected in response to the emergence of private information. Price correction at the next level is expected to form underpricing as compensation for information held by investors.

This research investigates the active role of underwriters in managing information during the initial public offering. The active role of the underwriter takes place during the book-building period in the premarket period, which in turn is considered a crucial period in determining the efficiency of the IPO. In the book-building period, the underwriters not only distributed prospectuses to heterogeneous prospective investors, but also collected information on the extent to which potential investors' buying interest in the shares offered (Benveniste and Spindt 1989). Based on this information raising, underwriters indicate that investor classes are institutional investors and individual investors, and then estimate the initial share price. This class of investor classes is deemed necessary, because large-scale institutional investors often have broad insight into market demand, prospects of listed companies and their competitors. Institutional investor interest in initial shares means a commitment to buy and maintain stock ownership for a longer period of time in the aftermarket period. Conversely, this is not indicated by individual investors. That is why institutional investors are favorite investors for underwriters.

The underwriter as the central figure in the process of selling the initial shares, of course, not only organizes various information management activities as a source of pricing strategies. The role of underwriters also includes the reputation of underwriters in the industrial world. The reputation of underwriters is also proven to have an influence on underpricing (Carter and Manaster 1990; Michaely and Shaw 1994).

High reputed underwriters are proven to have an influence on the formation of underpricing in a low value. This is very expected by the issuer, because the stock price is not considered too low at the time of the initial share sale. In the next section, this study also examines the effect of underpricing on price stabilization. In the Indonesian capital market, price stabilization after the first trading day of IPO shares in the primary market, lasts up to 30 trading days on the secondary market.

Conclusions

PT Dwi Guna Laksana Tbk

The cause of negative earnings in DWGL actually because they have bank and other financial institutions loans, so the main objective for the Company to IPO is to make a settlement for any loans in the Company and their subsidiaries. Other than that the Company has made allowance for the receivables, write off their obsolete inventory and project advances.

So authors can view why DWGL has negative earnings because they have temporary problems or in the stage has leverage problems such as too much debt to fund its operations and poor decisions made in the past by management nd the continuing costs associated with such decisions

PT Indah Prakasa Santosa Tbk

The cause of negative earnings in INPS actually because they still build infrastructure so they must fund their investment with financial institutions loans, so the main objective for the Company to IPO is 47% to had acquisition on PT Jono Gas Pejagalan who has infrastructure in trading Gas Energy and Lubricants and 45% use for additional Company working Capital. Actually, the Company has operating profit but they had big interest expense so they had a loss.

So authors can view why INPS has negative earnings because they have life cycle such as require huge investments up front for their investment after the firm has established and generated revenue, the earnings will turn positive.

PT Kioson Komersial Indonesia Tbk

The cause of negative earnings in KIOS actually because they still build infrastructure and this Company can be categorized as start-up Company, so the main objective for the Company to IPO is 78% to had acquisition on PT Narindo Solusi Komunikasi who has supply chain for voucher to the Company and 21% use for additional Company working Capital. After this acquisition, the Company had the possibility to turn negative earnings into positive earnings because the financial statements of PT Narindo Solusi Komunikasi have positive earnings.

So authors can view why KIOS has negative earnings because they have life cycle such as the Company still on the development stage as young start-up companies after the firm has established and generated revenue, the earnings will turn positive.

PT Marga Abhinaya Abadi Tbk

The cause of negative earnings in MABA actually because they still build infrastructure (Hotel and Restaurant) so they must fund their investment with financial institutions loans, so the main objective for the Company to IPO is 32% to settle their part of bank loans, 49% is used to loan to subsidiaries to development their Hotel and Restaurant and 19% use for additional Company working Capital. Actually, the Company has operating profit but they had big interest expense and depreciation so they had a loss.

So authors can view why MABA has negative earnings because they have life cycle such as require huge investments up front for their investment after the firm has established and generated revenue, the earnings will turn positive.

PT Prima Cakrawala Abadi Tbk

The cause of negative earnings in PCAR actually because they policy to target the market share because the main consumer of the Company is Exporter to the United States, so the main objective for the Company to IPO is 20% to improve and develop their facilities in the Company and their subsidiaries and the 71% going to additional Company working capital..

So authors can view why PCAR has negative earnings because they have long-term problems such as too focus as exporter or marketing policy and poor decisions made in the past by management and the continuing costs associated with such decisions.

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MEASURING FINANCIAL PERFORMANCES OF NATIONAL OIL AND GAS COMPANIES IN SOUTHEAST ASIA

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Abstract: *Since the Industrial Revolution, oil and natural gas have played an instrumental role in economic transformation and mobility in everyday life for the majority of the world's population. However, since mid of 2014, oil prices have dropped to almost 50% and have an impact on the performance of national oil and gas companies (NOCs). This study aims to measure the financial performances two NOCs in Southeast Asia; Pertamina in Indonesia and Petronas in Malaysia. The data were collected from the audited financial reports of both NOCs for 2011 – 2016. The research methodology used were financial ratio analysis, which were classified into profitability, liquidity, activity, and solvency ratios. Comparison with industry benchmarks and Data Envelopment Analysis (DEA) were used to confirm the financial performance and the performance efficiency of related firms. The result shows that Petronas has achieved better financial performance compared to Pertamina. Confirmation uses comparisons with industry benchmark, revealing that both NOCs overall financial performance were above industry benchmark. However, confirmation using DEA, shows that the most superior performance efficiency is in Pertamina, followed by Petronas. The authors believe that the findings will be helpful for managers who continuously attempt to explore opportunities to provide a higher return.*

Keywords: *Data Envelopment Analysis, Financial Ratios, National Oil & Gas Company, Oil & Gas Industry*

Introduction

Indonesia's economy has experienced steady growth emerging from the Asian financial crisis of 1997-1999, averaging stable 5 – 6 % annual growth rate, and the strength of the country's economy was formerly based on its considerable oil and gas exports (Tharakan, 2015). Since the Industrial Revolution, oil and natural gas have played an instrumental role in economic transformation and mobility in everyday life for the majority of the world's population. However, in the mid-2014, oil prices began to decrease. And by December 2014, the price of benchmark crude oil, both Brent and West Texas Intermediate (WTI) reached their lowest prices since 2009. At the end of 2014, Brent and WTI declined by almost 50% from the beginning of the year. The oil price continued to weakening in 2015 and started to pick up in 2016.

The most impacted of the oil price decreased were upstream companies which directly involved in the exploration and production of crude oil. Downstream companies, which are involved with refining and distributing the finished products including gasoline and diesel fuel, will not tend to be hit as hard. Integrated companies, although impacted by oil price drop, tend not as hard as upstream companies. Balanced by its upstream and downstream operations, integrated company often has less concern about price volatilities. The business of an integrated company could essentially hedge its profits against market downturns (Hayes, 2015).

The National Oil Company (NOC) plays a main role as the custodians of hydrocarbon resources development and energy security. NOC is an oil company fully or in the majority owned by a government. NOC was questioned, whether its performance was challenged by the low oil price environment, since mid-2014. This study aims to measure the financial performances of two NOCs in Southeast Asia, Pertamina of Indonesia and Petronas of Malaysia for 2011-2016. This study also aims to confirm the financial performance the NOCs with the industry benchmark and its performance efficiency by using Data Envelopment Analysis (DEA).

Literature Review

Development of Oil and Gas Industry in Asean

The historical records of Southeastern Asian oil started in 1883, when a Dutch planter A.J. Zijiker commenced the drilling of the now-well known Telega Tela oil well in Northern Sumatra. It was from this well that Royal Dutch Shell was formed (Morrow, 1975:34). During the period of 1950s through 1970s, governments in Southeast Asia established NOC to develop the country's oil reserves and also promoting economic and social development (Tordo et al, 2011:17). Pertamina proposed the establishment of an ASEAN Council on Petroleum (ASCOPE), as an instrument for regional cooperation in all aspects of the petroleum industry among member countries of the ASEAN in June 1975. ASCOPE established in October 1975 by five founding members; Indonesia, Malaysia, the Philippines, Singapore, and Thailand. Brunei Darussalam in joined in 1985, Vietnam in 1996, Cambodia and Myanmar in 2001, and Laos in 2006.

PT Pertamina (Persero) (Pertamina) is a fully integrated national oil, gas and geothermal company, wholly-owned by the Government and headquartered in Jakarta, Indonesia. Pertamina are engaged in abroad spectrum of upstream and downstream oil, gas, geothermal, petrochemical and other energy operations. Pertamina lines of business are organized into upstream and downstream sectors in accordance with Indonesian oil, gas and geothermal regulations. In the upstream sector, Pertamina engages in the exploration, which are the search for oil, gas and geothermal energy, development, which are the drilling and bringing into production of wells in addition to the discovery wells in a field; and production and supply of crude oil, natural gas and geothermal energy in Indonesia and internationally.

In the downstream sector, Pertamina carries out refining, marketing, distribution and trading of crude oil, natural gas, refined fuel products and petrochemical and other non-fuel products such as green coke, including products for retail, industrial and aviation uses. Pertamina is also mandated by the Government to distribute subsidized fuel, LPG and CNG in Indonesia and to assist in its efforts to encourage the use of LPG as a substitute for kerosene in Indonesian households based on the kerosene conversion program and to encourage the use of CNG as an alternative of fuel. For the fiscal years ended December 31, 2014, 2015 and 2016, Pertamina had consolidated sales and other operating revenue of USD69.99 billion, US$41.76 billion and US$37.49 billion, respectively. For the fiscal years ended December 31, 2014, 2015 and 2016, Pertamina had income for the year of US$1.44 billion, US$1.42 billion and US$3.15 billion (Pertamina Annual Report, 2014-2016).

Petroliam Nasional Berhad (Petronas) is a fully integrated oil and gas company engaged in a broad spectrum of upstream and downstream oil and gas, LNG and petrochemical operations, wholly-owned by the Government of Malaysia. Petroleum Development Act of 1974, vests in Petronas the "entire ownership in, and the exclusive rights, powers, liberties and privileges of exploring, exploiting, winning and obtaining petroleum whether onshore or offshore of Malaysia." Petronas upstream business includes the exploration, development and production of crude oil and natural gas in Malaysia and overseas; including unconventional

resources, the liquefaction, sale and trading of LNG domestically and internationally and the sale of natural gas products in Malaysia and selected international markets.

Downstream business includes refining and marketing petroleum products, manufacturing and selling petrochemical products, and trading crude oil, petroleum products and petrochemical products. The downstream segment also includes infrastructure such as that used in the processing and transmission of natural gas and LNG regasification, power production and other utilities and technical and engineering services for Petronas own operations. Petronas corporate and other business primarily consists of its interest in MISC Berhad, a leading international maritime company in Malaysia with a primary focus on energy transportation and logistics including that used in the transportation of LNG, crude oil, petroleum products and petrochemical products in support of Petronas own marketing and trading activities. For the years ended December 31, 2014, 2015 and 2016, Petronas had consolidated revenues of USD100.3 billion, USD62.9 billion and USD49.45 billion, and consolidated net profit of USD11.3 billion, USD3.35 billion and USD4.09 billion, respectively (Petronas Annual Report, 2014-2016).

Previous Researchs in Financial Ratio Analysis and Oil Price

There are two methods to measure the financial performances which are accounting and market measurement. Many researchers prefer to use accounting measurement (Waddock and Graves 1997; Cochran and Wood 1984), rather than market measurement (Alexander and Buchholz, 1978; Vance, S. C., 1975), and some of them adopt both methods (McGuire, J. B., Sundgren, A., Schneeweis, T.,1988). There are few differences between accounting and market measurement method. In accounting, company uses the historical aspects to measure their financial performance (McGuire, Schneeweis, & Hill, 1988) and it contains a bias which lead to managerial manipulation. On the other hand, market measurement method is straight forward, focus on performance and represent the ability of a company to generate future income (McGuire, J. B., A. Sundgren, and T. Schneeweis, 1988). Financial ratio is really useful to measure the performance of small business and it can be used to predict the failure (Edmister, 1972). Although accounting data in financial statements are subject to manipulation and backward looking, they are the only detailed information available in the company's overall activities (Sinkey, 2002). Furthermore, they are the only source of information for evaluating management's potential generate satisfactory returns in the future (Mabwe Kumbirai, Robert Webb, 2010). According to Megaladevi (2015), financial ratio is a good evaluation method to measure the company performances. Company usually uses this method to compare their performance with other competitors. However, there are limited resources which evaluate the financial performance of Oil and Gas Company in Indonesia. According to Hasiholan, Daryanto (2018) Gas State Owned Company (PGN) has achieved good financial health condition levels for the period of 2013-1017. Iskakov and Yilmaz (2015) investigated the financial performance in four major Oil and Gas Company and found that three of them have a high level of satisfactory and Exxon Mobil was the outstanding one. According to Andika et al. (2014), there is significance different in the performance of oil and gas industry in Indonesia between ROA, ROE, current ratio, and quick ratio in the period of before and after the global crisis. The financial performance of Pertamina for 2011-2015 were good, although there was a decline in the production which forced the government to import more oil (Daryanto, Nurfadilah 2018).

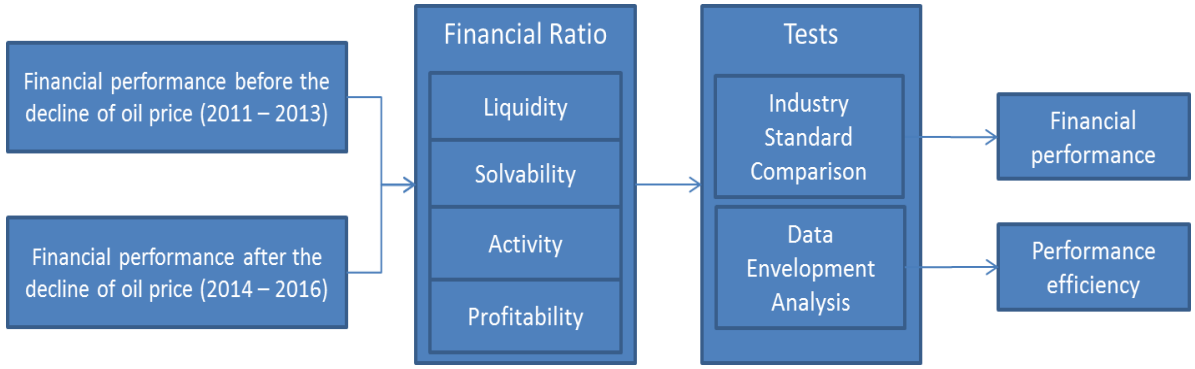
In terms of oil price, oil and gas industry has experienced dramatic volatility globally (Frederer (1996), Beike et al. (2010), Anzuini et al. (2012). The oil price in the global market declined sharply from US$145 per barrel in the mid of 2008 to approximately US$40 per barrel at the end of 2008 (PriceWater House Cooper, 2016). The research found that from the point

of views of oil investors, the oil business is not attractive, unless the oil prices increase significantly, together with lowering cost of financing and operating (Daryanto & Primadona, 2018). According to Rohimat (2016), there are many countries which rely on oil revenue and end up falling and collapse. The biggest company in the world, Schlumberger, cut off their worker around 34,000 staffs in 2014 and 10,000 staffs in 2016. Petronas Malaysia dismissed 1,000 employees in 2016 In Indonesia, Chevron would terminate their contracts in East Kalimantan after 50 years of operation and dismiss around 1,500 employees due to decline in the efficiency.

Methodology

Figure 1 shows the conceptual framework of the study.

Figure 1: Conceptual Framework (Author, 2018)



Financial ratios are useful way of expressing relationships between financial accounts and between expected relationships from one point in time to another (Anthony et al, 2011). The ratios were categorized into liquidity (current ratio, quick ratio and cash ratio), solvency (debt to equity, debt to assets and interest coverage ratio), activity (inventory turnover, account receivable, fixed asset turnover, total asset turnover), and profitability (return on asset, return on equity, gross profit margin, and net profit), as shown in Table 1.Data Envelopment Analysis (DEA) was used to measure the efficiency performance measurement of both NOCs. According to Hazarika (2015), fluctuating oil prices significantly affects the assets turnover ratio of British Petroleum, Royal Dutch Shell and Petro China.

Industry benchmark data were obtained from Bloomberg Professional Services. Bloomberg Intelligence is Bloomberg's research arm on the Bloomberg Terminal. Data used as industry benchmark is Bloomberg Intelligence of Global Integrated Oils Valuations Peer, consist of financial and operational data from 18 global integrated oil and gas companies.

Data Envelopment Analysis (DEA) models are widely used as a tool for evaluation of efficiency, performance or productivity of homogenous decision making units (DMUs), for example: units that produce several identical or equivalent effects. These effects can be denoted as the outputs of the DMUs. Consider positive outputs of the unit, such that their higher values lead (assuming that other characteristics are unchanged) to higher performance of the unit. The model of an input oriented DEA model is used to find how to reduce the inputs of non-efficient units in order to reach the efficient frontier. Similarly, it is possible to formulate an output oriented model.

Table 1: Financial Ratios

	Numerator	Denominator
Current Ratio	Current assets	Current liabilities
Quick Ratio	Cash + short-term marketable investments + receivables	Current liabilities
Cash Ratio	Cash + short-term marketable investments	Current liabilities
Debt to Equity Ratio	Total debt	Total shareholders' equity
Debt to Assets Ratio	Total debt	Total assets
Interest Coverage Ratio	EBIT	Interest payments
Debt to Equity Ratio	Total debt	Total shareholders' equity
Debt to Assets Ratio	Total debt	Total assets
Interest Coverage Ratio	EBIT	Interest payments
Return on Assets	Net income	Average total assets
Return on Equity	Net income	Average total equity
Gross Profit Margin	Gross profit	Revenue
Net Profit Margin	Net income	Revenue

Source: Robinson et al (2008)

Results and Discussions

Based on liquidity analysis using the figures in Table 2, both NOCs presented good results toward their current ratios. Both companies achieved of indexes above one, which indicates the ability of covering short term liabilities when they due. Petronas had the highest ratio, with the six years average of 2.66, followed by Pertamina with six years average of 1.60. However, Petronas current ratio was deteriorating across six years period as their cash balance declined from USD50.7 billion in 2011 to USD29.2 billion in 2016. On the other hand, Pertamina current ratio was improving. Pertamina managed to improve its cash balance and reduced their current liabilities over the period of 2015 and 2016.

Quick ratio analysis revealed that Pertamina face illiquid position on six years average result of 0.95. However, the figures shown that Pertamina quick ratio were improving across six years period. Petronas quick ratio presented relatively stable figures, with the six years average of 2.36.

Cash ratio analyst also revealed Pertamina illiquid condition across six years period. Even though Pertamina had been able to increase its cash balance, it was not enough to cover short term liabilities when they due. Pertamina cash ratio six year average was 0.38. Petronas had a stable cash ratio with six years average of 1.78. Historical cash ratio showed that across six years period of 2011 to 2016, Petronas was excellent compared to other two NOCs.

Comparison to industry benchmark revealed that both NOCs liquidity ratio were above the benchmark. Compared to the six year average industry benchmark of 1.25, current ratio of Petronas was twice higher of 2.66. It was followed by Pertamina with the six year average of 1.60. Quick ratio comparison with the industry benchmark discovered that Petronas was better than Pertamina, have six year average of 2.36 and 0.95. The industry benchmark yielded at 0.7 times.

Table 2: Liquidity Ratio Analysis (Authors, 2018)

Liquidity	2011	2012	2013	2014	2015	2016	Average
Current Ratio							
Industry Standard	1.2	1.3	1.3	1.3	1.2	1.2	1.25
Pertamina	1.38	1.56	1.47	1.49	1.68	2.00	1.60
Petronas	3.42	2.40	2.27	2.70	2.58	2.56	2.66
Quick Ratio							
Industry Standard	0.60	0.80	0.70	0.80	0.60	0.70	0.70
Pertamina	0.74	0.86	0.87	0.90	1.03	1.29	0.95
Petronas	2.59	2.21	2.09	2.51	2.40	2.38	2.36
Cash Ratio							
Industry Standard	0.20	0.30	0.30	0.30	0.30	0.40	0.30
Pertamina	0.28	0.33	0.31	0.29	0.40	0.68	0.38
Petronas	2.10	1.67	1.51	1.84	1.78	1.76	1.78

Same as other liquidity ratio, both NOCs cash ratio were above the industry benchmark. Petronas had the highest six year average cash ratio of 1.78, compared to the industry benchmark of 0.30. Pertamina had the lowest six year average result of 0.38.

Based on Table 3, solvency or debt analysis revealed that Petronas had the most outstanding result. Debt to equity and debt to assets ratio of Petronas were at six years average of 0.15 and 0.09. The proportion of Petronas interest bearing debt was quite minor compared to its equity. The total assets of Petronas was around 9% of Petronas's debt, which gave indication that only around 9% of company's assets were funded by debt.

Table 3: Solvency Ratio Analysis (Authors, 2018)

Solvency	2011	2012	2013	2014	2015	2016	Average
Debt to Equity							
Industry Standard	0.38	0.37	0.40	0.42	0.40	0.47	0.41
Pertamina	0.52	0.64	0.87	0.94	0.70	0.50	0.70
Petronas	0.18	0.13	0.12	0.10	0.15	0.18	0.15
Debt to Assets							
Industry Standard	0.30	0.28	0.29	0.30	0.31	0.33	0.30
Pertamina	0.19	0.24	0.30	0.35	0.30	0.23	0.27
Petronas	0.11	0.08	0.08	0.07	0.10	0.11	0.09
Interest Coverage Ratio							
Industry Standard	14.30	9.60	9.70	7.20	0.10	2.3	7.20
Pertamina	19.83	15.15	10.65	6.24	4.53	7.86	10.71
Petronas	39.95	29.90	33.25	28.25	10.03	9.22	25.10

And Pertamina with average six year debt to equity and debt to assets ratio of 0.70 and 0.27. The needs for funding the capital expenditure, in 2011 Pertamina issued USD1.5 billion Global Bond. Up to 2014, Pertamina had issued around USD8.70 billion and caused the Pertamina debt to equity increased to 0.70. However, by 2015 and 2016, Pertamina managed to reduce its debt as a result of bond buy back and repayment in short term loan. Debt to assets figure showed that around 27% of Pertamina assets were funded by external fund or debt.

Consistent with the result of debt to equity and debt to assets ratio, interest coverage ratio also revealed that Petronas had the outstanding result. With the six years average ratio result of 9.22, Petronas's earnings before tax could cover their interest expenses by around 25

times. Pertamina came second with Earnings. Before Interest and Taxes (EBIT) covering around 11 times of their interest expense. Both NOCs showed similar result on the period of 2014 to 2016, the earning of those companies were influenced by the decrease of oil price, thus their ratio result were also lowered.

In comparison with the industry benchmark, debt to equity ratio and debt to asset in six year average of Petronas were higher than Pertamina. Petronas's debt to equity six year average figure were 0.15, compared to the industry benchmark at 0.41. In contrast to Petronas, Pertamina's debt to equity ratio was much lower than the industry standard. Six year average debt to equity of Pertamina was amounted to 0.7.

NOC's Debt to assets ratio compared with the industry standard shown that both entities numbers were higher than industry standard. Petronas had the highest ratio of 0.09, followed by Pertamina with slightly higher ratio of 0.27, compared to the industry standard of 0.30.

Interest coverage ratio comparisons have a different result. Both Petronas at 25.1 and Pertamina at 10.71were above the industry benchmark of 7.2.

Analysis for the short term activity turnover based on Table 4 showed that Petronas was better than Pertamina. Petronas managed to turnover their inventories around 13 times on six years average. Historical figures showed that Petronas's inventory turnover was quite stable across six years period. Pertamina had the lowest inventory turnover of around 7 times, even compared to industry standard, due to the business process of Pertamina. Pertamina had a mandate to secure energy security through distributing Public Service Obligation (PSO) fuel, such as subsidize fuel and LPG. Thus, its crude inventories were refined to produce oil products to be distributed across Indonesia.

Compared to the industry benchmark, Petronas achieved the highest result of six year average of inventory turnover. Petronas managed to achieve 13.34 times compared to industry benchmark of 8.82 times, whereas Pertamina was below the benchmark at six year average of 7.24.

Pertamina achieved the highest account receivables turnover of around 9 times and Petronas at around 6 times on six years average. Both NOCs had shown a decline on receivables turnover in relation to the decline of oil price which affect the revenue of those companies.

Account receivables ratio analysis reveal that Pertamina have managed to have highest result compared to Petronas. Pertamina six year average of receivables ratio yielded at 8.93, the highest, compared to Petronas at 6.35. However, both NOC's six year average of account receivables ratio were lower than the industry benchmark at 11.58 times.

For long term activity analysis, fixed asset and total asset turnover used to measure the company ability to generate revenue. Pertamina had the highest fixed asset turnover of six years average of 3.46. Petronas came at the lowest with six year average of 1.13. Higher turnover indicated that Pertamina used its fixed asset more efficient to generate revenue. However, as oil price decline, both NOCs experienced the same conditions of declining fixed asset turnover. Fixed asset ratio comparison to the industry benchmark shown that Pertamina was the highest compared to Petronas and industry benchmark. Pertamina six year average of fixed asset turnover yielded at 3.46 times, while Petronas yielded at 1.13 times, which was lower than industry standard of 1.48 times.

Table 4: Activity Ratio Analysis (Authors, 2018)

Activity	2011	2012	2013	2014	2015	2016	Average
Total Assets Turn Over							
Industry Standard	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Pertamina	1.93	1.87	1.44	1.40	0.92	0.79	1.390
Petronas	0.53	0.61	0.63	0.64	0.43	0.36	0.53
Inventory Turnover							
Industry Standard	8.70	8.40	9.30	9.90	9.30	7.30	8.82
Pertamina	8.47	7.65	7.10	7.85	6.27	6.13	7.24
Petronas	12.64	13.92	13.57	15.07	13.15	11.73	13.34
Acc. Receivable Turnover							
Industry Standard	11.00	11.10	11.70	12.50	12.10	11.10	11.58
Pertamina	13.45	10.64	8.46	7.93	6.05	7.02	8.93
Petronas	7.07	7.28	6.85	6.90	5.21	4.77	6.35
Fixed Asset Turnover							
Industry Standard	2.00	1.90	1.80	1.40	1.00	0.80	1.48
Pertamina	5.42	4.98	3.99	3.20	1.72	1.46	3.46
Petronas	1.18	1.37	1.36	1.35	0.86	0.67	1.13

Slightly different result than fixed asset turnover, total assets turnover ratio analysis result revealed that Pertamina were somewhat higher than Petronas. Six years average of Pertamina total assets turnover was at around 1.390 times, compared to Petronas average result of 0.53 times. However, both NOCs had similar trend of decreasing turnovers due to the decrease of oil price from 2014.

Pertamina achieved higher six year average of total assets turnover compared to Petronas and the industry benchmark. Pertamina achieved six year average of total assets turnover at 1.390 times, higher than Petronas at 0.53 times, which was less than the industry standard at 1.0 times.

Profitability assessment based on Table 5 shows that Petronas had achieved the highest average ratio compared to Pertamina, except for return on equity (ROE). On six years average, Petronas's Return on assets (ROA) reached 7.54 percent, and followed by Pertamina on six years period of 5.52 percent.

Return of equity (ROE) analysis showed that, Pertamina reached the highest result on six years average of 14.7 percent, followed by Petronas with an average of 10.9 percent. As the oil price decline, all companies underwent a similar weakening ROA and ROE in the period of 2014 and 2015. However, Pertamina had a significant increase on ROA and ROE in the period of 2016. The implementation of new fuel policy in Indonesia, increase the net income of Pertamina, as the fuel price had significant impact to the revenue while cost of goods sold were quite low.

Gross profit margin and net profit margin analysis revealed that Petronas achieved outstanding result, on six years average of 34.5 percent and 13.5 percent respectively. Pertamina followed with six year average gross profit margin of around 13 percent and net profit margin of 4.3 percent. Although Petronas achieved the highest six year average of gross profit margin ratio, historical figures revealed that from on the period of 2011 to 2013, it was declining. Suggesting that while Petronas revenue increase, its cost of goods sold also increased quite significantly.

Return on assets analysis revealed that Petronas achieved the highest six year average result compared to Pertamina and industry standard. Petronas yielded six year average return of

assets at 7.5 percent, followed by Pertamina at 5.5 percent, whereas the industry standard averaged at 4.3 percent.

Return on equity analysis revealed different result, six year average return on equity of Pertamina was higher than Petronas. However, both NOCs achieved above the industry standard at six year average of 9.8 percent, while Pertamina achieved 14.7 percent, Petronas at 10.9 percent of six year ROE.

Gross profit and net profit margins of Petronas were higher than Pertamina, and the industry standard. Petronas six year average of gross profit and net profit margins were at around 35 percent and 14 percent respectively. Pertamina six year average resulted 13 percent of gross profit margin and 4.3 percent of net profit margin. While the industry standard was at 10.3 percent and 4 percent respectively.

In this research, input variables divided into three groups of liquidity, solvency, and activity ratios while output variables were put in a single group of profitability ratio. This weighting approach adapted from study by Tehrani et al. (2012), which used questionnaire to determine input and output variables in the DEA model and also the weight of input and output variables.

Table 5: Profitability Ratio Analysis (Authors, 2018)

Profitability	2011	2012	2013	2014	2015	2016	Average
Return on Assets							
Industry Standard	7.40%	5.70%	5.20%	4.10%	2.20%	1.40%	4.33%
Pertamina	6.87%	7.28%	6.20%	2.89%	3.12%	6.79%	5.52%
Petronas	11.64%	10.45%	10.66%	7.17%	2.29%	3.00%	7.54%
Return on Equity							
Industry Standard	16.70%	13.60%	10.50%	9.30%	4.70%	3.80%	9.77%
Pertamina	19.27%	19.39%	18.85%	8.01%	7.42%	15.15%	14.68%
Petronas	17.57%	15.31%	15.26%	10.00%	3.20%	4.28%	10.94%
Gross Profit Margin							
Industry Standard	14.00%	13.00%	13.00%	13.00%	6.00%	3.00%	10.33%
Pertamina	10.98%	9.78%	9.84%	9.50%	14.30%	23.41%	12.97%
Petronas	43.36%	37.04%	35.46%	34.25%	28.66%	28.16%	34.49%
Net Profit Margin							
Industry Standard	3.00%	3.00%	4.00%	6.00%	3.00%	5.00%	4.00%
Pertamina	3.57%	3.89%	4.31%	2.07%	3.40%	8.63%	4.31%
Petronas	22.05%	17.14%	17.05%	11.25%	5.31%	8.27%	13.51%

This research used Charnes, Cooper, Rhodes (CCR) model with input orientation. The CCR model assumes Constant Returns to Scale (CRS). The calculation model was adopted from Abubakar et al. (2016), used to measure financial performance of International Oil Companies (IOCs) and assess performance improvement. DEA calculations were performed using DEA-Excel Solver 2014 developed by Jablonský (2014). The DEA calculation results for the period of 2011-2016; for Pertamina were 1 respectively; while for Petronas were 1 for 2011-2014, and 0.900 for 2014, and 0.601 for 2016. The calculation revealed that, Petronas performance efficiency was declining in 2015 and 2016. Pertamina was still efficient on their performance.

Limitation

This study has expanded the literature about financial performance in the real working world. In near future, it is suggested to carry out research with many companies from oil and gas

industry to get more generalizes result. Since the focus is on one industry, it is worth to explore it on a wider scale and find out if different company yields the same result. In addition, the study only focuses on financial aspects. It is suggested to measure in other aspects such as operational and administration.

Conclusion and Recommendation

Compared to Pertamina, Petronas had shown outstanding result on liquidity, solvency, and profitability ratios category. However, Petronas had lower activity ratio. Comparisons to the industry benchmark shown that overall financial performance of both NOCs were above the benchmark. DEAcalculation revealed that, Petronas performance efficiency was declining in 2015 and 2016. Pertamina was still efficient on its performance. The decline of oil price in 2014, had affected the performance efficiency of both NOCs. However, the impacts were various. Although Pertamina and Petronas revenues decreased after the decline of oil price in mid of 2014, by around 49% and 35% respectively by the end of 2016, their net income of showed different result, despite their effort to reduce costs and capital expenditure. Pertamina net income was increasing by 117%, conversely Petronas net income remain low by 59% by the end of 2016. The impact was influenced by the segmentation of their business, domestic demand, and also regulatory environment of those nations. Petronas revenue was mostly contributed from upstream business by almost 55% and the rest was from downstream business. That explained the downward trend of historical profitability ratios in the period of 2014-2016. The oil price put pressure to the profitability of upstream business and the downstream business could not support to the overall profitability. On the regulatory aspect, the vest on Petronas to manage the entire ownership of upstream business of Malaysia, gave burden on the long term activity ratios; total assets and fixed assets turnover as the value of assets are represented the entire upstream assets of Malaysia. On the other hand, Pertamina revenue was mostly contributed from downstream business. Around 90% of Pertamina revenue was generated from downstream business, which became benefit in the low oil price environment. Supported by domestic demand of fuel and the enactment of new fuel policy in Indonesia, Pertamina could manage to increase its profitability. The new fuel policy, which regulates fuel price and the reduction of subsidize fuel, gave Pertamina improvement on liquidity and profitability in the period of 2014 to 2016.

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FINANCIAL PEFORMANCE ANALYSIS AND EVALUATION OF PHARMACEUTICAL COMPANIES IN INDONESIA

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***Abstract**: The Government of Indonesia (GOI) started to implement the National Health Insurance or Jaminan Kesehatan Nasional (JKN) program on 1st January, 2014 through its Social Insurance Administration Body or BPJS Kesehatan. This program is providing health care and social insurance, including monitoring and controlling the prescriptive drug and medicine cost in Indonesia by recommending the pharmaceutical companies to produce and sell generic drugs which has a relatively low price. Generic drugs are recommended as an alternative to the high price of medicines while ninety percent of the raw materials of drugs are still dependent on imports. The Decree No.KEP-100/MBU/2002 issued by Indonesia Ministry of State-Owned Enterprises (SOEs) on June 2002 provides the mandatory of evaluating and rating the financial health of SOEs. This study aims to analyze and evaluate the financial health condition of two pharmaceutical SOEs; 1) Kimia Farma; 2) Bio Farma; and two private companies; 1) Kalbe Farma; 2) Darya Varia. The results of investigating the financial ratios: return on equity (ROE), return on investment (ROI), cash ratio, current ratio (CR), collection period (CP), inventory turnover (ITO), total asset turnover (TATO), total equity to total asset (TETA), then be validated by the decree to conclude the financial health condition of them. The data are collected from Audited Financial Reports for 2010-2017 of them. The result shows, they have achieved financial health levels with rank ratings; 1. Kimia Farma; all AA levels; 2. Bio Farma (AAA for the first three years; and AA for the last five years); 3. Kalbe Farma (AAA for the first six years; and AA for the last two years); and 4. Darya Varia; all AA levels.*

***Keywords**: financial health condition, financial ratios, SOEs, BPJS*

Introduction

According to "UU No. 40/2004 about Sistem Jaminan Sosial Nasional (SJSN) or National and Social Security System" and "UU No.24/2011 about Badan Penyelenggara Jaminan Sosial (BPJS) or Social Security Agency", the GOI is obliged to provide social security to all people as a fulfillment of the right for proper basic needs. The GOI then regulated and implemented Jaminan Kesehatan Nasionan (JKN) or National Health Security program, which is managed by Healthcare and Social Security Agency or BPJS Kesehatan. The scheme was previously known as National Insurance (Askes) and Social and Health Security (Jamsostek).

Based on GOI Rule of UU No. 15/2017 National State Budget", the percentage of health budget is regulated to be 5% percentages from the total state budget. Started from 2014 as the launched year of JKN program to 2015, there was an increase of 1.2% and it sharply rises by 28% in 2016 as the GOI was committed to allocate the 5% of the health budget regulation and fully support the equal treatment and distribution of health care in Indonesia. In

the next following years, the GOI still maintains the stability of the state budget with only slight change as it adjusted to the regulation. Although WHO (2009) stated that Indonesia's health budget was one of the lowest in ASEAN countries, the growth development in these five years period is showing a good indication of the GOI's commitment to achieve Universal Health Coverage (UHC) with the recent JKN program.

BPJS Kesehatan has responsibility to accommodate peoples with appropriate services for the needed health facilities including drugs and medication. The availability and affordability of prescription drugs are important to be supported as the price of medication itself in Indonesia is still very expensive compare to other countries (Ariati, N. 2017:231). The used of generic drug in large scale by BPJS Kesehatan made changes in the stability of pharmaceutical market in Indonesia. The branded generic drug that dominated the market before has been gradually replaced by the generic drug due to the government's cost effectiveness strategy in JKN program. The drug reimbursement subsidized the use of generics in health facility. The list of drugs as mentioned in Kepmenkes No. HK.02.02/MENKES/636/2016 was mostly generic drugs.

According to Situmorang, C.(2017), the directorate general of pharmaceutical and medical devices stated that in 2014 there were 230 pharmaceutical industries which among those 60 has been supplying the national drug needs with the percentage of 80% and the drug need level raise to 2.5 until 3 times higher around 240 million doses from the current 94 million doses before the implementation of JKN program.

The procurement of the drugs which focused largely on generics caused the suppliers of local generic drugs would likely being the most benefitted from the current development and rules. The demand of the generics would dramatically raise along with the increase number of the total members of JKN program, especially with the target to cover all the societies, but with the low distribution price. Accordingly, the pharmaceutical companies would also get lower margin from it and they have to shift the market of patent branded and branded generic drugs to the consumer with middle high income. It would become a great challenge for the company to have stayed competitive in the BPJS Kesehatan era and the financial performances of the pharmaceutical companies would surely be affected by it.

This study aims to analyze and evaluate the financial health condition of two pharmaceutical SOEs under Indonesia Ministry of Health; 1) Kimia Farma (Kimia); 2) Bio Farma (Bio); and two private companies; 1) Kalbe Farma (Kalbe); 2) Darya Varia (Darya). The results of investigating of financial ratios: ROE, ROI, cash ratio, CR, CP, ITO, TATO, TETA, then be validated by the SOEs decree to conclude the financial health condition of the companies. The data were collected from their Audited Financial Reports in 2010-2017.

Development of Pharmaceutical Industry in Indonesia

In 2012, based on the estimated increase in national pharmaceutical market, boosted by the growing consumption of drugs and other pharmaceutical products in line with the strengthening of the people's purchasing power. Association of Indonesian Pharmaceutical Companies projects the national pharmaceutical market rise in 2012 by 14% to IDR 43.7 trillion compared to IDR 43.08 trillion in 2011 (Kimia, 2011).

In 2013, pharmaceutical company is still dependent on the import transaction to meet the raw materials, which reached 90% of the need, while the IDR currency uprising has affected the industry. In years to come, the industry materialized the independency of medicine raw materials, as already proclaimed by the Ministry of Health, given Indonesian Natural Resources of the efficacious medicinal plants.

Total pharmaceutical market reached IDR 53.81 trillion increased to 12.93% compared to 2012, in which the domestic industry registered the sales of IDR 39.45 trillion or 73.32% from total market. And the type sales of the branded medicine reached IDR 48.32 trillion or 89.81% , while the unbranded sales was IDR 5.49 trillion or only 10.19% from the total market (Kimia, 2013).

In 2014, the market growth encountered a slowdown, which was only at 4.86% compared with previous year of 16.27%, due to the adjustment to the National Health Security System proposed by the GOI. This is reflected by the increasing volume of medicine usage, while the value was decreasing. In addition, all industries were facing the weakening of IDR against USD, that later worsened by the increase of fuel prices (Kimia, 2014). According to Central Bureau of Statistic (2016), GDP per capita achieved IDR 45.20 million in 2015, increased 8.13% from IDR 41.80 million in 2014. However, the value in USD decreased due to IDR/USD currency rate depreciation, which impacted significantly to the industry due to high volatility, decelerating trend and moreover when it hit IDR 14,000 per USD implied to the company's Cost of Goods Sold. This was concerning that 95% of active ingredients for medicine production were still imported. Meanwhile, the market was relatively fragmented, indicating there was no single company dominating in the industry. Approximately, there were 239 companies, located in West Java (39%), East Java (20%) and DKI Jakarta (15%). The top five are Kalbe, Sanbe, Soho, Pharos, and Dexa Medica with total market share about 14%. (Kimia, 2015).

Previous Research on Financial Performance

Financial ratio analysis (FRA) is a good evaluation method to measure the company performances (Megaladevi, 2015). Company usually uses this method to compare their performance with other competitors. Based on the study in Oman Commercial Banks, financial performance has relationship with asset management, size and operational efficiency. There are two methods to measure the financial performances which are accounting and market measurement. There are many researchers who prefer to use accounting measurement (Waddock and Graves 1997; Cochran and Wood 1984), rather than market measurement (Alexander and Buchholz, 1978; Vance, S. C., 1975), and some of them adopt both methods (McGuire, J. B., Sundgren, A., Schneeweis, T., 1988). FRA has been applied to state owned enterprises in Indonesia, which operates in coal mining industry and oil and gas industry (Daryanto, W.M and Nurfadilah,D, 2018). The study was also done for cement and aviation industry in Indonesia (Daryanto, W.M , 2018). Although accounting data in financial statements is subject to manipulation and financial statements are backward looking, they are the only detailed information available on the company's overall activities (Sinkey, 2002). Furthermore, they are the only source of information for evaluating management's potential to generate satisfactory returns in the future (Kumbirai, M & Webb, R, 2010). This method is usually employed by companies to compare their performances against competitors. A lot of empirical studies on financial ratio on different industries can be found and studied (Tarawneh, 2006; Halkos and Salamouris, 2004). On the banking industry, the financial ratio analysis has been applied to evaluate, examine, and rank based on their performance (Tarawneh, 2006). A study in Oman Commercial Bank showed that the financial performance had relationship with asset management, size, and operational efficiency. Daryanto, W.M & Samidi, S (2018) did the study about financial health condition for SOEs of Energy and Mineral Resources.

The Decree of Ministry of State Owned Enterprises (SOEs)

Based on the Decree of Ministry SOEs No. KEP-100/MBU/2002 about financial health assessment of SOEs, the growth of business should be supported by good infrastructure and evaluation system to measure the efficiency and level of competition among SOEs. This financial evaluation applies to all SOEs in the financial and non-financial industry. In non-financial industry, they are divided into infrastructure and non-infrastructure. The method consists of three aspects which are financial, operational, and administration. In a financial aspect, total weight score for infrastructure is 50 and non-infrastructure is 70, which consists of eight indicators; ROE, ROI, cash ratio, CR, CP, ITO, TATO, TETA, with scores of 20, 15, 5, 5, 5, 5, 5, and 10 respectively.

Methodology

Descriptive financial ratio was used in this study. All variables used are ratio measurement scales were taken from the decree. The data were collected from the companies Audited Financial Reports for 2010-2017. The above decree was used to validate the financial health condition level of those companies whether in the levels of very healthy (AAA, AA, A), or healthy (BBB, BB, B), or unhealthty (CCC, CC, C). The AAA is achieved if the score is more than 95 points; AA, if it is more than 80 and less than 95; and A if it is more than 65 and less than 80. The BBB is achieved if the score is more than 50 and less than 65; BB if it is more than 40 and less than 50; and B if it is more than 30 and less than 40. The CCC is achieved if the score is more than 20 and less than 30; CC if it is more than 10 and less than 20; and C if it is less than 10. The selection of the FRA method for this study is motivated the researchers' knowledge due to limited literature review on pharmaceutical industry in Indonesia. FRA can be used to identify a company's specific strenghts and weaknesses as well as providing detailed information about company profitability, liquidity, activity and solvency (Hempel *et al,* 1994: Dietrich, 1996). Although accounting data is subject to manipulation and financial statements are backward looking, they are the only detailed information available on the company's overall activities (Sinkey, 2002). They are the only source of information for evaluating management's potential to generate satisfactory returns in the future (Kumbirai, M & Webb,R. 2010). Lan (2012) stated that ratio analysis is one of the most widely used fundamental analysis techniques. FRA is a tool that was developed to perform quantitative analysis. Ratios help link the three types of financial statements together and offer figures that are comparable between companies and across industries and sectors. Daryanto,W.M (2017, 2018) carried out the same study in Indonesia for SOEs of palm oil, cement, aviation, construction, oil and gas, transportation, mining; and Pratama, S (2017) for SOE in telecommunications.

Profitability Performance

The profitability is the most common measure for company's financial performance.

Return on Equity (ROE) = (Net Income / Shareholder's Equity) x 100 %

Table 1 List of ROE and ROI Assessment Score

ROE (%)	Score	ROI (%)	Score
15 < ROE	20	18 < ROI	15
13 < ROE<= 15	18	15 < ROI < = 18	13,5
11 < ROE <= 13	16	13 < ROI < = 15	12
9,0 < ROE <= 11	14	12 < ROI < = 13	10,5

7,9 < ROE <= 9	12	10,5 < ROI < = 12	9
6,6 < ROE <= 7,9	10	9 < ROI < = 10,5	7,5
5,3 < ROE <= 6,6	8,5	7 < ROI < = 9	6
4,0 < ROE <= 5,3	7	5 < ROI < = 7	5
2,5 < ROE <= 4	5,5	3 < ROI < = 5	4
1,0 < ROE <= 2,5	4	1 < ROI < = 3	3
0 < ROE <= 1	2	0 < ROI < = 1	2
ROE < 0	0	ROI < 0	1

Source: The decree of Ministry of SOE No. KEP-100/MBU/2002.

ROE measures how efficiently a company can use the money from shareholders to generate profits and growth of the company (Anthony, 2011). Table 1 shows the ROE and ROI Assessment Score. ROI is a profitability ratio that calculates the profits of an investment as a percentage of the investment.

Liquidity Performance

Cash Ratio = (Cash + cash equivalents/Current Liabilities) x 100 %

It measures the company ability to pay its short-term debt. If the company has cash ratio equal to one, it indicates that company has the same amount of cash and its debt. If the value of cash ratio is more than 1, it indicates that company has more cash to pay its debt. However, if the value is less than 1, it indicates that company has less cash to pay its debt. It measures the company ability to repay its current liability with current asset. If the company has current ratio below 1, it indicates that company has problem with its short-term debt. If the company has too high current ratio, it indicates that company has problem in managing their current asset. Table 2 shows the Cash Ratio and CR Assessment Score.

Current Ratio = (Current Asset/Current Liabilities) x 100 %

Table 2 List of Cash Ratio and CR Assessment Score

Cash Ratio (%)	Score	Current Ratio (%)	Score
Cash Ratio > = 35	5	125 < = Current Ratio	5
25 < = Cash Ratio < 35	4	110 < = Current Ratio < 125	4
15 < = Cash Ratio < 25	3	100 < = Current Ratio < 110	3
10 < = Cash Ratio < 15	2	95 < = Current Ratio < 100	2
5 < = Cash Ratio < 10	1	90 < = Current Ratio < 95	1
0 < = Cash Ratio < 5	0	Current Ratio < 90	0

Source: The decree of Ministry of SOE No. KEP-100/MBU/2002.

Activity Performance

Collection Period = (Average Accounts Receivables/Sales Revenue) x 365

This ratio is an important indicator for company to monitor their cash flow and the company ability to pay its debt in due date.

Inventory Turnover = Cost of goods sold / Average Inventory

This ratio measures how many times the inventory is being sold of a certain period of time. Table 3 shows the CP and ITO.

Table 3 List of Collection Period and Inventory Turnover Assessment Score

Collection Period (CP in days)	Adjustment (days)	Score	Inventory Turnover (IT in days)	Adjustment (days)	Score
CP ≤ 60	CP > 35	5	IT ≤ 60	IT > 35	5
60< CP ≤ 90	30 < CP ≤ 35	4.5	60< IT ≤ 90	30< IT ≤ 35	4.5
90 < CP ≤ 120	25 < CP ≤ 30	4	90< IT ≤ 120	25< IT ≤ 30	4
120 < CP ≤ 150	20 < CP ≤ 25	3.5	120< IT ≤ 150	20< IT ≤ 25	3.5
120 < CP ≤ 150	15 < CP ≤ 20	3	150< IT ≤ 180	15< IT ≤ 20	3
150 < CP ≤ 180	10 < CP ≤ 15	2.4	180< IT ≤ 210	10< IT ≤ 15	2.4
180 < CP ≤ 210	6 < CP ≤ 10	1.8	210< IT ≤ 240	6 < IT ≤ 10	1.8
219 < CP ≤ 240	3 < IT ≤ 6	1.2	240< IT ≤ 270	3< IT ≤ 6	1.2
			270< IT ≤ 300	1< IT ≤ 3	0.6

Source: The decree of Ministry of SOE No. KEP-100/MBU/2002

Total Asset Turn Over (TATO) = (Revenue/Capital Employed) x 100 %

This ratio measures the company ability to measure the efficiency to use its asset to generate sales. Table 4 shows the TATO Score.

Table 4 List of Total Asset Turn-over Assessment Score

TATO (%)	Adjustment (days)	Score
TATO > 120	TATO > 20	5
105 < TATO ≤ 120	15 < TATO ≤ 20	4,5
90 < TATO ≤ 105	10 < TATO ≤ 15	4
75 < TATO ≤ 90	5 < TATO ≤ 10	3,5
60 < TATO ≤ 75	0 < TATO ≤ 5	3
40 < TATO ≤ 60	TATO ≤ 10	2,5
20 < TATO ≤ 40		2
TATO ≤ 20		1,2

Source: The decree of Ministry of SOE No. KEP-100/MBU/2002.

Solvency Performance

If the company has less value, it indicates that company funding its asset inefficiently, or it has very low net value for investor. Table 5 shows the List of Solvency Assessment Score.

Table 5 List of Solvency Assessment Score

Total Equity to Total Asset (%)	Score
TETA < 0	0
0 ≤ TETA < 10	4
10 ≤ TETA < 20	6
20 ≤ TETA < 30	7,25
30 ≤ TETA < 40	10
40 ≤ TETA < 50	9
50 ≤ TETA < 60	8,5
60 ≤ TETA < 70	8
70 ≤ TETA < 80	7,5
80 ≤ TETA < 90	7
90 ≤ TETA < 100	6,5

Source: The decree of Ministry of SOE No. KEP-100/MBU/2002

Results and Discussion

Profitability Analysis

Table 6 shows the capability of Kimia in generating earning in 2010-2017 perceptibly decreased. The percentage changes of ROI were 37.45%, 43.17%, 42.11%, 36.29%, 33.14%, 30.76%, 27.29% and 25.86%, respectively. The ROI increased about 6% from 2010 to 2011, but it decreased significantly from 2012 to 2017, or 42.11% to 25.86%. The gradual decreased of ROI was in line with the increased growth in capital investment, in which the company was committed to expand their business by building new clinics, ingredient plants, production plants and developing new drug products to support JKN program in the last six years. Meanwhile, the profit which was generated from generic products was relatively low. However, all ROI ratios were above the minimum standard of the Decree, which is 18%. While the percentage changes of ROE were 12.45%, 13.71%, 14.27%, 13.28%, 13.06%, 12.91%, 11.96%, and 12.89%, which were below the minimum standard of the Decree, which is 15%.

Table 6 Test Results for Kimia

INDICATORS	2010		2011		2012		2013		2014		2015		2016		2017	
	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE
ROI	37.45%	15	43.17%	15	42.11%	15	36.29%	15	33.14%	15	30.76%	15	27.29%	15	25.86%	15
ROE	12.45%	16	13.71%	18	14.27%	18	13.28%	18	13.06%	18	12.91%	16	11.96%	16	12.89%	16
CASH RATIO	56%	5	43%	5	59%	5	53%	5	67%	5	42%	5	38%	5	42%	5
CURRENT RATIO	280%	5	243%	5	239%	5	192%	5	171%	5	155%	5	280%	5	243%	5
COLLECTION PERIOD	39	5	47	5	42	5	43	5	56	5	52	5	39	5	47	5
INV. TURN OVER	52	5	54	5	55	5	56	5	61	4.5	71	4.5	52	5	54	5
TATO	255.92%	5	254.56%	5	229.49%	5	220.35%	5	187.58%	5	176.54%	5	161.17%	5	139.00%	5
SOLVENCY	67.22%	8	69.81%	8	69.43%	8	65.71%	8	61.02%	8	59.87%	8.5	49.24%	9	42.20%	9
TOTAL		64.00		66.00		66.00		66.00		66.00		64.50		64.50		64.50

Table 7 shows the capability of Bio in generating earning in 2010-2017 perceptibly increased significantly. The percentage changes of ROI were 76.96%, 99.22%, 97.15%, 87.79%, 79.71%, 84.06%, 86.78%, and 89.87% respectively, which were far above the standard of the Decree of 18%. The company benefitted from the export sales. While the percentage changes of ROE were 30.00%, 34.70%, 29.36%, 37.81%, 31.93%, 17.14%, 12.47%, and 12.97%. It decreased about 57% from 2010 to 2017. The minimum standard of the Decree for

ROE is 15%, therefore the ROE ratios were above the standard for 2010-2015, while for 2016-2017 the ratios were below the standard.

Table 7 Test Results for Bio

INDICATORS	2010		2011		2012		2013		2014		2015		2016		2017	
	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE
ROI	76.96%	15	99.22%	15	97.15%	15	87.79%	15	79.71%	15	84.06%	15	86.78%	15	89.87%	15
ROE	30.00%	20	34.70%	20	29.36%	20	37.81%	20	31.93%	20	17.14%	20	12.47%	16	12.97%	16
CASH RATIO	182%	5	168%	5	252%	5	229%	5	286%	5	122%	5	99%	5	64%	5
CURRENT RATIO	352%	5	369%	5	523%	5	396%	5	537%	5	437%	5	408%	5	339%	5
COLLECTION PERIOD	46	5	41	5	56	5	57	5	46	5	79	4.5	46	5	38	5
INV. TURN OVER	54	5	45	5	41	5	40	5	58	5	72	4.5	112	4	86	4.5
TATO	131.89%	5	158.12%	5	135.54%	5	117.55%	4.5	108.71%	4.5	113.05%	4.5	120.34%	5	146.53%	5
SOLVENCY	77.63%	7.5	85.27%	7	88.31%	7	83.80%	7	83.57%	7	88.79%	7	89.53%	7	87.60%	7
TOTAL		67.50		67.00		67.00		66.50		66.50		65.50		62.00		62.50

Table 8 shows the capability of Kalbe in generating earning in 2010-2017 perceptibly decreased slightly. The percentage changes of ROI were 54.36%, 51.33%, 51.13%, 49.78%, 51.26%, 49.45%, 51.08%, and 53%, respectively. And all the ratios were far above the minimum standard of 18% of the Decree. While the percentage changes of ROE were 23.28%, 23.37%, 24.08%, 23.24%, 21.74%, 18.81%, 18.86%, and 17.66%. It decreased about 24% from 2010 to 2017. However, the ratios were still above the minimum standard of 15% of the Decree. The slow growth in sales was resulting in the dramatic decline of ROE in general. It was influenced by the JKN program and the GOI regulation in controlling highest retail price of the drugs in the market, so that the private company like Kalbe also faced a challenge in maintaining the escalated price of imported raw material. Meanwhile, the profit which generated from the generic drugs sales was relatively low, which affected its profitability ratio.

Table 8 Test Results for Kalbe

INDICATORS	2010		2011		2012		2013		2014		2015		2016		2017	
	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE
ROI	54.36%	15	51.33%	15	51.13%	15	49.78%	15	51.26%	15	49.45%	15	51.08%	15	53.00%	15
ROE	23.28%	20	23.37%	20	24.08%	20	23.24%	20	21.74%	20	18.81%	20	18.86%	20	17.66%	20
CASH RATIO	166%	5	141%	5	98%	5	54%	5	79%	5	115%	5	125%	5	125%	5
CURRENT RATIO	439%	5	365%	5	341%	5	284%	5	340%	5	370%	5	413%	5	451%	5
COLLECTION PERIOD	49	5	55	5	52	5	52	5	52	5	50	5	51	5	54	5
INV. TURN OVER	55	5	57	5	57	5	70	4.5	65	4.5	61	4.5	63	4.5	64	4.5
TATO	188.43%	5	170.12%	5	190.37%	5	190.64%	5	192.24%	5	183.31%	5	181.57%	5	179.02%	5
SOLVENCY	82.07%	7.0	78.75%	7.5	78.27%	7.5	74.91%	7.5	78.49%	7.5	79.86%	7.5	81.86%	7	83.62%	7
TOTAL		67.00		67.50		67.50		67.00		67.00		67.00		66.50		66.50

Table 9 shows the capability of Darya in generating earning in 2010-2017 perceptibly decreased slightly. The percentage changes of ROI were 40.51%, 41.12%, 41.70%, 37.20%, 31.00%, 32.27%, 40.60%, and 39.70%. Nevertheless, the deterioration of these ratios did not suggest poor financial performance because the trend still gives the company a positive return, yet decreasing. Moreover, the ratios were far above the minimum standard of the Decree, which is 18%. While the percentage changes of ROE were 17.31%, 16.61%, 17.69%, 13.98%, 8.61%, 11.08%, 14.09% and 14.53%. It decreased about 17.6% from 2010 to 2017. But the lowest ROE was 8.61% in 2014. The minimum standard of the Decree for ROE is 15%, therefore the ROE ratios were above the standard for 2010-2012. While the ratios were below the standard for 2003-2017. The sudden drop of ROI and ROE in 2013 to 2014 were influenced by the

weakening of IDR exchange rate in 2013, since the ingredient of the drugs were mostly being imported. In 2015 to 2017 the company began to recover as the sales of generic products increased with the JKN program implementation (Darya, 2013-2017).

Table 9 Test Results for Darya

INDICATORS	2010		2011		2012		2013		2014		2015		2016		2017	
	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE	RATIO	SCORE
ROI	40.51%	15	41.12%	15	41.70%	15	37.20%	15	31.00%	15	32.27%	15	40.60%	15	39.70%	15
ROE	17.31%	20	16.61%	20	17.69%	20	13.98%	18	8.61%	12	11.08%	16	14.09%	18	14.53%	18
CASH RATIO	146%	5	180%	5	153%	5	144%	5	171%	5	143%	5	99%	5	102%	5
CURRENT RATIO	376%	5	489%	5	431%	5	415%	5	491%	5	352%	5	285%	5	266%	5
COLLECTION PERIOD	115	4	126	3.5	131	3.5	125	3.5	116	4	111	4	116	4	111	4
INV. TURN OVER	38	5	48	5	45	5	68	4.5	75	4.5	56	5	53	5	47	5
TATO	137.33%	5	123.51%	5	126.97%	5	115.72%	4.5	113.31%	4.5	116.82%	4.5	128.81%	5	126.57%	5
SOLVENCY	75.52%	7.5	78.87%	7.5	78.31%	7.5	75.27%	7.5	76.33%	7.5	70.74%	7.5	70.50%	7.5	68.03%	8
TOTAL		66.50		66.00		66.00		63.00		57.50		62.00		64.50		65.00

Liquidity Analysis

Table 6 displays the CR of Kimia in 2010-2017, which were 243%, 275%, 280%, 243%, 239%, 192%, 171%, and 155% respectively. Overall, CR increased in 2010-2014, and decreased slightly in 2015-2017. Nevertheless, the drop occurred in CRs 2014 did not merely showing poor condition of the company as the drop remained above the lowest level of the ratio. CRs of Kimia were above 100%. It shows that company's financial health was good in the short term. With its total current asset greater than its total current liabilities, there should not be doubt that the company was able to pay off its short-term obligation, or it was liquid. All CRs were above the minimum standard of the Decree, which is 125%.

Table 7 displays CR of Bio in 2010-2017, which were 352%, 369%, 523%, 396%, 537%, 437%, 408%, 451%, and 339% respectively. Overall, CRs increased in 2010-2012, and decreased slightly in 2013, but increased again in 2014, and decreased slightly in 2015 to 2017. Nevertheless, the drop occurred in CRs in 2015 did not merely showing poor condition of the company as the drop remained above the lowest level of the ratio. Liquidity ratios of Bio were above 100%. It shows that company's financial health was good in the short term. With its total current asset greater than its total current liabilities, there should not be doubt that the company was able to pay off its short-term obligation. All CRs were above the minimum standard of the Decree, which is 125%.

Table 8 displays CRs of Kalbe in 2010-2017, which were 439%, 365%, 341%, 284%, 340%, 370%, 413% and 451% respectively. Overall, CRs were high stable and above 125%. It shows that company's financial health were good in the short term. With its total current asset greater than its total current liabilities, there should not be doubt that the company was able to pay off its short-term obligation.

Table 9 displays CRs of Darya in 2010-2017, which were 376%, 489%, 431%, 415%, 491%, 352%, 285% and 266% respectively. Overall, CRs were high stable in 2010 to 2015, and decreased slightly in 2016-2017. CRs of Darya were above 125% as the minimum standard of the Decree. It shows that company's financial health was good in the short term. With its total current asset greater than its total current liabilities, there should not be doubt that the company was able to pay off its short-term obligation.

Activity Analysis

Table 6 shows TATO ratios of Kimia in 2010-2017, which were 255.92%, 254.56%, 229.49%, 220.35%, 187.58%, 176.54%, and 139%. The ratios were quite stable in 2010-2013, but decreased slightly in 2015-2017. This indicates that the company encountered less efficiency of its assets in generating revenue during the last three years. However, TATO ratios were still above the minimum standard of 120% of the Decree, or Kimia were very efficient.

Table 7 shows TATO ratios of Bio in 2010-2017, which were 131.89%, 158.12%, 135.54%, 117.55%, 108.71%, 113.05% and 146.53%. The ratios were fluctuated, but still above standard of the Decree of 120% in 2010-12, and 2017, except for 2013-2016. Overall, Bio was efficient in utilizing its assets.

Table 8 shows TATO ratios of Kalbe in 2010-2017, which were 188.43%, 170.12%, 190.37%, 190.64%, 192.24%, 183.31 and 179.02%. The ratios were quite stable. This indicates that the company was very efficient in utilization of its assets for generating revenue. The TATO ratios were above the minimum standard of the Decree, which is 120%.

Table 9 shows TATO ratios of Darya for 2010-2017, which were 137.33%, 123.51%, 126.97%, 115.72%, 113.31%, 116.82%, 128.81% and 126.57%. The ratios were quite stable in 2010-2017, and that indicates the company were very efficient in utilization of its assets for generating revenue. The TATO ratios were above the minimum standard of the Decree, which is 120%.

Solvency Analysis

Table 6 shows solvency ratios of Kimia, the TETA ratios in 2010-2017, which were 67.22%, 69.81%, 69.43%, 65.71%, 61.02%, 59.87%, 49.24%, and 42.20%. It shows the fluctuation of the ratios. The increase of the ratios indicates higher proportion of assets funded by investors. This situation implies more financially stable of the company. In fact, nearly 50 to 60% of all its assets was financially contributed by investors in the last eight years. The fall in TETA ratio indicates decreasing proportion of assets contributed by investors, but not necessarily define poor financial flexibility as the ratios were still generate great deal of number, nearly 30-40% as required by the Decree. The decreasing TETA ratio implies increasing adoption of debt to finance the company.

Table 7 shows solvency ratios of Bio, the TETA ratios in 2010-2017, which were 77.63%, 85.27%, 88.31%, 83.80%, 83.57%, 88.75%, 89.53% and 87.60%. It shows the fluctuation of the ratios. The increase of the ratios indicates higher proportion of assets funded by the investors. This situation implies more financially stable of the company. In fact, nearly 70 to 90 % of all its assets were financially contributed by investors. The fall in TETA ratio indicates decreasing proportion of assets contributed by the investors, but not necessarily define poor financial flexibility as the ratio still generate great deal of number. The decreasing TETA ratio implies increasing adoption of debt to finance the company.

Table 8 shows solvency ratios of Bio, the TETA ratios in 2010-2017, which were 82.07%, 78.75%, 78.27%, 74.91%, 78.49%, 79.86%, 81.86% and 83.62%. It shows the stability of the ratios. The increase of the ratios indicates higher proportion of assets funded by the investors. This situation implies more financially stable of the company. In fact, nearly 70 to 80 % of all its assets were financially contributed by the investors. The fall in TETA ratio indicates decreasing proportion of assets contributed by the investors, but not necessarily define poor financial flexibility as the ratios were still generate great deal of number. The decreasing TETA ratio implies increasing adoption of debt to finance the company.

Table 9 shows solvency ratios of Darya, the TETA ratios in 2010-2017, which were 75.52%, 78.875, 78.31%, 75.27%, 76.33%, 70.74%, 70.50% and 68.03%. It shows the

fluctuation slightly of the ratios. The increase of the ratios indicates higher proportion of assets funded by investors. This situation implies more financially stable of the company. In fact, nearly 70 to 80 % of all its assets were financially contributed by investors in the last eight years. The fall in TETA ratio indicates decreasing proportion of assets contributed by investors, but not necessarily define poor financial flexibility as the ratio still generate great deal of number. The decreasing TETA ratio implies increasing adoption of debt to finance the company.

Validation Testing

In order to examine the level of financial health for the four companies in 2010-2017, the SOE decree is employed to test the validation. Table 10 shows the test results during 2011 to 2015 of Kimia. Overall, there were stable trend in the total score during 2010 to 2017, which ranged from 64 in 2010 to 64.50 in 2017. Next, the total score was converted into the total weight by using the formula, which is total score/weight multiplied by 100. Finally, the result is shown in table 10, which shows of healthy category during the period, or AA level respectively.

Table 10 Summary of Test Results for Kimia

Year	Total Score	Total Weight	Value	Level	Category
2010	64.00	91.43	80<TS≤95	AA	Healthy
2011	66.00	94.29	80<TS≤95	AA	Healthy
2012	66.00	94.29	80<TS≤95	AA	Healthy
2013	66.00	94.29	80<TS≤95	AA	Healthy
2014	66.00	94.29	80<TS≤95	AA	Healthy
2015	64.50	92.14	80<TS≤95	AA	Healthy
2016	64.50	92.14	80<TS≤95	AA	Healthy
2017	64.50	92.14	80<TS≤95	AA	Healthy

The same validation method for Kimia is also applied for Bio, Kalbe, and Darya. The results are shown in Tables 11, 12, and 13, respectively.

Table 11 Summary of Test Results for Bio

Year	Total Score	Total Weight	Value	Level	Category
2010	67.50	96.43	>95	AAA	Healthy
2011	67.00	95.71	>95	AAA	Healthy
2012	67.00	95.71	>95	AAA	Healthy
2013	66.50	95.00	80<TS≤95	AA	Healthy
2014	66.50	95.00	80<TS≤95	AA	Healthy
2015	65.50	93.57	80<TS≤95	AA	Healthy
2016	62.00	88.57	80<TS≤95	AA	Healthy
2017	62.50	89.29	80<TS≤95	AA	Healthy

Table 12 Summary of Test Results for Kalbe

Year	Total Score	Total Weight	Value	Level	Category
2010	67.00	95.71	>95	AAA	Healthy
2011	67.50	96.43	>95	AAA	Healthy
2012	67.50	96.43	>95	AAA	Healthy
2013	67.00	95.71	>95	AAA	Healthy
2014	67.00	95.71	>95	AAA	Healthy
2015	67.00	95.71	>95	AAA	Healthy
2016	66.50	95.00	80<TS≤95	AA	Healthy
2017	66.50	95.00	80<TS≤95	AA	Healthy

Table 13 Summary of Test Results for Darya

Year	Total Score	Total Weight	Value	Level	Category
2010	66.50	95.00	80<TS≤95	AA	Healthy
2011	66.00	94.29	80<TS≤95	AA	Healthy
2012	66.00	94.29	80<TS≤95	AA	Healthy
2013	63.00	90.00	80<TS≤95	AA	Healthy
2014	57.50	82.14	80<TS≤95	AA	Healthy
2015	62.00	88.57	80<TS≤95	AA	Healthy
2016	64.50	92.14	80<TS≤95	AA	Healthy
2017	65.00	92.86	80<TS≤95	AA	Healthy

Limitation

This study has expanded the literature about financial performance in the real working world. In near future, it is suggested to carry out with other companies from pharmaceutical industry to get more general result. Since the focus is on one industry, it is worth to explore it on a wider scale and find out if different company yields the same result. In addition, the study only focuses on financial aspects only.

Conclusion and Recommendation

The result of the study shows that the four companies had stable financial performance in 2010-2017. Overall, Kimia was showing a steady performance with minor decline, though in regards of profitability, liquidity and solvency performances, it was still far below Bio. The result shows that the four companies have achieved financial health condition levels based on the SOE Decree, with rank ratings during 2010-2017 1). Kimia; all AA levels; 2). Bio; AAA for the first three years; and AA for the last five years; 3). Kalbe; AAA for the first six years; and AA for the last two years; and 4). Darya; all AA levels. Both SOEs and private companies were successful in managing their business. It is recommended, although the sales growths of the companies after the implementation of the JKN program were relatively slow down, but the potential market in the future will still be expanding as it should reaches all population in Indonesia. The profits generated from supplying generic products is still promising and it will be good for the company to get more exposure in domestic market. The companies need to find an alternate way to shift the used of raw material that mostly being imported to outwit the low margin of generic product sales and stay competitive in the market. However, it was proven that the four companies supported the JKN program of developing excellent services in the pharmaceutical industry. This study has added the knowledge in the financial literature. It also gives a strong insight for managers in pharmaceutical industry about the financial performance.

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DISCRETE INTERIM REPORTING AND DEVIATION WITH ANNUAL REPORT

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Abstract: *The quarterly report enhances the relevance of financial information, but its reliability has been questionable. MASB 26 Interim Financial Reporting which was made effective on 1st July 2002 preferred the discrete method as the main view in dealing with most of the events and transactions. The method treats quarterly report as independent from the annual cycle, whilst integral method views the report as an integral part of the annual report. The purpose of this study is to examine whether the discrete method limits the magnitude and occurrence of earnings deviation between cumulative quarterly accounts and annual accounts. Data is based on listed companies on Bursa Malaysia for two years before and after the introduction of MASB 26. The t-test shows that the magnitude of earnings deviation post-MASB 26 is significantly lower with a mean of RM1.1 million post- as compared to RM2.3 million pre-MASB 26. Sub-sample analyses also showed that the magnitude of both overstated and understated companies is significantly lower post- MASB 26. However, Pearson chi-square shows that the occurrence of earnings deviation has increased post-MASB 26 which was contributed from the increase in occurrence of understated quarterly earnings. Findings provide evidence on the effect of discrete method on the reliability of interim reporting. This study is beneficial for the regulators of accounting standards in reviewing their current policies.*

Keywords: *Discrete Method, Earnings Quality, Interim Report, Quarterly Accounts.*

Introduction

The production of quarterly accounts by listed companies has become a common mandatory requirement in many jurisdictions. The purpose is to allow a more timely dissemination of accounting information which increases the relevance of the information (Lightstone et al., 2012). Frequent information helps to reduce uncertainties and enhances confidence over the company's state of affairs and thus, improves users' decisions (Ismail and Abdullah, 2009). Two accounting methods have been proposed to be used in the preparation of quarterly accounts; integral and discrete method. The integral method views quarterly accounts as integral parts of the annual period and thus, accruals, deferrals and estimations at the end of each quarter are effected by judgments regarding operations for the entire year (McEwen and Schwartz, 1992). The discrete method treats quarterly accounts as independent from the annual cycle and thus, accruals, deferrals and estimations at the end of each quarter follow essentially the same principles that are applied to the annual periods (Ku Ismail and Chandler, 2005a; McEwen and Schwartz, 1992). The International Accounting Standards Boards (IASB) prefers

the discrete method, whilst the Financial Accounting Standards Board (FASB) prefers the integral method in dealing of most transactions. Prior to year 2002, companies in Malaysia had the choice of adopting either the integral or discrete method in preparing the quarterly accounts. However, the issuance of *MASB 26 Interim Financial Reporting* (now, known as MFRS 134) which was made effective on 1st July 2002 required companies to use discrete method as the main view in dealing with most of the transaction (Ku Ismail and Abdullah, 2009). The standard is an adoption of *IAS 34 Interim Financial Reporting* issued by the International Accounting Standards Committee (IASC) in 1998. While the preference of FASB can be related to the objectives for a more accurate estimation of future results, it is believed that the discrete method will be able to provide more reliable quarterly accounts. However, the belief is only based on the intuition where empirical evidence is anecdotal. An earlier study by Ismail & Abdullah (2009) found no significant decrease in the tendency for companies to defer the reporting of exceptional items to the final quarter following the adoption of MASB 26 in Malaysia.

Listed companies on the Bursa Malaysia (previously known as Kuala Lumpur Stock Exchange) are mandatorily required on March 1999 to produce quarterly accounts for quarters ending on or after 31st July 1999. This requirement was imposed as a response to the Asian Financial Crisis in 1997/1998 (Ismail and Abdullah, 2009) in replacement of the half-yearly reporting which was introduced in 1987 (Ismail and Chandler, 2005a). Currently, the requirement is regulated under Chapter 9.22 of the Listing Requirements of Bursa Malaysia, where listed companies are mandated to produce their quarterly accounts no later than two months after the end of each quarter. Part A of Appendix 9B of the Listing Requirements further elaborates the information that needs to be disclosed in the accounts.

Literature Review

Financial reporting is a main mechanism in dissemination of asymmetry information between the managers and others (Whittington, 1993). Even though, companies are also disseminating financial information through other means, financial reporting provides the most comprehensive and reliable source of financial information. The information is later used in the economic decision-making (Lev and Ohlson, 1982; Penno, 1985). Lack of quality in financial reporting may mislead users' judgments. The traditional financial reporting for external users is prepared on an annual basis. However, it suffers from timely problem, whereby some of the information provided by the reports may become irrelevant at the time of production. To overcome this timely problem, interim reporting is required. Quarterly financial reporting is one type of interim financial reporting while others can be semi-annually or monthly. The quarterly accounts which are prepared for a period of three months are required in order to disseminate a more frequent and timely information. Countries such as Malaysia, Pakistan, Singapore, Thailand and the U.S. are among the countries which require their listed companies to produce quarterly accounts. The *International Accounting Standard 34 Interim Financial Reporting* highlighted that the purpose of the production of interim financial reporting is to provide an update on the latest complete set of annual financial statements. Meanwhile, the Discussion Memorandum published by the Financial Accounting Standards Board (FASB) in May 1978 expands the objectives of interim reporting to:

i) aid in estimating annual results;
ii) aid in making forward projections of results other than annual basis;
iii) ascertain turning points in earnings trend or liquidity;
iv) evaluate management performance; and
v) supplement the annual report.

Historically, the interim report was favored by stock exchanges, governmental agencies, financial analyst and many companies but strongly opposed by some companies (Taylor, 1965). The United States of America (US) was the first country to promote corporate interim reporting (Ku Ismail and Chandler, 2005b). Since year 1910, the New York Stock Exchange has consistently advocated its listed companies to publish the reports and in year 1946, the US Securities and Exchange Commission (SEC) has required for quarterly sales reports (Taylor, 1965). On June 23 1955, the SEC has required for semiannual income statements, whilst as in April 1962, the American Stock Exchange has required for quarterly income statements (Taylor, 1965). Starting year 1970, all SEC registered companies are required to publish their quarterly accounts. In the United Kingdom, the London Stock Exchange has required half-yearly financial reports for its listed companies only by year 1964 (Hussey and Woolfe, 1998; May, 1971). Meanwhile, in May 1973, the Financial Accounting Standards Board (FASB) issued the *Accounting Principles Board Opinion No. 28 (APB No. 28) Interim Financial Reporting*, whilst the International Accounting Standards Committee (IASC) issued the *International Accounting Standard 34 (IAS 34) Interim Financial Reporting* in 1998.

Similar to annual accounts (see for example Beaver, 1968; Pellicer and Rees, 1999), the production of quarterly accounts have also been found to be used by investors in their investment decision-making. For example, studies by Kiger (1972), Kross and Schroeder (1984), Lee and Park (2000) and May (1971) which was conducted in the US whilst, a study by Ismail and Abdul Rahman (2012) conducted in Malaysia have all shown the evidence. In addition, it has also been found that the information content of quarterly accounts has increased over time (Landsman and Maydew, 2002). Overall, the studies show that investors rely on quarterly accounts in their investments' decision. The findings suggest for the need to ensure the quality of quarterly reporting.

One of the concerns regarding the quality of quarterly accounts is the accounting method in measuring some of the items in the accounts. While the quarterly accounts require more estimates and judgments than annual accounts, the preference of integral method than the discrete method in some countries has been argued to result in low quality quarterly reports. It is believed that the use of discrete as compared to integral method will enhance the quality of quarterly accounts (Ku Ismail and Abdullah, 2009; Mendenhall and Nichols, 1988; Reckers and Pany, 1979). As compared to discrete method, integral method requires a lot more judgment and estimates and thus, earnings management is more likely to occur under the integral method (Ku Ismail and Abdullah, 2009). Managers may manipulate the estimation and make use of judgment flexibility to achieve their desired numbers.

In preparing the quarterly accounts, normally revenues and product costs are recognised based on discrete basis but the recognition of period costs depend on the either methods, discrete or integral (Ku Ismail and Chandler, 2009). Under the discrete method, the reported accounts should only reflect the economic activity of that particular quarter, independent from the other quarters (Ku Ismail and Abdullah, 2009; Mendenhall and Nichols, 1988). Thus, suggesting that the cost that benefits more than one interim period is not to be anticipated or deferred and therefore, the expense is fully recognized in the period in which it incurred (Ku Ismail and Abdullah, 2009; Mendenhall and Nichols, 1988). The discrete method treats quarterly accounts as independent from the annual cycle and thus, accruals, deferrals and estimations at the end of each quarter follow essentially the same principles that are applied to the annual periods (Ku Ismail and Chandler, 2005a; McEwen and Schwartz, 1992). Meanwhile, the integral method views quarterly accounts as integral parts of the annual period and thus, accruals, deferrals and estimations at the end of each quarter are effected by judgments

regarding operations for the entire year (McEwen and Schwartz, 1992). Thus, under and over allocations may likely occur under the integral method (Ku Ismail and Chandler, 2005a). Predetermined rates at the beginning of the financial year may not be modified during the year even in the face of anticipated changes in volumes or costs (Collins, Hopwood and McKeown, 1984). Furthermore, the integral method needs for more managerial judgments and thus, can be manipulated by the managers. However, the use of integral approach is consistent with most of the objectives of interim reporting as outlined in the Discussion Memorandum by FASB. The integral approach allows quarterly reporting to be used for more accurate estimation of future results, determination of turning points in earnings and even in evaluating management's performance. The use of discrete method may result in fluctuated earnings' numbers which thus is inconsistent with these objectives. This is probably the main reason for the preference of the integral approach in some countries.

Hypotheses Development

Conceptually, either integral or discrete method is used, the idea of the preparation of quarterly account is that the cumulative quarterly earnings (the summation of all quarterly earnings) would be similar to the audited annual accounts. Meanwhile, one approach to determine the reliability of quarterly earnings is by observing the deviation between cumulative quarterly earnings and audited annual earnings (Al-Darasyeh and Brown Jr. 1992; Ibrahim et.al, 2009). Earnings deviation indicates that earnings reported in quarterly accounts are misstated. Higher earnings reported in cumulative quarterly accounts than audited annual accounts represents overstatements of quarterly earnings, while lower earnings reported in audited cumulative quarterly accounts than annual accounts represents understatements of quarterly earnings.

As compared to integral, the use of discrete method is expected to limit the earnings deviation between these two accounts. Discrete method requires immediate recognition of costs in the quarter it incurs, whilst integral method gives flexibility for the management in recognizing the costs (Ku Ismail and Abdullah, 2009). It can be recognized in the quarterly accounts, if the decline is expected to cannot be restored; or not to be recognized, if the decline is expected to be restored. This flexibility allows the management to manipulate the recognition and thus, the quarterly earnings. Managers may defer the recognition of the costs in quarterly accounts and will only recognize it in the annual (audited) accounts which then causes the deviation between the cumulative quarterly earnings and audited annual earnings. As illustrated by Ku Ismail and Abdullah (2009), under the discrete method, loss of inventory from a market price decline is recognized in that particular quarter but, based on the integral method the recognition of the loss is dependent upon management's judgment. It can be recognised in that quarter, if the decline is expected to cannot be restored; or not to be recognised, if the decline is expected to be restored before the end of the fiscal year. Even though, the costs are recognised in the quarterly accounts, Collins, Hopwood and McKeown (1984) highlighted the problem of predetermined rates in the use of integral method. The study argued that predetermined rates which are determined at the beginning of the financial year may not be modified during the year even in the face of anticipated changes in volumes or costs. Failures to modify the predetermined rates can cause under or over allocations in quarterly accounts and thus, causes earnings deviation.

H1a: The use of discrete method in preparing quarterly accounts decreases the magnitude of earnings deviation.
H1b: The use of discrete method in preparing quarterly accounts decreases the occurrence of earnings deviation.

Research Method

Data is based on listed companies on Bursa Malaysia based on two periods; pre- MASB 26 (year 2000 and 2001) and post- MASB 26 (year 2003 and 2004). This period is chosen based on the fact that prior to year 2002, companies in Malaysia had the choice of adopting either the integral or discrete method in preparing the quarterly accounts. However, the issuance of *MASB 26 Interim Financial Reporting* which was made effective on 1st July 2002 required companies to use discrete method as the main view in dealing with most of the transaction.

Table 1 presents the sample selection process. As at 31 December 2000 and 2001, a total of 795 and 812 companies are listed on Main Market of Bursa Malaysia, respectively. However, only 1,431 companies are used as final sample for pre- MASB 26. 13 companies with unavailable quarterly or annual accounts, 58 newly listed companies, 30 companies with financial year-end less or more than 12 months and another 75 companies which have audited their quarterly accounts are excluded. Meanwhile, 906 and 963 companies are listed on Main Market of Bursa Malaysia as at 31 December 2003 and 2004, respectively. However, only 1,591 companies are used as sample post- MASB 26. 23 companies with unavailable quarterly or annual accounts, 129 newly listed companies, 30 companies with financial year-end less or more than 12 months and 91 companies which have audited their quarterly accounts are excluded. The t-test analysis is used to examine the Hypothesis H1a and Pearson chi-square analysis is used to test the Hypothesis H1b. The t-test examines the magnitude differences of earnings deviation and the Pearson chi-square test examines the frequency differences of occurrence of earnings deviation between the two groups; pre- and post- MASB 26. Earnings deviation is measured by the difference between cumulative quarterly earnings and audited annual earnings. Data is collected from quarterly reports and annual audited accounts which is downloadable from Bursa Malaysia website.

Table 1: Sample Selection of Listed Companies on Bursa Malaysia

Description	**Number of companies by year**			
	2000	2001	2003	2004
As at 31 December	795	812	906	963
Unavailable report	5	8	9	14
Newly listed	38	20	58	71
Financial year-end less or more than 12 months	11	19	19	11
Audited quarterly accounts	36	39	45	46
Available sample	705	726	775	816

Results

Hypothesis H1a examines magnitude difference of earnings deviation between pre- and post- MASB 26. Table 2 presents the descriptive statistics and t-test results for the magnitude of earnings deviation between the sample of pre- (n=1,432) and post- (n=1,591) MASB 26. From the table, it can be observed that the mean, standard deviation and range for the magnitude of earnings deviation post- MASB 26 is smaller than pre- MASB 26. In the pre- MASB 26, the highest magnitude of overstated earnings deviation (cumulative quarterly earnings is higher than audited annual earnings) is RM404,938,000 but only RM320,216,000 is observed post- MASB 26. At the same time, the highest magnitude of understated earnings deviation (cumulative quarterly earnings is lower than audited annual earnings) pre- MASB 26 is RM72,432,000, but only RM46,539,000 is observed post- MASB 26. This represents that the range for the magnitude of earnings deviation post- MASB 26 is smaller than pre- MASB 26. Meanwhile, the mean for the earnings deviation post- MASB 26 is RM1,133,000; with a

standard deviation of RM12,800,000. On the other hand, the mean for the earnings deviation pre- MASB 26 is RM2,286,000; with a standard deviation of RM18,300,000. This implies that on average, the cumulative quarterly earnings is overstated by about RM2.3 million pre- MASB 26, but only about RM1.1 million overstatement incurred post- MASB 26. In addition, the mean difference between the magnitude of earnings deviation pre- and post- MASB 26 of about RM1,153,000 represents that the magnitude of earnings deviation post- MASB 26 is almost RM1.2 million smaller than pre- MASB 26. The t-test shows that the magnitude of earnings deviation post- MASB 26 is significantly lower than pre- MASB 26 at a 5 percent level. This implies that the magnitude of earnings deviation post- MASB 26 has decreased from pre-MASB 26. This is consistent with the Hypothesis H1a which argues that the use of discrete method in preparing the quarterly accounts lowers the magnitude of earnings deviation between cumulative quarterly accounts and audited annual accounts. Thus, it can be concluded that the use of discrete method enhances the quality of quarterly financial reporting. The finding is consistent with the beliefs by many that the use of discrete as compared to integral method will enhance the quality of quarterly accounts (see for example Ku Ismail and Abdullah, 2009; Mendenhall and Nichols, 1988; Reckers and Pany, 1979).

Table 2: Descriptive and t-statistics of Magnitude of Earnings Deviation Pre- and Post-MASB 26 of the Full Sample

Description	**Pre- MASB 26 (n=1,431) (Ringgit Malaysia)**	**Post- MASB 26 (n=1,591) (Ringgit Malaysia)**	**t-test**
Mean	2,285,621	1,132,552	
Standard deviation	18,300,000	12,800,000	
Maximum	404,938,000	320,216,000	
Minimum	-72,432,000	-46,539,000	
Difference (mean)	1,153,068		2.026**

** Significant at 5 percent level

The above analysis is based on the actual value of earnings deviation. It should be noted that the earnings deviation can be in negative (overstated earnings deviation) or positive (understated earnings deviation) value and thus, can off-set each other. Therefore, to recognize this off-set, additional analysis based on absolute value is conducted. Table 3 presents the descriptive and t-statistics of magnitude of earnings deviation based on absolute value pre- (1,432 observations) and post- (1,591 observations) MASB 26 for the full sample. Consistent with the earlier analysis, it can be observed from Table 3 that the mean and standard deviation for the magnitude of earnings deviation post- MASB 26 is smaller than pre- MASB 26. Pre-MASB 26, the mean of earnings deviation is RM3,044,000; with a standard deviation of RM18,200,000. Meanwhile, the mean of earnings deviation post- MASB 26 is only RM1,686,000; with a standard deviation of RM12,700,000. The t-test also shows that the magnitude of earnings deviation post- MASB 26 is significantly lower than pre- MASB 26 at a one percent level.

Table 3: Descriptive and t-statistics of Magnitude of Earnings Deviation Based on Absolute Value Pre- and Post- MASB 26 for the Full Sample

Description	Pre- MASB 26 (n=1,431) (Ringgit Malaysia)	Post- MASB 26 (n=1,591) (Ringgit Malaysia)	t-test
Mean	3,043,675	1,685,559	
Standard deviation	18,200,000	12,700,000	
Difference (mean)	1,358,116		2.399*

* Significant at 1 percent level

Previous analyses are conducted based on the observations which include companies without earnings deviation into the sample. The results of the analysis may be influenced by the difference in the frequency of without earnings deviation companies between the two periods. To distinguish the possible influence of the frequency of without earnings deviation companies in the sample, an additional analysis by using only earnings deviation companies as sample is conducted. Table 4 presents the descriptive and t-statistics for the magnitude of earnings deviation pre- (816 observations) and post- (962 observations) MASB 26 for the sample of earnings deviation companies only. Consistent with the earlier results, it can be observed that the mean and standard deviation for the magnitude of earnings deviation post- MASB 26 are smaller than pre- MASB 26. The mean of earnings deviation pre- MASB 26 is overstated by RM4,008,000; with a standard deviation of RM24,100,000. Meanwhile, the mean of earnings deviation post- MASB 26 is overstated by only RM1,873,000; with a standard deviation of RM16,400,000. The t-test shows that the magnitude of earnings deviation post- MAS 26 is significantly lower than pre- MASB 26 at a five percent level, which is consistent with the results of the earlier analyses.

Table 4: Descriptive and t-statistics of Magnitude of Earnings Deviation Pre- and Post- MASB 26 of Earnings Deviation Companies Only

Description	Pre- MASB 26 (n=816) (Ringgit Malaysia)	Post- MASB 26 (n=962) (Ringgit Malaysia)	t-test
Mean	4,008,239	1,873,068	
Standard deviation	24,100,000	16,400,000	
Difference (mean)	2,135,171		2.212**

** Significant at 5 percent level

The above analyses combined two different types of earnings deviation (overstatement and understatement earnings deviation) together as a group. Considering the possible difference in the effect of discrete method on different types of earnings deviation, further analyses based on individual types of earnings deviation are conducted. This is to provide more knowledgeable insights on the results obtained. Table 5 presents the descriptive and t-statistics for the magnitude of earnings deviation pre- (524 observations) and post- (548 observations) MASB 26 for the sample of overstated earnings deviation companies only. From the table, it can be observed that the mean and standard deviation for the magnitude of earnings deviation post- MASB 26 are smaller than pre- MASB 26. The mean of earnings deviation pre- MASB 26 is RM7,277,000; with a standard deviation of RM29,100,000. Meanwhile, the mean of earnings deviation post- MASB 26 is only RM4,091,000; with a standard deviation of RM21,200,000. The t-test of below five percent level provides support that the magnitude of earnings deviation post- MASB 26 is significantly lower than pre- MASB 26. This implies that the magnitude of earnings deviation for overstated earnings deviation companies has decreased after the adoption of discrete method.

Table 5: Descriptive and t-test of Magnitude of Earnings Deviation Pre- and Post- MASB 26 of Overstated Earnings Deviation Companies Only

Description	Pre- MASB 26 (n=524) (Ringgit Malaysia)	Post- MASB 26 (n=548) (Ringgit Malaysia)	t-test
Mean	7,276,929	4,090,891	
Standard deviation	29,100,000	21,200,000	
Difference (mean)	3,186,039		2.054**

** Significant at 5 percent level

Meanwhile, Table 6 presents the descriptive and t-statistics for the magnitude of earnings deviation pre- (292 observations) and post- (414 observations) MASB 26 for the sample of understated earnings deviation companies only. Based on the table, it can be observed that the mean and standard deviation for the magnitude of understated earnings deviation post- MASB 26 are smaller than pre- MASB 26. Pre- MASB 26, the mean of earnings deviation is RM1,857,000; with a standard deviation of RM6,860,000. Meanwhile, the mean of earnings deviation post- MASB 26 is only RM1,063,000; with a standard deviation of RM3,630,000. The t-test of below five percent level represents that the magnitude earnings deviation post- MASB 26 is significantly lower than pre- MASB 26 which implies that the magnitude of earnings deviation of understated earnings deviation companies has decreased after the application of discrete method.

Table 6: Descriptive and t-test of Magnitude of Earnings Deviation Pre- and Post- MASB 26 of Understated Earnings Deviation Companies Only

Description	Pre- MASB 26 (n=292) (Ringgit Malaysia)	Post- MASB 26 (n=414) (Ringgit Malaysia)	t-test
Mean	1,857,493	1,062,601	
Standard deviation	6,859,980	3,629,606	
Difference (mean)	794,892		1.995**

** Significant at 5 percent level

Hypothesis H1b examines frequency difference of occurrence of earnings deviation pre- and post- MASB 26. Table 7 presents the frequency distribution of observations with and without earnings deviation based on pre- and post- MASB 26 for the full sample. From the table, it can be observed that a majority of observations for both periods have earnings deviation. Contrary from prediction, the percentage of companies with earnings deviation post- MASB 26 is three percent higher than pre- MASB 26. From 1,431 observations pre- MASB 26, only 57 percent (816 observations) have earnings deviation but based on 1,591 observations post- MASB 26, more than 60 percent (962 observations) have earnings deviation. On the other hand, almost 43 percent (615 observations) observations pre- MASB 26 do not have any earnings deviation but only less than 40 percent (629 observations) post- MASB 26. The Pearson chi-square statistic shows that the difference in frequency distribution is significant at a 10 percent level. This implies that the percentage of companies with earnings deviation post- MASB 26 is marginally higher than pre- MASB 26. This is contrary from Hypothesis H1b which predicts lower occurrence of companies with earnings deviation post- MASB 26. The result suggests that the use of discrete method marginally increases the frequency of earnings deviation companies. Therefore, additional analysis is conducted to further examine this contradiction.

Table 7: Frequency Distribution and Pearson chi-square Statistics Based on Types of Companies and Period for the Full Sample

Description	Pre- MASB 26		Post- MASB 26		Pearson chi-square
	Number	%	Number	%	
Without earnings deviation	615	42.98	629	39.53	
With earnings deviation	816	57.02	962	60.47	
Total	1,431	100	1,591	100	3.685***

*** Significant at 10 percent level

The above analysis treats the overstated and understated earnings deviation companies together as a group. To capture the possible difference in the effect of discrete method on different types of earnings deviations, additional analysis is conducted by separating these two types of earnings deviation. Table 8 presents the frequency distribution and Pearson chi-square results of companies for different types of earnings deviation based on pre- and post- MASB 26. From the table, it can be observed that a majority of earnings deviation companies for both periods have overstatements rather than understatements. However, it can also be observed that the percentage of overstated earnings deviation companies has decreased and the percentage of understated earnings deviation companies has increased. Pre- MASB 26, more than 64 percent of companies are with overstatements earnings deviation but the percentage has decreased to only 57 percent post- MASB 26. Meanwhile, 36 percent of companies pre- MASB 26 are with understatements earnings deviation but post- MASB 26 the percentage has increased to 43 percent. The Pearson chi-square statistic shows that the difference in the frequency distribution is significant at a one percent level. This implies that the percentage of overstated earnings deviation companies has significantly decrease and the percentage of understated earnings deviation companies has significantly increase after the implementation of discrete method. Therefore, it can be concluded that, the discrete method not only decrease the frequency of without earnings deviation companies but also overstatement earnings deviation companies. At the same time, the method has increases the frequency of understatement companies.

Table 8: Frequency Distribution and Pearson chi-square Statistics Based on Types of Earnings Deviation and Period for the Earnings Deviation Sample Only

Description	Pre- MASB 26		Post- MASB 26		Pearson chi-square
	Number	%	Number	%	
Overstatements	524	64.22	548	56.96	
Understatements	292	35.78	414	43.04	
Total	1,431	100	1,591	100	9.696*

*Significant at 1 percent level

Conclusion

This study examines the effects of accounting methods in preparing quarterly accounts on the quality of quarterly earnings. It provides evidence on the use of discrete method in enhancing the reliability of quarterly accounts. It is expected that the use of discrete accounting method results in lower magnitude and occurrence of earnings deviation between cumulative quarterly accounts and audited annual accounts. Data is based on listed companies on Bursa Malaysia two years before and two years after the issuance of MASB 26. Results of t-test show that the magnitude of earnings deviation post- MASB 26 is significantly lower than pre- MASB 26. However, Pearson chi square shows that the occurrence of earnings deviation has marginally increased post- MASB 26, contributed from significant increase in understated earnings

deviation companies. This implies that the use of discrete method reduces the magnitude of earnings deviation and increases the occurrence of understated quarterly earnings. The findings provide some support to the contention that the use of discrete method enhances the quality of quarterly accounts. This study is subject to a limitation that the earnings deviation is assumed due to lack of quality quarterly earnings. There is possibility that the earnings deviation is due to the events after the reporting period. Future studies should consider of using difference measures of earnings reliability in examining the effect of accounting method.

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THE PRESENT AND FUTURE LABOUR MARKET OF SHARIAH AUDITOR

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Abstract: *The Shariah audit function within the Islamic Financial Institutions (IFIs) provides assurance on IFI's compliance with Shariah principles. In spite of the importance of Shariah audit, there is little literature on the effective and efficient implementation of Shariah audit from the human capital perspective, in particular the Shariah audit education and training. This study aims to explore the Shariah audit discipline in terms of academic qualification and professional training courses. In addition, the paper attempts to visualize the future of Shariah audit profession in light of the industrial revolution of 4.0. This study is based on literature of past studies that are related with Shariah audit discipline conducted in Malaysia and Brunei Darussalam. Evidence from the analysis suggest that there are several initiatives have been undertaken to ensure the supply of Shariah auditor enable in the effective and efficient implementation of Shariah audit. The Insight Report of The Future of Jobs Report 2018, World Economic Forum identified accountants and auditors consider to be redundant roles or declining in the year 2022, this is to be tested in Shariah audit profession whether Shariah robo auditor will replace the human intervention. The study is expected to contribute to the body of knowledge of the subject matter in order to narrow down the literature gap. This study is also useful for policymaking in the jurisdictions that offer Islamic finance, with relation to Shariah governance mechanisms, especially on policies related to Shariah audit.*

Keywords: *Shariah Audit, Shariah Governance Framework, Islamic Financial Institutions, Shariah Audit Education and Training, Industrial Revolution 4.0*

Introduction

The Shariah audit function within the Islamic Financial Institutions (IFIs) provides assurance on IFI's compliance with Shariah principles.

This study will explore on the availability of academic qualification and or courses offered by selected universities in Malaysia and Brunei Darussalam. Additionally, the paper also endeavors to explore on the professional certification and training available for the Shariah auditor. The future jobs in the audit discipline in general is also tested in light of the industrial revolution 4.0. This study is based on review of past literatures and the available information using the secondary data.

The paper is divided into 6 sections, beginning with an introduction, followed by the present labour market of Shariah auditors in terms of academic qualification and professional training in Malaysia and Brunei Darussalam in Section 2 and 3 respectively. Then, in the next section will highlight on the relevant review of literatures in Shariah audit in Malaysia and Brunei Darussalam. Section 5 will present on the future labour market of Shariah auditor in light of the industrial revolution 4.0. Lastly, a conclusion is drawn up with reference to limitations and potential avenue for further research is suggested.

The Present Supply of Labour Market for Shariah Auditor in Malaysia

This section will provide information extracted from the relevant universities and training organization that are related with Shariah audit academic qualification and professional training in Malaysia:

Universities in Malaysia

Universities in Malaysia are generally categorized as public and private universities. For the purpose of this study, the selection process of universities is merely come from the public universities. The following are the three selected universities in this study together with the rationale for selected them:

No	Name of University	Rationale
a.	Universiti Sains Islam Malaysia (USIM), upgraded from Kolej Universiti Islam Malaysia (KUIM) in 2007	Majority of Shariah audit literature is written from this university
b.	International Islamic University Malaysia (IIUM)	One of the prominent Islamic universities in Malaysia
c.	Universiti Kebangsaan Malaysia (UKM)	The National University of Malaysia

Table 1: list of selected universities in Malaysia

Shariah Audit Academic Qualification in Malaysia

The following listed the present academic qualification offer by the three selected universities:

a. Universiti Sains Islam Malaysia (USIM)

Faculty	Program/ Courses
Faculty of Economics and Muamalat (FEM)	- Master of Accounting and Shariah Audit - Bachelor of Accounting with Honours

Table 2: list of academic qualification on Shariah audit offer by USIM; www.fem.usim.edu.my

b. International Islamic University of Malaysia (IIUM)

Faculty	Program/ Courses
Kulliyyah of Economics and Management Sciences (KENMS)	- Bachelor of Accounting - Master and Doctor of Philosophy in Accounting

Table 3: list of academic qualification on Shariah audit offer by IIUM; www.iium.edu.my

c. Universiti Kebangsaan Malaysia (UKM)

Faculty	Program/ Courses
Faculty of Accountancy	- Master and Doctor of Philosophy in Accountancy

Table 4: list of academic qualification on Shariah audit offer by UKM; www.ukm.my

Shariah Audit Professional Training in Malaysia

The following are the available professional certification and training for the Shariah auditors:

a. Shariah Audit Training (SAT) by USIM
   This is a pilot program jointly conducted by USIM and Bank Muamalat Malaysia Berhad (BMMB). In order to equip Islamic finance practitioners with adequate Shariah audit practices, FEM of USIM has introduced a professional training called Shariah Audit Training (SAT) for the IFIs. The SAT covers modules on Shariah principles, Shariah governance, Shariah audit program, Shariah audit process, Shariah audit fieldwork, Shariah risk management and Shariah audit communications. In ensuring the practicality and its suitability, the modules are developed based on collaboration between academicians and the industry players.
b. Certified Professional Shariah Auditor (CPSA) by Islamic Banking and Finance Institute Malaysia (IBFIM)
   The CPSA program is designed to equip candidates with the essential technical understanding and professional skills on Shariah compliance audit and Shariah review processes for the Islamic banking and finance industry.
c. Certified Shariah Adviser and Auditor (CSAA) offer by International Shariah Research Academy (ISRA)
   The CSAA is a program developed by Accounting and Auditing Organisation for Islamic Financial Institutions (AAOIFI). However, based on the AAOIFI's website, the CSAA is currently overhaul and will be re-introducing the CSAA. The website further informed that one of the major changes would be the splitting of CSAA into Certified Shariah Advisor (CSAD) and Certified Shariah Auditor (CSAU).

The Present Supply of Labour Market for Shariah Auditor in Brunei Darussalam

This section will provide information extracted from the universities and training organization that are related with Shariah audit academic qualification and professional training in Brunei Darussalam:

Similar with its neighbouring country, Malaysia, Brunei Darussalam share the similar higher education institutes approach of having both full-fledged public and private universities. The following are the three selected public universities in this study together with the rationale for selected them:

No	Name of University	Rationale
a.	Universiti Brunei Darussalam (UBD)	Literature on Shariah audit been written from this university
b.	Universiti Islam Sultan Sharif Ali (UNISSA)	The Islamic university of the country
c.	Kolej Universiti Perguruan Ugama Seri Begawan (KUPU SB), upgraded in 2007 from a college to a university status	The religious college university in the country

Table 5: list of selected universities in Brunei Darussalam

Shariah Audit Academic Qualification in Brunei Darussalam

The following listed the present academic qualification offer by the three selected universities:

a. Universiti Brunei Darussalam (UBD)

Faculty	Program/ Courses
School of Business and Economics (SBE)	- **Master of Islamic Finance** Module: Shariah Audit It is designed to provide students with knowledge and skills in Shariah Audit practices and auditing system from an Islamic perspective. The effect of Shariah on auditing principles and concepts on IFIs is also covered. Apart from that, it is also designed to provide students with the knowledge of contemporary issues in Shariah Audit. - **Bachelor of Business (Accounting and Finance)** Module: Accounting and Auditing for Islamic Finance It is designed to introduce students to accounting and auditing from the Islamic view by illustrating the financial recording and reporting practices with regards to Muamalah contracts issued by IFIs, as well as the current standards and guidelines for accounting, auditing and governance for IFIs.

Table 6: list of academic qualification on Shariah audit offer by UBD; www.sbe.ubd.edu.bn

b. Universiti Islam Sultan Sharif Ali (UNISSA)

Faculty	Program/ Courses
Faculty of Islamic Economics and Finance (FEKIm)	- **Bachelor of Science in Islamic Finance** - **Master of Islamic Banking and Finance (Research)** Areas of Research: Islamic Accounting and Auditing - **PhD Islamic Banking and Finance**

Table 7: list of academic qualification on Shariah audit offer by UNISSA; www.unissa.edu.bn

c. Kolej Universiti Perguruan Ugama Seri Begawan (KUPU SB)
Based on the university's website, there is no information indicating that there is a specific program offer in the field of auditing.

Shariah Audit Professional Training in Brunei Darussalam

The following are the available training related to Shariah auditing:

a. Shariah Audit Training by Centre for Islamic Banking, Finance and Management (CIBFM) CIBFM is the Centre of Excellence for the finance industry in Brunei Darussalam. It is under the purview of Autoriti Monetari Brunei Darussalam (AMBD) and plays an important role in developing the human capacity in the areas of Islamic banking, finance and management.

The following listed Shariah audit training courses offer by CIBFM in 2017 and 2018 based on their website:

i. Shariah Audit and Review for Islamic Financial Institution; and
ii. Shariah Compliance, Review and Audit for Takaful

In addition to the above, according to an article in the local newspaper, there is also an industrial talk conducted by the UNISSA in 2019 that focuses on Shariah Governance in Islamic Financial Institutions.

Due to limited public information regarding the Shariah audit training in Brunei Darussalam, it is assuming that there might be private training held in the country but not open for the public.

Review of Literatures on Human Capital Development of Shariah Auditor in Malaysia and Brunei Darussalam

It is very encouraging to note that a research by Yaacob and Donglah (2012) on postgraduates' student's perspective on Shariah audit was conducted in Brunei Darussalam's context. The result of the study revealed that there is still a low level of awareness and understanding of the term as well as the Shariah audit concept. The study further highlighted on the importance of the media in an effort to promote the Shariah audit. The students in this study agreed that Shariah audit has a big potential in the Bruneian market.

Another research conducted in Malaysia by Shafii (2013), in their paper identified the independence and competency quality that is needed for human capital development in Shariah audit. The study employ respondents from regulators, IFIs management, employees and shareholders. It was revealed that Shariah auditors shall possess Shariah and accounting knowledge. However, in the case that the auditors do not have the necessary qualification, the work experience in the Islamic banking could be considered. The findings gathered from the study can benefit the higher learning institutions in developing the syllabus and training modules to cater for the industry needs.

Another study conducted by Yaacob et al (2013) in their study highlighted that apart from the differences in terms of Shariah audit scope and framework, there is another key issue which is the limited number of competent Shariah auditors to conduct the Shariah audit of IFIs. The study employ undergraduate's students in accounting, business and Shariah in Brunei Darussalam. It was revealed that the students in this study are not sure with the objective of the Shariah auditing. This bring an implication for the Bruneian government to revise its education syllabus in order to cater for the demand of qualified and trained Shariah auditors.

Kasim and Sanusi (2013) on the other hand, examined on the practitioners' perspective on the issues of Shariah audit standard, qualification and independence. The findings emphasized on the importance of qualification and independence as there is no mandatory regulated professional auditor code in line with the growth of IFIs. Thus, the paper provided a practical impact to regulators to review the existing standards for Shariah audit practices and to come up with a mandatory professional governance structure for the Shariah auditors. One key policy impact from the study is the Malaysian Institute of Accountants (MIA) or the Central Bank of Malaysia (Bank Negara Malaysia) should take the responsibility to identify and implement a comprehensive integrated Shariah audit framework to cater for the increase IFIs.

The following year, Shafii et al explored on the perception of the undergraduates on Shariah audit in Malaysian Islamic banks. Their study revealed that there is a major difference among students who exposed to courses in Shariah audit compared with those who never take the subject. This result brings a positive impact to the higher learning institution in Malaysia in imparting Shariah audit to the students so as to produce Shariah auditors in the relevant industry. They clearly mentioned that there is no specific guidance on the model of a qualified

professional as the Shariah auditor in Islamic bank. Based on the study, it shows that majority of the undergraduates in Malaysia are exposed to auditing discipline either through accounting courses or Islamic studies course. They claimed that there is no local universities or professional bodies in Malaysia that provide professional certification for the Shariah auditor. The study employs a questionnaire, amongst other include questions on: awareness and knowledge; perception regarding Shariah audit practice in Malaysia and lastly on the type of skills and knowledge that they want university to offer. The respondents of the study agreed that the Shariah audit shall be performed by a professional that possesses auditing and Shariah background as well as sufficient knowledge in banking operations and financial products. The study suggested that the university can work with the leading training provider such as IBFIM to offer training and formal course on Shariah audit so as to come up with talented Shariah auditors in order to cater with the needs.

Another research conducted by Shafii et al (2014) is on the audit certification that would convince the stakeholders that Shariah auditors are skillful and competent. The study highlighted on the gap as presently there is no certification as well as no professional body provided such certification. This study thus examines on the content and scope of the audit which employs questionnaire to the regulators, Shariah committee, Shariah reviewers and undergraduate students.

Mohd Alia et al (2015) mentioned the challenge on the mismatch of pool of talent between what is required by the banks and what is offered by the market. The paper argued on the competency framework for Malaysian Shariah auditors. It was revealed that the competency requirement for Shariah audit are still in developmental stage although there is a need for such. The study calls upon an urgent need in drafting the competency requirements that include knowledge, skill and other characteristics or in short, KSOC to ensure sufficient supply of competent auditors. The study suggested the so called KSOC model as a basis for the framework. This study is a very narrow in nature without a comprehensive explanation of the KSOC model.

Kamaruddin and Hanefah (2017) in their study highlighted on the effort undertaken by the FEM of USIM that introduced a professional SAT program for the IFIs' staff. The modules of the program cover the Shariah principles, governance, audit program, audit process, audit fieldwork, risk management and audit communications.

The Future Labour Market of Shariah Auditor

This section attempt to provide an insight of the future job of the Shariah audit discipline by referring to the key findings in the Insight Report on The Future of Jobs Report 2018 by the World Economic Forum. According to the report, although the industrial revolution 4.0 technological advancement will decrease the number of employees required to do certain work tasks, respondents from report indicate that it will produce increased demand for the performance of others, leading to new job creation.

Based on the survey, the future of job is divided into three: stable roles, new roles and redundant roles. Accountants and auditors are considered to be redundant roles as follows:

Stable Roles	New Roles	Redundant Roles
Managing Directors and Chief Executives	Data Analysts and Scientists	Data Entry Clerks
General and Operations Managers	AI and Machine Learning Specialists	Accounting, Bookkeeping and Payroll Clerks
Software and Applications Developers and Analysts	General and Operations Managers	Administrative and Executive Secretaries
	Big Data Specialists	Assembly and Factory Workers
Data Analysts and Scientists	Digital Transformation Specialists	Client Information and Customer Service Workers
Sales and Marketing Professionals	Sales and Marketing Professionals	
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	New Technology Specialists	Business Services and Administration Managers
	Organizational Development Specialists	**Accountants and Auditors**
		Material-Recording and Stock-Keeping Clerks

Stable Roles	New Roles	Redundant Roles
Human Resources Specialists	Software and Applications Developers and Analysts	General and Operations Managers
Financial and Investment Advisers	Information Technology Services	Postal Service Clerks
Database and Network Professionals	Process Automation Specialists	Financial Analysts
Supply Chain and Logistics Specialists	Innovation Professionals	Cashiers and Ticket Clerks
Risk Management Specialists	Information Security Analysts	Mechanics and Machinery Repairers
Information Security Analysts	Ecommerce and Social Media Specialists	Telemarketers
Management and Organization Analysts	User Experience and Human-Machine Interaction Designers	Electronics and Telecommunications Installers and Repairers
Electro technology Engineers	Training and Development Specialists	Bank Tellers and Related Clerks
Organizational Development Specialists	Robotics Specialists and Engineers	Car, Van and Motorcycle Drivers
Chemical Processing Plant Operators	People and Culture Specialists	Sales and Purchasing Agents and Brokers
University and Higher Education Teachers	Client Information and Customer Service Workers	Door-To-Door Sales Workers, News and Street Vendors, and Related Workers
Compliance Officers	Service and Solutions Designers	Statistical, Finance and Insurance Clerks
Energy and Petroleum Engineers	Digital Marketing and Strategy Specialists	Lawyers
Robotics Specialists and Engineers		
Petroleum and Natural Gas Refining Plant Operators		

Table 8: Examples of stable, new and redundant roles, source: Insight Report on The Future of Jobs Report 2018 by World Economic Forum

One of the key findings from the report is the trends in robotization. According to the report, the companies across all sectors are most likely to adopt stationary robots, compare with humanoid, aerial or underwater robots. However, the employers in the financial services industry are most likely to adopt the humanoid robots in the period up to 2022.

If we are to relate the key finding that is the trends in robotization in particular to the financial services industry, one need to ponder whether Shariah auditing in the IFIs would also need to be automated through the adoption of humanoid robots?

As there is already one Malaysia-based private wealth management firm Farringdon Group launched its Shariah-compliant robo advisor named Algebra in 2017, would there be any Shariah robo auditor too in the future? All in all, regardless it is a Shariah robo auditor or not, one need to preserve the Shariah principles and ensure that Shariah compliance is observe at all times. Upskilling and reskilling would definitely one of the main agenda regardless it is Shariah robo auditor or otherwise.

Conclusion

Shariah compliance is vital and the negative consequences will not only impact the financial but most importantly the effect is against the commands of Allah Subhanahu Wa Taala and impediment of Allah Subhanahu Wa Taala blessing.

From the analysis, it shows that there is already academic qualification in place in the area of Shariah auditing. In terms of professional certification, based on the research conducted so far, it clearly indicates that Malaysia has made an encouraging initiative in designing professional courses such as SAT and CPSA. This shows that recommendations made from the past studies has been put in place. These positive initiatives would definitely something that Brunei Darussalam need to work on in order to equip the Shariah auditors with the necessary professional and technical Shariah auditing skills. This is said so as having an academic qualification alone is not enough, it has to be blend with professional certification and experience as Shariah auditor is seen as a competent skill workforce. Thus, ensuring that these supply of Shariah audit graduate are able to perform an effective and efficient implementation of the Shariah audit so as to meet the objective in providing assurance to the IFI's compliance with the Shariah principles.

With regard to the future job of the Shariah auditor, although the Insight Report of The Future Jobs 2018 by the World Economic Forum Report consider that there will be a redundant and or reduction of human labour in the field of accountant and auditor in the year 2021, a

similar study should be also being conducted in order to find out what would be the effect to Shariah auditor profession. The findings made by the Report thus cannot be generalised in the context of Shariah auditing as auditing in the west may have differences with the Islamic auditing. A Shariah robo auditor thus may help in how auditing works but to decide whether it is Shariah compliant and what is not may be subjective which definitely require human intervention and judgmental decision.

Thus, a fieldwork type research is recommended by doing a survey or questionnaires to the relevant stakeholders to find out their thoughts on replacing a human Shariah auditor with a robo Shariah auditor. Future research may explore on the perception from other discipline such as banking, finance, management and Shariah courses to provide interesting result(s). A comparative study can also be conducted by doing the survey from other universities.

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PERCEPTIONS OF CORPORATE CUSTOMERS TOWARDS ISLAMIC BANKING IN BRUNEI DARUSSALAM

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Abstract: *The purpose of this research is to understand the perceptions of corporate customers towards Islamic banking in Brunei Darussalam. Additionally, the objectives of the study include on the awareness and usage of Islamic banking products and services as well as the ranking of Islamic banking selection criteria. The study presents primary data collected by self-administered questionnaires involving a sample of 55 private limited companies in the Brunei-Muara District selected using stratified random sampling. Descriptive statistics (frequency and cross tabulation) as well as comparing of means are employed for data analysis to provide answers to the research objectives and questions. This study reveals that it appears that there is a lack of understanding and awareness of Islamic banking. A further highlight from the study is the high rate of awareness of some Islamic banks' products and services but they are not being used by the companies. In the context of Islamic banking ranking criteria, to some extent, less weight is put on religious reason, rather factors such as fast and efficient service; friendliness of bank's staff; reliability of bank's staff; and reputation of the bank are ranked higher. The empirical evidence of this study has several practical implications; first, it implies for further understanding and knowledge of Islamic banking especially to the specific concepts and issues of Islamic banking, and the role of Islamic banking in relation to an Islamic economy. Second, in order to narrow the gap between the awareness and the usage, it appears that Islamic banks need to conduct vigorous marketing activities to attract the customers to use Islamic banking products and services. Third, Islamic banks should not take for granted by assuming that their customers are dealing with Islamic banks solely based on their religious grounds, rather they should also serve quality of services that can satisfy their customers. The originality of this study is that it reports findings from the first academic survey of corporate customers in the Brunei-Muara District in the area of Islamic banking and finance. This study will be of interest to both existing Islamic bank in the country as well as potential entrants into this niche market.*

Keywords: *Islamic banking, corporate customers, perceptions study, marketing, and Brunei Darussalam.*

Introduction

Islamic banking is an industry that has grown rapidly which becomes an increasingly important sector in the international financial market that offers various financial products and services. Islamic banking business is creating vast opportunities and generating strong demand not just from Muslim customers but also from non-Muslims customers. The popularity of Islamic banking is not restricted to pure Islamic banks only. This is evident when some of conventional banks are showing interest in Islamic banking by opening its Islamic windows.

The purpose of this study is to understand the perceptions of corporate customers towards Islamic banking in Brunei Darussalam. There has been extensive research, which focus on individual (retail) customers of banks. However, literatures show researchers have paid little attention to business (corporate) customers. In order to narrow down the gap of the literatures therefore, it is my motive to study on the corporate customers. Furthermore, this study is considered useful to Brunei Darussalam, which practiced dual banking system where Islamic banks have to compete with the long established conventional banks. Hence, it is imperative that a study on the perceptions of corporate customers towards Islamic banking is carried out. Other motivation factor is since the corporate customers are the key players in the economy, therefore the study on the perception of corporate customers towards Islamic banking products and services thus crucial to be conducted.

The remainder of the paper has been organized in the following way. Chapter 2 provides literature review. Research Methodology is discussed in chapter 3. The findings and analysis are explained in chapter 4, the conclusion is presented in the final chapter.

Literature Review

Perception is the act of discerning, realising, and becoming aware of through the senses. The customer perception is often identified by their level of satisfaction towards particular products or services. Customer satisfaction is usually measured in terms of service quality and service features offered by an institution.

An extensive writing on individual customers' (retail customers) attitudes, behaviour, and bank selection criteria of Islamic and conventional banking are already in place (Erol & El-Bdour, 1989; Erol *et al*., 1990; Sudin *et al*., 1994; Gerrard & Cunningham, 1997; Metawa & Almossawi, 1998; Asyraf & Nurdianawati, 2007) and many others. As comparison, the business customers (corporate customers) are under-researched be it Islamic and conventional banking and this could be due to neither the banks nor the corporate are not willing to disclose their banking relationships or simply the literature is not published (Tyler & Stanley, 1999 as well as Norafifah & Sudin, 2002).

To the knowledge of the researcher, at national level, the research on the perceptions of corporate customers towards Islamic banking is non-existent. Some studies have been done but it is not made public (non-academic) where it is done mostly on consultancy work (the banks employed the consultant to do research for them). It is hoped this research will be able to contribute something valuable preferably to the Islamic banks in order to understand the corporate customers' banking needs and further strengthen their marketing strategies. Furthermore, the study on corporate customers is important as they play an important role in the economic development of the country.

So far, the studies done on Islamic banking in Brunei Darussalam involves on analysis on the financial system and commercial banking in Brunei Darussalam (Dk. Krtini, 1989); an evaluation of Islamic banking in Brunei Darussalam (Mohd. Nizam, 1996); the design of an Islamic bond (Adinah, 1999); the dual banking system of Brunei Darussalam (Tan, 1999); customer service performance of Islamic banking as compared to conventional banking (Mohd, Hanafi, 2000); Islamic Financial Institutions in Brunei Darussalam: research on Bruneians' perceptions towards Islamic Bank of Brunei Berhad (IBB) (Damit, 2001), the impact of the role of financial institutions from 1997-2000 on the construction sector in Brunei Darussalam and their effects (Hong, 2001); and *Musharakah Mutanaqisah* (Diminishing *Musharakah*): a floating rate option for Islamic banking in Brunei Darussalam (Mohammad Sofean, 2003).

Despite the fewer amounts of corporate customers been studied, nevertheless, the researcher managed to collect some corporate customers' literatures that deemed relevant to

this study, whereby, there were similarities and differences among the studies as presented in the following paragraphs.

Conventionally, Turbull (1982) was among the pioneer researcher who studied medium and large-sized companies with European subsidiaries in the United Kingdom and revealed that reliability and assurance were the most significant factors in the bank selection process (as cited in Gait & Worthington, 2007). However, in Gait & Worthington (2007), they did not give the justification for the high demand on reliability and assurance.

A year later, Turnbull (1983) achieved different outcomes when the medium-sized companies are selected without European subsidiaries; the result revealed that size of the bank was an important factor in choosing the conventional bank (Turnbull, 1983 as cited in Norafifah & Sudin, 2002 as well as in Gait & Worthington, 2007). The size of the bank was an important factor because of the need for increasing credit by the medium-sized non-European subsidiaries unlike the European subsidiaries, which demanded more on reliability and assurance factors.

Turnbull & Gibbs (1989) conducted another research by using large and very large companies in South Africa and found that quality of service was the most significant factor (as cited in Norafifah & Sudin, 2002). Nonetheless, in Norafifah & Sudin (2002), they did not clearly specify the reason for the high demand of the service quality. The possible justification could be due to banking is a service-oriented industry and hence quality of service is perceived to be such an important factor.

Tyler & Stanley (1999) conducted a study on large companies in the United Kingdom and found that reliability, assurance, empathy, responsiveness and pro-activity are the significant elements in selecting the banks. Two of these important factors: reliability and assurance are similar with the earlier study made by Turnbull (1982).

Gerrard & Cunningham (2000) took a sample from the gazetted hotels in Singapore shown that the pricing of services and location were imperative factors in selecting banks. Thus, the findings from this study were different from the previous studies that had been mentioned. Hence, this shows that the specific types of business had particular attitudes towards conventional banks.

In contrast with the work done in conventional banking, to date very little work is being undertaken on the corporate customers' perception towards Islamic banking. The pioneer study was conducted by Edris & Almahmeed (1997) in Kuwait that targeted on business firms attitudes towards Islamic banking in a dual banking system. The study took 304 business customers of commercial, specialized and Islamic banks in Kuwait. The outcome from the study revealed that most of the Kuwaiti businesses (77%) preferred to deal with conventional banks as opposed to Islamic banks even though Islam being the dominate religion in Kuwait. However, there is no particular reason or explanation given by the authors on the strong support to bank with conventional banks. Other significant findings include: size of the bank assets ranked the most important factor, and the majority of firms (82%) are multiple bank users, which mean they avoid of being reliant on a single bank provider.

Norafifah & Sudin (2002) sampled 45 corporate customers in Malaysia, which comprise of financial directors, financial managers, general managers of finance, and accountants. The main findings from the study shown that more than 65% of the respondents indicated that their Islamic banking knowledge was limited. One qualifying factor could be that the majority of the respondents (77.7%) were non-Muslims. Nevertheless, the respondents in the study were aware of Islamic banks as an alternative to conventional banks. Another significant finding, the bulk of respondents (73.3%) claimed that cost and benefits were the most important factors in selecting the banks.

Generally, from the above review, the factors that considered important are reliability and assurance; size of bank assets, quality of service; pricing and location; and cost and benefits. It is important to highlight also, that limited knowledge in Islamic banking was observed as shown in the study conducted by Norafifah & Sudin (2002).

Research Methodology

In general, the target population in this study is the private limited companies registered in Brunei Darussalam. Consequently, the definition of corporate customers in this study is restricted to those labelled as private limited companies operating in the Brunei-Muara District only due to time constraint and the fact that the majority of businesses are located in the mentioned district.

The rationale for selecting private limited companies is because this company's type is required to fulfil the statutory requirements under Laws of Brunei (1984), Companies Act, Chapter 39. Some of the requirements, are to appoint auditors who are registered in Brunei Darussalam, to prepare final accounts (Profit and Loss Account, and Balance Sheet), and Annual Director's Report. Because of these legal requirements, it is assumed that the financial affairs of these companies are more administered than the other business types (sole proprietorship, and partnerships). This is important as the study is targeting the financial decision maker within the organisation as the target group/ respondent. The public company nevertheless is not selected since the number is very small.

The information related to corporate customer perception was gathered through a questionnaire. A structured questionnaire comprises of mainly close-ended questions with a few open-ended questions was conducted among the respondents. The questionnaire contained five sections. Section A captures the basic company and respondents' information. Section B comprises of 10 general statements pertaining to Islamic banking theory and practices that uses a five-point likert scale for responses. Some of the statements are obtained from previous studies such as Sudin et al., (1994); Norafifah & Sudin (2002); Asyraf & Nurdianawati (2006); and Asyraf (2007). Section C is designed to assess the familiarity of Islamic banking concepts using a three-point likert scale. Section D is designed for the customers of Islamic banks, where in this study, it is assume that Perbadanan TAIB is an Islamic bank not as its real definition being an Islamic trust fund. Section E lists 19 known factors and one unknown factor in selecting Islamic banks. The majority of these factors were adapted from previous studies such as Erol & El-Bdour (1989); Erol et al. (1990); Sudin, et al. (1994); Edris & Almahmeed (1997); and Norafifah & Sudin (2002) using a five-point likert scale.

Sample

The respondents participating in this research include the corporate customers of all banks in Brunei Darussalam, who hold responsible position in their organisation. A total of 55 questionnaires were distributed and the sample size is deemed sufficient which takes into consideration of time constraint. For Data Analysis, descriptive statistics (frequency and cross tabulation) as well as comparing of means are employed for data analysis to provide answers to the research objectives and questions.

Findings and Analysis

Profile of Respondents – company and respondents background

The first section of the questionnaire was designed to gather information about the company and respondents background. The profile of company and respondents in Table 1a and 1b summarise as follows:

The majority of respondents in this study are those company that has been established for more than 10 years; small-sized company; to some extent has a single bank relationship; with the bulk of respondents aged between 40-49; non-Muslims; well educated; hold various financial position with over half of them working in their current position for 1-5 years; and are in the position of taking part in decision-making of financial activities.

Table 1a: Company background: years in establishment, size, banking relationship

YEARS IN ESTABLISHMENT		Frequency	Valid Percent
Valid	1-5	7	12.7
	6-10	6	10.9
	More than 10	42	76.4
	Total	55	100.0
SIZE		Frequency	Valid Percent
Valid	Micro	6	10.9
	Small	35	63.6
	Medium	11	20.0
	Large	3	5.5
	Total	55	100.0
BANKING RELATIONSHIP		Frequency	Valid Percent
Valid	1	34	61.8
	2	9	16.4
	3	4	7.3
	More than 3	8	14.5
	Total	55	100.0

Table 1b: Respondents background: Age, religion, highest level of education, current position, years in current position

AGE		Frequency	Valid Percent
Valid	Less than 30	1	1.8
	30-39	17	30.9
	40-49	31	56.4
	50 and above	6	10.9
	Total	55	100.0
RELIGION		Frequency	Valid Percent
Valid	Muslim	8	14.5
	Non-Muslim	47	85.5
	Total	55	100.0
EDUCATION		Frequency	Valid Percent
Valid	Diploma	12	21.8
	Undergraduate	18	32.7
	Postgraduate	17	30.9
	Professional	5	9.1
	Others	3	5.5
	Total	55	100.0
CURRENT POSITION		Frequency	Valid Percent
Valid	Account executive	4	7.3
	Accountant	9	16.4
	Financial controller	11	20.0
	Financial manager	4	7.3
	General manager	26	49.1
	Total	55	100.0
YEARS IN CURRENT POSITION		Frequency	Valid Percent
Valid	Less than 1 year	2	3.6
	1-5	28	50.9
	6-10	14	25.5
	More than 10	11	20.0
	Total	55	100.0

Financial activities

No	Financial activities	1	2	3	4	5	Total
		Valid percent					
1	Opening a company account with a new bank.	5.5	18.2	14.5	41.8	20.0	100.0
2	Applying new financing facilities for the company.	10.9	14.5	14.5	43.6	16.5	100.0
3	Applying additional financing facilities for the company.	14.5	10.9	14.5	43.6	16.5	100.0
4	Terminating a relationship with the existing bank.	14.5	14.5	12.7	41.8	16.5	100.0

Note: 1 = no authority at all; 2 = recommendation with no influential power;

3 = recommendation with influential power; 4 = take part in decision making;

5 = authorised to make decision

Perceived understanding and awareness of Islamic Banking

The second part of analysis sought answer to the following objective/ question:

What is the corporate customers' perceived understanding and awareness of Islamic banking?

This is gauged in terms of their general knowledge of Islamic banking, their specific understanding of Islamic banking, their understanding on the role of Islamic banking and finance in the wider objectives of Islamic economy and their general perception of Islamic banking. The question also asks whether they are aware of various Islamic banking concepts.

In order to find out their perceived understanding and knowledge of Islamic banking and finance, the cross-sectional analysis of formal level of education is deemed appropriate. In other words, the responses are partitioned by formal level of education. This section is divided into two parts: understanding of Islamic banking and awareness of Islamic banking concepts.

Perceived understanding of Islamic Banking

This subsection looks at the fundamental principles and value of Islamic banking and the responses are based on their opinions of 10 Islamic banking statements as shown in the following Table.

Table 2: Comparing of means on Islamic banking statements in accordance to formal education level

No	Statements	Education level				
		DP	UG	PG	PF	OT
		Mean				
1	Islamic banking was established because Muslims are forbidden to associate with interest as practiced by conventional banking.	3.75	4.17	4.06	3.60	3.00
2	Islamic banks are for Muslims customers only.	2.08	2.33	1.94	1.20	2.33
3	Islamic banks are generally banned from dealing and financing in alcohol, pork, gambling and non-Islamic media.	3.83	4.39	4.06	4.00	3.33
4	The profit and loss sharing principles (*Mudarabah* and *Musharakah*) are the only principles that can substitute interest (*Riba)* in Islamic banking, as opposed to taking a loan.	3.42	3.00	3.12	3.00	4.33
5	Islamic banks focus much on short term financing using *Murabahah, Bai Bithaman Aajil (BBA),* and *Ijarah* to avoid credit risk.	3.50	2.94	3.29	3.00	4.33

No	Statements	Education level				
		DP	UG	PG	PF	OT
		Mean				
6	Lack of involvement in *Mudarabah* and *Musharakah* means that Islamic banks do not favour taking high credit risk.	3.17	2.89	3.12	3.00	4.33
7	Islamic banks must make profit maximization as their main goal in order to survive.	3.33	2.72	2.76	3.00	4.00
8	Aside from the prohibition of interest (*Riba)*, Islamic banking has other social accountability such as helping the poor.	3.83	3.39	3.35	3.80	3.00
9	Social well-being matters should be left to the government and other non-profit organizations, and not Islamic banks.	3.00	2.67	2.59	2.20	1.33
10	Islamic banking in Brunei is similar to conventional banking except for the name of the products.	3.25	2.83	2.94	3.20	3.67

Note: DP = Diploma; UG = Undergraduate; PG = Postgraduate; PF = Professional; OT = Others
1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree

As mentioned earlier that, the perceived understanding of Islamic banking is gauged using four dimensions and hence the 10 Islamic banking statements are grouped accordingly, which is presented in the following analysis.

a. General knowledge of Islamic banking

This part of analysis is based on **statements 1 and 3** as both statements test on the general knowledge of Islamic banking. As shown in Table 2, generally, the majority of respondents appear to have a general knowledge of Islamic banking as the means for statements 1 and 3 are in the range of 4.06 to 4.17 and 4.00 to 4.39 respectively, which indicate that they have answered correctly even though the majority are non-Muslims and non-Islamic bank customers. A slightly lower means observed in diplomas and others (from 3.00 to 3.83) could be attributed to low level of formal education as compared with undergraduates, postgraduates and professionals.

It is interesting to highlight that undergraduates have a slightly higher means than postgraduates and professionals. This is possibly due to 22% of undergraduates are Muslims and are customers of Islamic banks (22%).

b. Specific understanding of Islamic banking

This analysis is based on **statements 4, 5 and 6** as these statements require a relative depth and understanding of Islamic Banking. By referring to Table 2, the bulk of respondents are neutral, the means range from 3.00 to 3.50. Thus, this may imply there is a lack of understanding of more specific concepts in Islamic Banking and Finance that require further knowledge than that of general values as covered in the previous analysis. This is possibly because of the majority of respondents are non-Muslims and non-Islamic bank customers, hence they are not familiar or do not have the experience in dealing with Islamic banks. The higher means of 4.33

observed in others ('O' Level holders) is due to smaller proportion of this education level, and hence it cannot present a consensus.

c. Role of Islamic banking and finance in wider objectives of Islamic economy

The next analysis is based on **statements 7, 8 and 9** as these statements link to the understanding on the role of Islamic Banking and Finance in the wider objectives of an Islamic economy. The wider objectives mentioned in this study is that Islamic banks must not make profit maximization as their main goal; apart from prohibition of *riba*, Islamic banks have other social accountability such as helping the poor. Therefore, it is not true to say that the social well-being matters should be left to the government and other non-profit organizations, whereby Islamic banks must be concerned as well.

Based on Table 2, there are mixed findings noted, in statements 7 and 8, the majority of respondents are neutral, however, they appear to have an understanding on the role of Islamic banking to the society as depicted in the means score for statement 9. Nevertheless, this is still insufficient and thus require for additional knowledge in order to have a complete understanding of the role of Islamic banking in relation to the Islamic economy.

d. General perception of Islamic banking

This part is based on statements 2 and 10 as the statements seek for the general perception on the establishment of Islamic banking as well as the perception of Islamic banking in Brunei respectively. As shown in Table 2, the majority of respondents have a clear understanding that Islamic banking is not meant for Muslims only but for all religions. In other words, it is possible for the non-Muslims to choose Islamic bank so long it can satisfy their banking needs or bring competitive advantage to them. However, the bulk of respondents remain neutral on their perception of Islamic banking in Brunei, this is possibly due to lack of understanding, and the majority of respondents are non-Islamic bank customers. Nonetheless, it is imperative for customers to be guaranteed that in general, Islamic banks function in accordance to Islamic principles in order to boost the confidence level towards Islamic banks.

To summarise, the majority of respondents appear to have general knowledge of Islamic banking, but lack in specific understanding of Islamic banking. The majority of respondents also appear to have a partial understanding on the role of Islamic banking in the wider objectives of Islamic economy. They managed to have a clear understanding that Islamic banking is not for Muslims only, but when it comes to general perception of Islamic banking in Brunei, they remain neutral possibly because of the bulk of respondents are non-Islamic bank customers. Therefore, the finding observed in this section, imply for further understanding and knowledge of Islamic banking especially to the specific concepts and issues of Islamic banking, and the role of Islamic banking in relation to an Islamic economy.

Islamic banking concepts

This section focuses on the specific Islamic banking concepts and hence aims to assess their awareness on the various Islamic banking concepts. The assessment is based on the level of formal education as in the previous analysis.

Table 3: Comparing of means on Islamic banking concepts in accordance to formal education level

No	Islamic banking concepts	Education level				
		DP	UG	PG	PF	OT
		Mean				
1	*Wadiah* (safe keeping/ custody)	1.58	1.56	1.47	1.80	2.33
2	*Mudarabah* (profit sharing/ trust financing)	2.00	1.17	1.24	2.00	2.67
3	*Musharakah* (profit and loss sharing/ joint-venture)	1.83	1.06	1.18	1.20	2.00
4	*Bai Bithaman Aajil* (deferred payment sale)	1.58	1.22	1.29	1.00	2.33
5	*Ijarah* (leasing)	1.33	1.11	1.06	2.00	2.33
6	*Al-Ijarah Thumma Al-Bai* (finance lease)	1.33	1.00	1.12	2.00	2.67
7	*Murabahah* (cost-plus financing)	1.42	1.00	1.29	2.00	2.00
8	*Wakalah* (agency)	1.33	1.00	1.06	1.20	1.67
9	*Al-Kafalah* (guarantee)	1.42	1.06	1.06	1.80	2.33
10	*Ar-Rahnu* (Islamic pawning)	1.33	1.00	1.00	2.00	2.33
11	*Ujrah* (fee)	1.50	1.06	1.24	1.00	3.00
12	*Qard Al-Hasan* (benevolent loan)	1.33	1.00	1.00	1.80	1.67
13	*Bai Salam* (future delivery)	1.17	1.00	1.00	1.00	1.67
14	*Istisna* (contract to manufacture)	1.25	1.00	1.00	1.00	1.67
15	*Sarf* (currency exchange)	1.58	1.17	1.35	1.60	2.67
16	*Sukuk* (Islamic bond/ investment certificate)	1.75	1.11	1.24	2.00	2.33

Note: DP = Diploma; UG = Undergraduate; PG = Postgraduate; PF = Professional; OT = Others
1 = unfamiliar; 2 = somewhat familiar; 3 = familiar

As shown in Table 3, in general, almost all of the concepts are 'unfamiliar' to the respondents and this is not a surprise finding as the majority are non-Muslims and non-Islamic bank customers. This is similar with the study made by Norafifah & Sudin (2002) that claimed the respondents were unfamiliar with concepts like *Mudarabah*, BBA, *Ijarah*, *Istisna*, and *Bai Salam.* Although the relatively higher computed means are observed in, education level 'Others', however the proportion of this educational level in this study is small and hence the findings cannot be generalised.

The findings obtained in this section, certainly brings a serious implication to Islamic banks because a low level of awareness on Islamic banking concepts was observed. Even though Islamic banks use product concepts like BBA, *Ijarah* and *Murabahah* as their main product concepts but still the awareness is very low. Thus, this may imply that the customers may also be unable to understand Islamic products and services offered in the market. This is because the researcher is of the opinion that in order for one to decide in using the products and services, one must be aware of the concepts first only then one can appreciate the benefits as compared with the conventional banks' products and services. Otherwise, the customers will not be eager to support Islamic products and services if they do not know the difference.

Analysis on Islamic banking selection criteria.

This part of analysis aims to answer the following objective/ question:

What is the ranking of criteria, which influence the bank patronage decision of Islamic banks' corporate customers? Are there any significant differences among the company size in the ranking of the criteria?

The ranking of criteria is analysed using company size as follows:

The majority of Islamic banks' customers (69.2%) in this study are of small-sized, followed by large-sized (15.4%) and micro as well as medium-sized each has 7.7%. The following table 5 and figure 1 show computation of means and ranking of criteria:

Table 5: Ranking importance of selection factors among the company sizes

No	Factors	Company size							
		Micro		Small		Medium		Large	
		Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
1	Religious reason	3.00	2	2.56	11	4.00	2	2.00	4
2	Size of bank assets	5.00	1	3.56	8	4.00	2	1.50	5
3	Friendliness of bank's staff	3.00	2	4.11	3	5.00	1	4.50	1
4	Reputation of the bank	5.00	1	4.00	4	5.00	1	4.50	1
5	Reliability of bank's staff	3.00	2	4.22	2	5.00	1	4.50	1
6	Adequate information on products and services	3.00	2	4.00	4	5.00	1	4.50	1
7	Innovative products offered	3.00	2	3.67	7	4.00	2	4.00	2
8	Variety of products and services	3.00	2	3.67	7	4.00	2	3.50	3
9	Convenient location of the bank	3.00	2	4.22	2	4.00	2	4.00	2
10	Pricing of products and services	3.00	2	3.78	6	5.00	1	4.00	2
11	Favourable banking and financing policies	3.00	2	3.67	7	4.00	2	4.50	1
12	Effective advertisement and promotion	5.00	1	3.22	10	4.00	2	2.00	4
13	Economics factor (cost and benefit)	3.00	2	3.89	5	4.00	2	4.00	2
14	Local bank	5.00	1	3.56	8	4.00	2	4.00	2
15	Government-backed bank	5.00	1	3.56	8	4.00	2	4.00	2
16	Fast and efficient service	5.00	1	4.33	1	4.00	2	4.50	1
17	Competitive products offered	3.00	2	3.56	8	4.00	2	4.00	2
18	Low service charges on cheques	3.00	2	3.56	8	2.00	4	4.00	2
19	Overdraft privileges on current account	3.00	2	3.44	9	3.00	3	4.00	2

Note: 1 = not important at all; 2 = least important; 3 = moderately important; 4 = important; 5 = very important

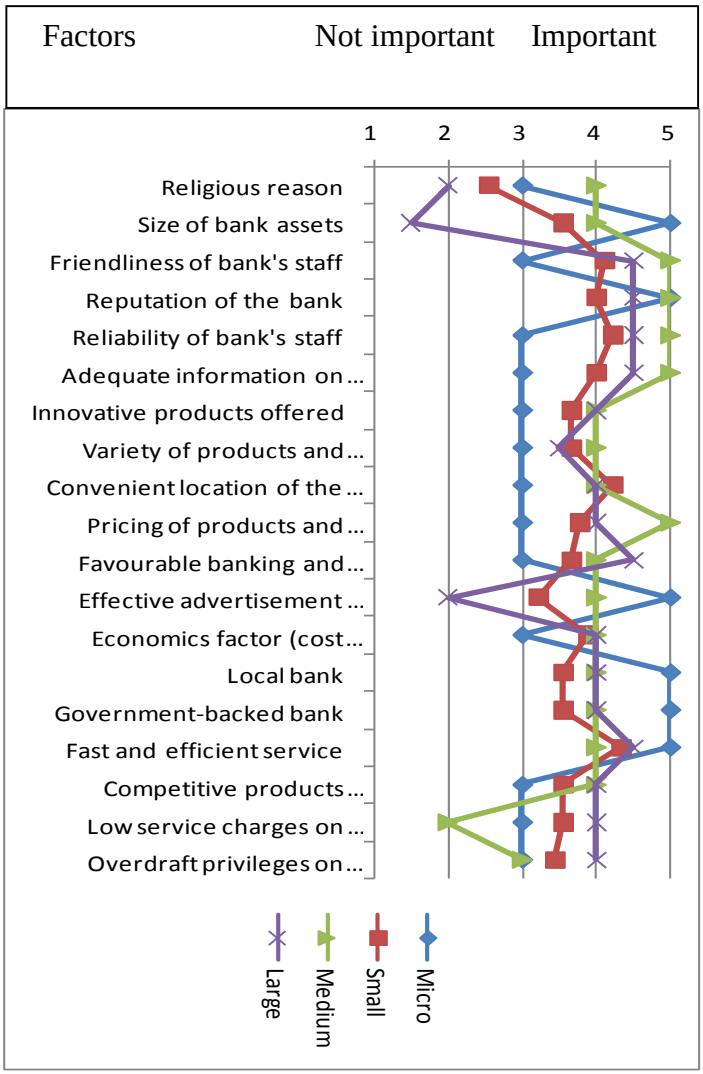

Figure 1: Means among the company size and selection criteria

Overall, there are no significant differences among the company size in the ranking of factors except for economic factor, size of bank assets as well as effective advertisement and promotion. The similarities observed are in terms of fast and efficient service; friendliness of bank's staff; reliability of bank's staff; and reputation of the bank where all the company sizes ranked these as highly important. To some extent, the justification for the demand in greater quality of service is possibly due to many companies heavily dependence on imports where there is a high level of awareness and usage in trade finance facilities. The processing of bank drafts and letters of credit must be fast and efficient since it involves other corresponding party/ bank. Another similarity, almost all company sizes ranked religious reason to be lower in their bank patronage decision.

Nevertheless, the difference is observed in terms of economics factor whereby the medium and large-sized companies tend to be more profit motivated than the micro and small-sized company. Other differences are in terms of size of bank assets as well as effective advertisement and promotion, where the large-sized companies ranked the factors to be lower while the micro, small and medium-sized ranked to be higher.

Overall, the majority of respondents in this study require further education and knowledge of Islamic banking as it appears there is lack of understanding and awareness of Islamic banking. However, there is still room for improvement and the researcher is optimistic that it can be improved through the collaboration from customers, Islamic bankers and other relevant organisations.

Conclusion

The research findings provide reasonable answers to the research objectives and questions. In this part, the main results in terms of the research questions are summarised.

A significant fact revealed by this study, it appears that there is a lack of understanding and awareness of Islamic banking. The majority of respondents appear to have a general knowledge of Islamic banking, but lack specific understanding of Islamic banking. In addition, they appear to have a partial understanding of the role of Islamic banking in relation to Islamic economy. In terms of specific Islamic banking concepts such as *Musharakah, Mudarabah,* and *Bai Salam* again, it appears that there is a lack of awareness in almost all of the concepts. One may argue it is possibly due to the majority of respondents are non-Muslims or the concepts are written in Arabic language which may impede in the understanding. The majority of respondents also remain neutral on their perception of Islamic banking in Brunei Darussalam. Therefore, this certainly requires further understanding and knowledge of Islamic banking.

A further highlight from the study is the high rate of awareness of some Islamic banks' products and services but they are not being used by the companies. Although this can be explained by the fact that the majority of respondents have an account with conventional banks, however, Islamic banks can persuade corporate customers to use Islamic products and services using promotional activities. Therefore, to some extent, the customers need to be reminded of Islamic banks' products/ services and assured of their quality and competitiveness.

In the context of Islamic banking ranking criteria, religious reason is ranked lowest, rather factors such as fast and efficient service; friendliness of bank's staff; reliability of bank's staff; and reputation of the bank are ranked higher. This may suggest that Islamic banks should not take for granted by assuming that their customers are dealing with Islamic banks solely based on their religious grounds, rather they should also serve quality of services that can satisfy their customers.

As an overall conclusion, certainly one of the great tasks ahead for Islamic banks in Brunei is the effort to increase the understanding and knowledge of Islamic banking of the customers. In other words, educating the customers is not an easy task to accomplish. The utmost importance is the collaboration between customers and Islamic bankers to further support Islamic banking in the country. The Islamic bankers must be well equipped with Islamic banking knowledge too so that customers feel more confidence to bank with Islamic banks.

Suggestions for future research

Future research may select the sample on a nationwide basis, i.e. across all the four districts. The fact that all respondents came from the same district may limit the general nature of the research findings. This is because, corporate customers from other districts possibly differ on their business value and culture. Furthermore, the large corporate customers such as Brunei Shell Petroleum (BSP), Brunei Liquefied Natural Gas (BLNG), and Brunei Shell Tankers (BST) are operating in the Belait District and hence, it is of interest to find out their perceived understanding towards Islamic banking be. There are also several questions that are not covered in the questionnaires that future research may consider. For example, the length of their

banking relationship with their financial institutions (which determine customer loyalty), reasons for banking with their chosen financial institutions, and degree of satisfaction towards the various Islamic bank products/ services. Finally, it is highly recommended for the sample size to be increased to provide a generalised set of results.

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SOCIO-TECHNOPRENEURSHIP: FREE LENDING BABY INCUBATOR AND PHOTOTHERAPY FOR ALL INDONESIAN BABIES

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Abstract: *Profit oriented entrepreneurship has already been carrying out all over the world. Emerging innovation does literally impact varied fields related to entrepreneurship. Environmental, social, technological, and so forth entrepreneurship are now rising. So is the one from collaboration with every respective field like Socio-Technopreneurship. The importance of this activity is to apply technology by giving a positive influence on the community's well being. Still, evident proof comes from the running activity: Free Lending Baby Incubator and Phototherapy, for Premature and Yellow Babies. And the aim is to truly help premature and yellow babies as well whose families have hardship in fund and access to the feasible facility in every region in Indonesia. Not only it promotes the health's well being; it also enables the gain in economical aspect to the micro and small medium enterprises (MSMEs). Rather, the fulfillment is being carried out by volunteer agents who are willing to be serving every premature yet yellow baby with "caring heart". To provide all the whole activity, information and technology are being implemented fully to advance the lending procedure. Not to mention additional fund yet operational support in which they came from generous people. Since 2012, around 2700 babies have been saved in 82 regions having been covered by the volunteer agents. There, three MSMEs have already been collaborating. And it has truly enabled them to find the order and have the income as well. Until February 2019, the fund has reached an amount of 650 million rupiahs to convert it into 200 units of the incubator. It truly proves that fulfilling the technology with proper use and well management can verily present the positive influence towards all the community as it simply solves health, social and economic issues too.*

Keywords: *Socio-Technopreneurship, Free Lending Baby Incubator, Infant Mortality Rate, Volunteer Agent, Caring Heart*

Introduction

Entrepreneurship is defined as the creation of new business enterprises by individuals or small groups, with the entrepreneur assuming the role of society's major agent of change, initiating the industrial progress that leads to wider cultural shifts (Kent, Sexton, & Vesper, 1982). It has already carried out over the world. Yet, the sense of being an entrepreneur is not being prevailed in Indonesia. During the last 10 years, MSMEs had a growth rate of no higher than 3% (Tambunan, 2019). From entrepreneurship, the influence already reaches any other field in which it can turn the work into profit. As an instance, ecopreneurship is an approach that has the focus not only in profit but also rather the impact for environment (Putri, Rahardjo, & Gravitiani, 2019). In Indonesia, the similar approach comes from a proof in which the work can recycle the waste, then convert it into saleable value (Nugroho, 2015).

In the social area, it is called as Sociopreneurship. The idea is not to gain for profit merely, but provide the service to the community. And the service involves the empowerment of the community to enhance its living (Rahmawati, 2017; Suyatna & Nurhasanah, 2017). Evidence came from tourism through Purba Nglanggeran Volcano Tourism Village (Aisyianita, 2017). By empowering the nearby community, the effort literally promoted its living and well being as well. The other instance is the empowerment for fishermen in order to enlarge their selling especially in sea fish ingredient (Surjanti & Nuswantara, 2016).

Technopreneur is an approach of entrepreneurship in which it merges the technology to save the time yet cost in effectiveness and efficiency too. For example, there is an approach to the fish's processing system that does enhance its production capacity (Anggraeni, Maarif, & Sukardi, 2019). Many educational institutions have also been running an entrepreneurial lecture (Hati, Hidayat, Kartikaningdiyah, & Gunawan, 2019). And digital based technology exists as well besides product based technology (Firdaus & Widyasastrena, 2017). Rather, digital surroundings' development is apparently connected to any work's performance.

Also, every emerging idea has arisen for years; collaborating at least two respective fields for instance eco-preneurship. The portable toilet has already become an exemplary of eco-preneurship itself. It was intended for regions which have few facilities for bathing, washing, and lavatory too; not to mention the gain is very meaningful to arouse the community's awareness of health (Riadi, 2011).

Unfortunately, only a few of collaboration in the field of technology in which it might give the impact, positive influence towards community; and there the socio-technopreneurship is. Similar attempts have occurred in Indonesia but halted in just concept and method (Anriani, Iskandar, & Widyaningsih, 2017; Hariadi, 2017; Syarifah & Purnamasari, 2013). There must be a way to convert technology into a meaningful yet gainful one for the community.

This activity began from community service in Universitas Indonesia that has already been running for 7 years (Raldi A Koestoer & Roihan, 2016). Indonesia currently fills the fifth ranking in premature babies' case around 675.000 babies with ratio 25-30 of 1000 births (Blencowe et al., 2012). In Sustainability Development Goals (SDG's) program, Indonesia wants to turn the ratio into 12 of 1000 births from 25 of 1000 (Indonesia, 2017). But the equality of infrastructure notably health center hasn't been prevailed yet in a lot of regions. So, there shall be an independent activity to promote the government's urge to its program.

The objective of this writing is to present the socio-technopreneurship that has rarely been doing before; truly providing the positive influence to economic and social circumstance on any community. There will inescapably promote the community's well-being. And with hopefulness, any similar approach will be emulated, and emerge from every respective field or at least through collaboration from two scholarly fields to solve issues in Indonesia.

Research Framework

Universitas Indonesia Incubator Team (UIIT)

Universitas Indonesia Incubator Team (UIIT) is a team that has the framework of varied respective fields such as mostly Engineering Faculty, Nursing Faculty, and Faculty of Medicine. The initiative to form the team came from the free lending of home incubator activity in 2012 as the service to society. Early and long ago, the activity provided the lending to home for the unprivileged families as its prime aim within the scope around Depok and Pasar Minggu. But a year after having it run, the evaluation needed to be carried out. So later, the team had to change the approach; notably in dimension, power consumption, and mobilization. There, UIIT also put the work in research and development for the incubator to enable the finest way for the product to be lended to babies' parents.

UIIT, supervised by the academicians in Mechanical Engineering Department, is very well-mindful about the way of manufacturing a product. No wonder, acquiring the core knowledge of heat transfer and product design, the UIIT can develop the incubator handily. The design is made by the team according to the evaluation's result. Then the production is going to be assigned to micro and small medium enterprises (MSMEs). Building a synergistic relationship with MSMEs does matter enormously in order to obtain a product with the finest quality. Besides, UIIT also has the role to run yet develop the incubator portable and phototherapy product (Raldi Artono Koestoer, Roihan, & Andrianto, 2019; Zaelani, Koestoer, Roihan, & Harinaldi, 2019).

Grashof Incubator and Phototherapy Portable

Grashof Incubator has the excellence to enable the portability and save energy as well as it is intended to be used for any unprivileged family from the very beginning. Rather, its usage is especially at home. Not to mention that it is being lended freely to all the community that has a premature baby. The theory behind natural convection was developed by German Scientist Franz Grashof in the 19th century, hence the name Grashof incubator used in honor of him. Here is the outline for Grashof Incubator described as following in Figure 1.

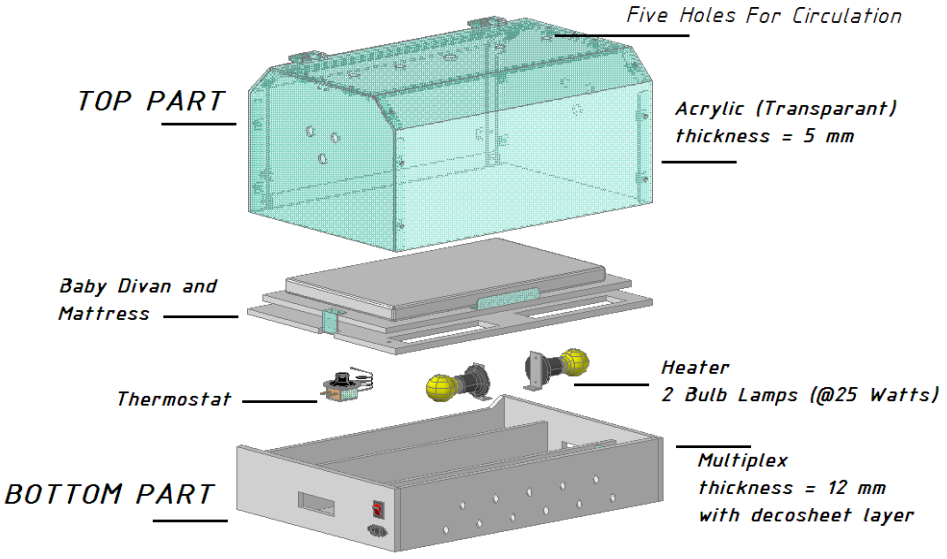

Figure 1: Grashof Incubator's Components
Source: (Private Document)

By using the working principle of heat transfer's radiation, also natural convection and circulation too from 2 light bulbs each has power 25 Watts. Electrical energy enters and heats the bulb. Afterward, the bulb heats the air in the chamber through natural radiation and convection. Thereafter, the air gets hotter and its temperature rises; but its density does contrarily decline. As a result, the air becomes lighter and its flow's direction apparently goes up through the tight grid near the bulb. The remaining space will be filled by the fresh air from outside that being heated again by the bulb. It is the way natural (air) circulation works: the air coming from below through the small circle lattice and going up through the grid, then filling yet warming the cabin before exiting through the cabin's upper part and its sides too. This called Buoyanci Force. The constant air circulation does fully enable the (cabin) temperature remain little lower than the (human) body one. Corresponding laminar flow occurs due to the lattices on the upper part which the air comes from.

More, UIIT also extends its avail through another product: phototherapy for yellow babies (jaundice). Because bilirubinemia's symptoms are literally connected to the infant cases, whether it is premature or normal. Both have the obvious aim in design and usage: to be used at home by the babies' parents and safely.

Volunteer Agents

Helping One Another is the leading key to this activity. Active volunteer agents are the ordinary ones who fully support the free lending of home incubator activity without any reluctance. They have the role to provide the partnership towards health officer and professional as well to turn it into a network with meaningful avail for the community. Yet, they are to accompany and come after the incubator to the parents' home; they need to provide the community with every information related to the activity. Further, they shall look for any premature baby's family in need of help, fill their life with positivity through the act of doing kindness.

UIIT has no intention to turn its product into profit. And for volunteer agents, there is an obligation not to sell the home incubator to anyone else. Another role is to cover the production cost for each unit: 4 million rupiahs (USD 285) for the portable incubator and 1 million rupiahs (USD 72) for phototherapy respectively (Raldi Artono Koestoer, 2015). The avail is that the UIIT only has to run the fund from coverage to perform the production fully and successfully. Even the team needn't spend more financial resource aggressively. And the control from UIIT does include equipment's existence, volunteer agents' availability, and the parents' location.

Accompanying and coming after the incubator is a notable role in the UIIT because it can truly give moral support to the babies' parents: the act of caring towards them. Also, maintenance is the other role that has to be carried out by the volunteer agents. The objective is to enable the parents to spend their time taking care of their babies more. Thus, the team always asks once every week for the babies' growth (weight); even building the positive synergy with baby’s mother too.

Incubator and Phototherapy's MSMEs

Since the portable incubator's perfection performed, UIIT has been aiming to offer the order and also produced to the MSMEs. The avail is to share the positive impact with them aside from parents' premature babies. Rather, the avail itself has been intending to give the income, the living to them by enabling them to have plenty of orders from the UIIT. And there will come economical gain for the MSMEs.

UIIT, with all its eligibility, has already enhanced the modeling computationally to acquire the validation in a simpler way. Thus, will simply cut the effort yet time estimation of

explaining the hoped for product with the MSME working men's proficiency. Six MSMEs have collaborated in this activity from 2013. But due to the economic fluctuation and consistency in production, only three remain. They all consist of wood and acrylic based material MSMEs, as the incubator's key materials are the multiplex and acrylic.

Here are the locations of all the remaining MSMEs as the followings: multiplex based material in Beji, Depok-Jawa Barat; CBU (Completely Build Up) acrylic hood in Kalimulya, Depok-Jawa Barat; CKD (Completely Knock Down) acrylic hood in Yogyakarta. Still, UIIT has the role to provide electrical yet supporting equipment. Every made up object (from the MSMEs) will be all sent to the UIIT's base in Depok. Then, the UIIT took another role again to do quality control and assembly all the emerging objects too. The gainful good is that the UIIT needn't seek for the larger workspace; also keeps the office clean. More, it does truly enhance efficiency yet productivity as well.

Information Technology (IT) Support

This "Free Lending Baby Incubator and Phototherapy" program has kept expanding its coverage to the whole of Indonesia, mainly in the regions which already have volunteer agents. Until February 2019, 82 volunteer agents have already been in 82 regions or regencies (each serves his / her own region or regency). To handle those all, there has to be an established method. And the support through IT apparently simplifies the method.

The obvious exemplary is lending's incoming demand. By using SMS gateway center, the focus can be put only to one number. This option operates with access through the Internet. Not just is the operation handy in both computer and smartphone (mobile Internet); but also does the conversation emerge in the more flowing way. Having 2 operators is more than enough, as every step is already set into settled format: from the first SMS that comes to the center, until giving the role to the volunteer agents.

Another evidence of IT Promotion came from the website. From long ago, the UIIT already intended to spread yet broaden all the information towards the community through the website. Later in 2016, there the Free Incubator's website (www.inkubator-gratis.org) was already made and it included all the information connected to the program: history; lending procedure; testimonies from users; sharing column; and so forth. The enhancement that came from social media: Facebook, Twitter, Instagram, and YouTube as well. It drastically cuts the cost to run the infrastructure.

Financial Offer

The financial offer often emerged through generous people. And the fund will later be used to enhance the incubator yet phototherapy unit. Because the team already has the practice not to let the spending become more than the income. The income mostly occurs from any opportunity to offer a proposal related to research and community service. Then, it enters the development and activity's operational, so the impact significantly extends not only to the product; but rather to the community's economic and social circumstances. Also, the financial offer came from the company's CSR.

Result and Discussion

Plenty of positive impact does literally emerge from the activity. As the core's approach, Socio-Technopreneurship, is already fitting with the activity's aim, the outcome from the well adjusted homemade product, will usefully impact the economical yet social state. Figure 2 depicts the closeness between a volunteer agent and the baby's family that already witnessed the impact of UIIT's free lending activity.

Figure 2: Volunteer Agent, Baby's Family, and Premature Baby in Portable Incubator
Source: (Private Document)

The broader the information connected to this activity escalates, the higher the request of being volunteer agents will come. Consequently, the UIIT has to provide more incubator units. Figure 3 represents the growth of incubator and phototherapy lending's demand having been processed in the SMS Center's database.

Figure 3: Growth of Incubator and Phototherapy Lending's Demand
Source: (UIIT SMS Center Database)

In 2012 and 2013, the team had not opted yet to use the SMS Center. So all the data was not recorded during those years. From year to year, the demand has highly been increasing.

Until February 2019, there have been 6900 demands for lending that have been logged in SMS Center, for incubator and phototherapy as well. Thus emphasizes the enhancement in production's capacity and also volunteer agents' networking.

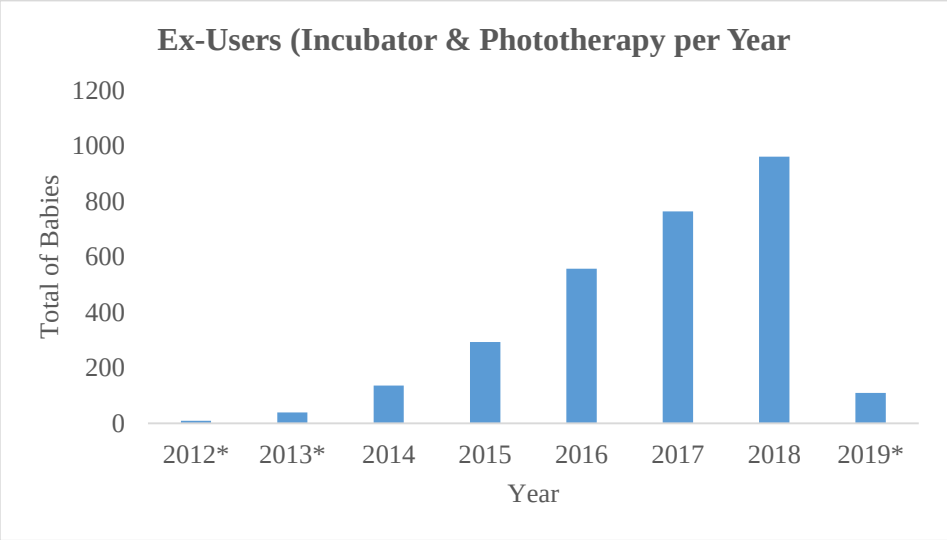

Figure 4: Growth of Incubator and Phototherapy Ex-Users (Babies)
Source: (UIIT SMS Center Database)

Figure 4 indicates the increase of incubator and phototherapy's use on the babies. From 2012 until February 2019, 2700 babies have already been helped through this program. There, the balance does exist through the enhancement in production's capacity and volunteer agents which has already countered the availability issue (as shown in Figure 5). However, the production hadn't begun in 2012 as the unit for the free lending was still the hospital incubator. In 2013, during the learning process and product's evaluation, the UIIT had already made five units, the home incubator ones.

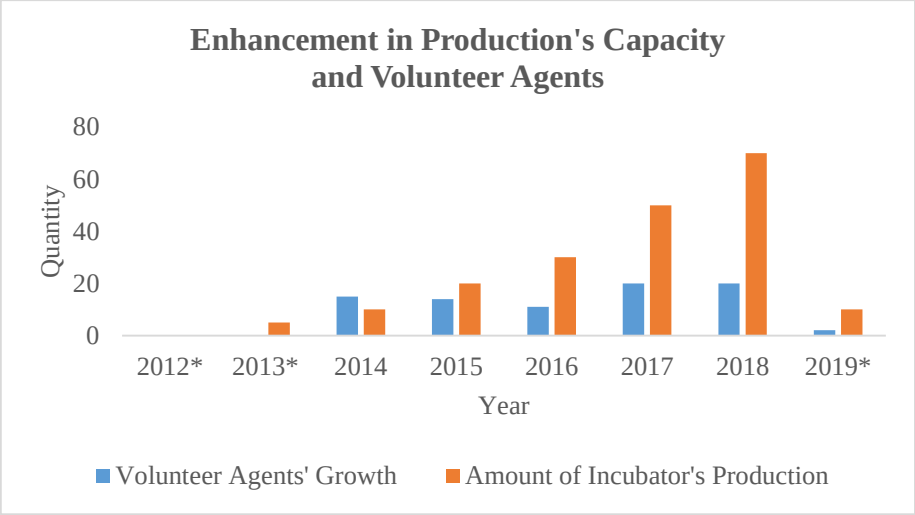

Figure 5: Enhancement in Production's Capacity and Volunteer Agents
Source: (UIIT SMS Center Database and Private Document)

The production's scheme is not intended to achieve plenty of amounts. Instead, the scheme prefers using another option: batch production. In 2015, there had already been a period in the MSMEs: 6 units every 3 months. The objective of determining every term (period) is to maintain the remaining MSMEs' quality. Due to the 2016 IT promotion's impact, the team enhanced the production by elevating its frequency to 6 units every 2 months. The frequency in the following year (2017) slightly increased to 8 units every 2 months. And nowadays, the production can rise to 10 units every month.

Even though the volunteer agents' networking has not fully improved, volunteer agents often asked to add the supply's quantity in their respective location. Until today, all 200 incubator and 70 phototherapy units have already reached 82 locations where each volunteer agent is. Any unit is always being used every 2 months because of the overcoming lending's demand. Usually, any premature baby needs to raise his/her weight only to 2.5 kg, use the unit around 1.5 months on average.

Often incoming order also promotes the MSMEs. According to Figure 6, until February 2019, the fund's flow just from this activity has apparently gained an amount of 650 million rupiahs. Besides economical avail to MSMEs, the activity itself offers a solution towards today's health and social issues through the foregoing babies and families too in encouragement. And by a technology based product with proper use and well management, the Socio-Technopreneurship shall run lively.

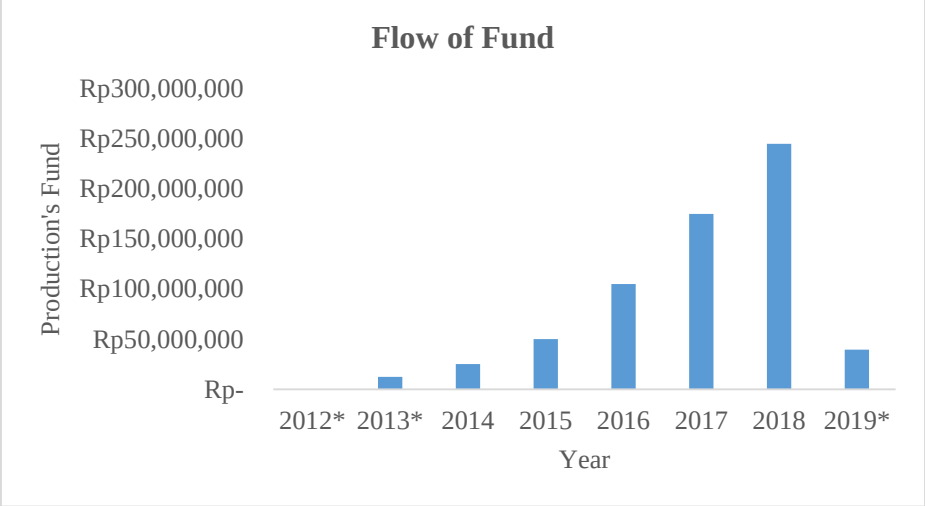

Figure 6: Flow of The Fund in The Activity
Source: (Private Document)

Proposal and donation from CSR have a very important role. UIIT is still continuing to develop other Neonatal Intensive Care Unit (NICU) equipment, mainly to help the unprivileged circle. Their support has become meaningful. Since 2012, UIIT has received the grant proposal yet community service's funding in the amount of 439 million rupiahs; not to mention company's CSR in the amount of 770 million rupiahs and one of them is Power China (CNC International, 2017).

Conclusion

The "Free Lending Baby Incubator and Phototherapy for All Indonesian Babies" activity has already become the practicing work of Socio-Technopreneurship. Baby Incubator is a product

based technology, notably in thermal engineering knowledge. The fulfillment has been running to help premature babies, give the true social impact to the community, and also improve the community's health. Not to mention the local production has given the economical avail towards MSMEs and the involved fellows as well. It is all the outcome, in which the team has proved that knowledge can present a positive influence by putting the effort properly. And the avail through Socio-Technopreneurship already has the exemplary over the community that being unprivileged (poor economically).

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EMPLOYEE'S PRODUCTIVITY: THE MOST DOMINANT FACTORS

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Abstract: *Employee is the most important element in the success of a company. In order to achieve the optimum productivity of goods or services, the underlying factors of employee's performance are very crucial to be identified. Employers should provide a conducive working environment to ensure that the employees can perform well and satisfactorily towards the success of the company. This paper therefore was conducted to determine the most influencing factor of employee's productivity. The aim is also to investigate the relationship between employee's productivity and three identified factors which are motivation, working environment and job satisfaction. Besides, the study also aims to examine the strategies to improve productivity of employees. The respondents were 80 staff of Elektro Serve (M) Sdn. Bhd. (ESMSB) which is based in Paka, Terengganu. In ensuring the stability of information generated, cross-sectional data was conducted using self-administered questionnaire. Correlation and regression analysis were conducted in analysing the data gathered. The finding shows that motivation is the most influencing factor of employee's productivity followed by job satisfaction. Thus, it can be concluded that motivation and job satisfaction contribute to the employee's productivity.*

Keywords: *Employee's Productivity, Motivation, Working Environment and Job Satisfaction*

Introduction

Today, most companies are not only focusing on generating income and profit, but also looking for quality management in handling and leading their employees. This is because excellent and satisfied employees will lead to high achievement and productivity of the company generally. Employees' productivity will not only generate internal satisfaction among them as individuals but also contribute a huge impact to the performance of the company.

However, lack of motivation and dissatisfaction related to working environment and the nature of the job will lead to negative impact to the company's performance. This issue will not only affect the employees' motivation but also give drastic impact to their productivity. Employees tend to create problems in the company such as coming late to work without giving any solid reason. It will affect the working hours and the flow of the company operation. It will not only tarnish the company image but also trigger bigger problems to happen.

The working environment in the company can indeed influence the employees' productivity. The physical environment like the design and layout of the workplace may give

good ambience to the employees. By being understanding, a manager can encourage a better production and create a more positive workplace. He plays a vital role to make the working environment comfortable so that employees have positive mind to stay working in the company. Thus, they will strive to be the best and deliver top-quality products and services.

Lack of job satisfaction will give negative effects to employees' productivity which contribute immensely to the failure of companies in achieving their goals. However, job satisfaction can be achieved by offering various motivating incentives to the employees which include job rotation, job enlargement and job enrichment. It is important to make sure that employees feel happy and satisfied with their daily work or task. If they are satisfied, they will produce a high-quality performance. Indeed, employees with high motivation who are satisfied with their working environment and job satisfaction tend to be more productive in performing their daily task.

Problem Statement/Research Questions

Based on various related issues identified, this study is designed to answer the following research questions.

i. What are the relationships between employee's productivity and motivation?
ii. What are the relationships between employee's productivity and working environment?
iii. What are the relationships between employee's productivity and job satisfaction?
iv. What are the strategies to improve employee's productivity?

Purposes of the Study

i. To determine the most influencing factor of employee's productivity.
ii. To determine the relationship between employee's productivity and motivation.
iii. To determine the relationship between employee's productivity and working environment.
iv. To determine the relationship between employee's productivity and job satisfaction.
v. To examine the strategies to improve productivity of employees.

Scope of the Study

The focus of this research is to study the factors that contribute to the employee's productivity. The elements investigated were motivation, working environment and job satisfaction. The data used for this research was collected by using questionnaires. This research was conducted at Elektro Serve (M) Sdn. Bhd. (ESMSB) which is in Paka, Terengganu, Malaysia. This study focuses on staffs of support departments and production which involves 5 different departments namely the Department of Human Resources Management & Admin, the Department of Finance and Accounts, the Department of Procurement, the Department of Contract and the

Department of Operations. Under the Department of Operations, there are sub-departments such as Health, Safety & Environment (HSE), Engineering and Production.

Literature Review

Employee's productivity

As the success of an organization relies mainly on the productivity of its employees, therefore, employee's productivity has become an important objective for businesses (Cato & Gordon, 2009; Gummesson, 1998; Sharma & Sharma, 2014). Previous studies has discussed the advantages of employee's productivity which would lead to overall organizational success.

According to Sharma and Sharma (2014), higher productivity not only contribute to the economic growth, higher profitability but also in the context of social progress. This alignment as a result would motivate and inspire employees to be more creative, and this ultimately can improve their performance effectiveness to accomplish organizational goals and objectives (Morales et al., 2001; Obdulio, 2014). Thus higher productivity may lead to cost reduction and also able to improve the quality of output.

Motivation

Motivation is important for the employees to acquire high self-esteem. When an employee has a good motivation, the productivity will be increased. Kuvaas et al., (2017), in their research agreed that most motivation researchers seemed to expect that both intrinsic and extrinsic motivation would have positive effects and that the two types of motivation could be combined. Porter and Lawler (1968), drawing on the expectancy theory of Vroom (1964), proposed that intrinsic and extrinsic motivation jointly and positively predicted work performance and employee well-being. In addition, intrinsic motivation was positively associated with enthusiasm and engagement (Van den Broeck, et al., 2013). Akintoye (2000) asserted that money remained the most significant motivational strategy. In 1911, Frederick Taylor and his scientific management associate described money as the most important factor in motivating the industrial workers to achieve greater productivity. Taylor supported the foundation of incentive wage systems as a means of stimulating workers to higher performance, commitment, and eventually satisfaction. Money possesses significant motivating power in as much as it symbolizes intangible goals like security, power, prestige, and the feeling of accomplishment and achievement.

Sinclair, et al. (2005) highlighted the motivational power of money through the process of job choice. Higher salaries and compensation benefits might seem the most likely ways to improve employee's skills (Leblebici, 2012). However, the quality of the physical workplace environment might also have a strong influence on a company's performance. Certain problems of inadequate motivation however did arise as they concerned certain individuals who came into the work situation with differences in expectation, behavior and outlook. Managers could stimulate motivation by giving relevant information on the consequences of their actions on others (Olajide, 2000). As employers or managers, they must ensure that their teams were well motivated by not only giving the employees a good job package but also words of encouragement. This could help them to move forward and boost their motivation. Innovative ways of motivating them spurred them even more. The management that dictated how, exactly, to maximize employee's productivity focused on two major areas: personal motivation and the infrastructure of the work environment. Employees were motivated and felt valued when they were given positive reinforcement and shown how their work contributes to the success of the company.

Working Environment

The employees need to work in a good environment to make sure high productivity is achieved. Organizational environment plays an important role for the employees. Working environment could impact immensely on employees' performance both negatively or positively (Chandrasekar, 2011). Office environment can be described as physical and behavioral components that can be divided into different independent variables. An organizational physical environment and its design and layout can affect employees' behavior in the workplace. In studying the impact of indoor environment, Roelofsen (2002) found that indoor environment had a great impact on job performance that can be increased from 5 to 15 percent.

Work place level also impacted on employees' stress as stated by Vischer (2006). A good working environment would lead the employees to improve their behavior and stress related emotions. Arokiasamy (2013) found that factors like compensation, rewards, job security and working environment increased the level of commitment and sense of belonging to the organization. Noah and Steve (2012) found that a working environment in an organization increased the level of job satisfaction that ultimately led to achievement of organization goals. The manager played a vital role to make the working environment comfortable for the employees to stay working in an organization. Yasin (2013) found that the productivity of employees would increase by keeping working conditions and working environment up to a certain threshold level.

Job Satisfaction

According to Miller and Monge (1986), job satisfaction increased productivity through bringing high quality motivation and increasing working capabilities at the time of implementation. A study of Judge and Watnabe (1993) suggested that job satisfaction and life satisfaction were positively and reciprocally related. Ostroff (1992) found that organizations with more satisfied employees tended to be more effective than organizations with dissatisfied employees. A research of Chandrasekar (2011) found a positive correlation between job satisfaction and organizational performance. Kuria (2011) highlighted that employees were mostly satisfied and highly productive when their job offerred them security from economic strain, recognition of their effort clean policy of grievances, opportunity to contribute ideas and suggestions, participation in decision making and managing the affairs, clean definitions of duties and responsibilities and opportunities for promotion, fringe benefits, sound payment structure, incentive plans and profit sharing activities, health and safety measures, social security, compensation, communication, communication system and finally, atmosphere of mutual trust respect.

Methodology

Theoretical Framework

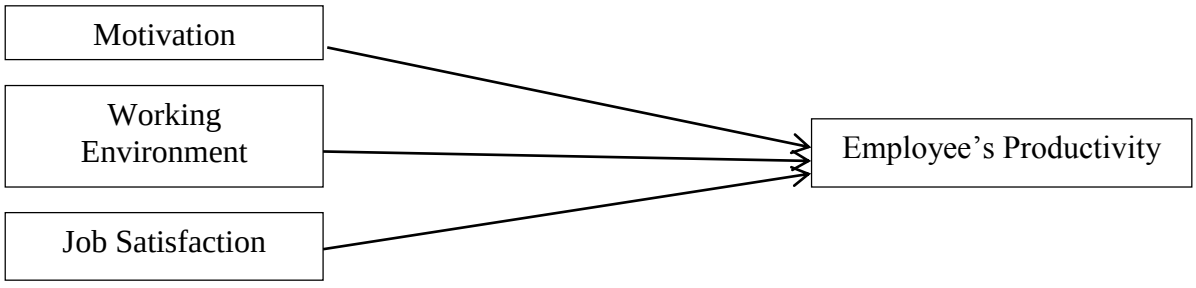

Figure 1: Theoretical Framework of the Study

Hypothesis Development

Based on the review of related literature, this study develops a few main hypotheses as listed below:

Hypothesis 1: Motivation

Ho: There is no relationship between motivation and employee's productivity.
H1: There is a positive relationship between motivation and employee's productivity.

Hypothesis 2: Working Environment

Ho: There is no relationship between working environment and employee's productivity.

H2: There is a negative relationship between working environment and employee's productivity.

Hypothesis 3: Job Satisfaction

Ho: There is no relationship between job satisfaction and employee's productivity.

H3: There is a positive relationship between job satisfaction and employee's productivity.

Sampling Design

Sampling is the procedure of deciding people and organizations from a population to be examined so that a researcher may fairly specify the results back to the population from which they were chosen. A sample is corresponding to a larger population and is used to draw a conclusion about that population. It is a research technique widely used in social science disciplines as a method to collect information about a population without having to measure the entire population. A wide range of methods in sampling techniques enable researchers to reduce the data collection needed. The data from subgroups will represent the data of each group investigated. This technique will help the researchers to reduce the time taken for the data collection. In this study, the researchers used probability techniques as the population was known in the organization. Stratified sampling method was used. According to Krejice and Morgan (1970), if the population size (N) is 100, the sample size is 80 respondents. From the sample size, the researchers used 80 employees as respondents which comprise 5 departments in the chosen company.

Finding and Analysis

Reliability Analysis

The reliability of the measurement is established by testing both consistency and stability. Cronbach' alpha is a reliability coefficient that indicates how well the items in the set are positively correlated with one another. It is computed in terms of the average intercorrelations among the items measuring the concept. The closer Cronbach' alpha to 1 indicates the higher the internal consistency reliability is. Table 1 shows the overview of Cronbach' alpha result of the reliability test of this research. In general, reliabilities less than 0.6 are poor, those in the 0.7 range are acceptable and those over 0.8 are considered good. The table shows that all variables have the results of more than 0.6. Therefore, the entire variables which are motivation, working environment and job satisfaction are reliable to the employee's productivity.

Table 1: Reliability Testing

Variables	Cronbach's Alpha
Motivation	0.856
Working Environment	0.834
Job Satisfaction	0.900
Productivity of Employee	0.851

Frequency Distribution

The distribution of sample is displayed in Table 2. From the analysis, it was discovered that male employees are the major participants in this study compared to female employees. From 80 respondents, 83.8% were male and 16.3% were female. The result of the study shows that the highest category of age who contributed 47.5% was those of 31-35 years old and followed by 36.3%, 11.3% and 5.0% that were contributed by those of 26-30 years old, 20-25 years old and 36 years old and above respectively. Most of the employees in this company are married that contributed 78.8%. 20.0% were single and only 1.3% were widowed. All respondents are Malays that contributed 100%. The Operation department which had the highest number of staff contributed 85.0% of the total respondents. The Departments of Contract and Human Resource and Administration contributed 6.3% and 3.8% respectively. The least number of respondents was from the Department of Finance and Procurement which contributed 2.5%. The result shows most of the staff that contributed 72.5% were technical staff. The respondents who participated in this survey have already been in the company for more than 6 years representing the biggest distribution at 46.3%. Meanwhile, those who have been in the company for 10 to 15 years contributed 22.5%. Those who have been working less than 5 years and more than 15 years contributed 20% and 11.3% of the total respondents in this research.

Table 2: Respondent's Profile

	Category	Frequency	Percent
Gender	Male	67	83.8
	Female	13	16.3
Age	20-25years	9	11.3
	26-30years	29	36.3
	31-35years	38	47.5
	36 Years and Above	4	5.0
Marital Status	Single	16	20.0
	Married	63	78.8
	Widowed	1	1.3
Race	Malay	80	100.0
Department	Human Resource &Admin	3	3.8
	Finance & Accounting	2	2.5
	Operations	68	85.0
	Procurement	2	2.5
	Contract	5	6.3
Position	Manager	3	3.8
	Executive	2	2.5
	Non-Executive	17	21.3
	Technical	58	72.5
Working Experience	1-5years	16	20.0
	6-10years	37	46.3
	10-15years	18	22.5
	More Than 15years	9	11.3

Mean Analysis

Table 3: Mean Value for the Measurement Constructs

	N	Minimum	Maximum	Mean	Std. Deviation
Productivity	80	2.57	4.71	3.8482	.44329
Motivation	80	2.67	5.00	3.8438	.46490
Working Environment	80	3.00	95.50	4.8729	10.27383
Job Satisfaction	80	2.50	5.00	3.6792	.51747
Valid N (Listwise)	80				

In measuring the central tendency, mean analysis was used. Based on this analysis, the result found that the maximum value of productivity is 4.71 and the minimum value is 2.57 with the mean 3.8482. Next, the maximum value of motivation is 5.00 and the minimum is 2.67 with the mean 3.8438. Working environment has the maximum value at 95.50 and the minimum is 3.00 with the mean is at 4.8729. Meanwhile, the maximum value of job satisfaction is 5.00 and the minimum value is 2.50 with the mean is at 3.6792. Standard deviation is used to measure the variability of the square root of variance providing an index of variability in the distribution score. The standard deviation for the variables of employee's productivity, motivation, working environment and job satisfaction are 0.44329, 0.46490, 10.27383 and 0.51747 respectively.

Correlation Analysis

Table 4: Coefficients of Variables

Model		Unstandardized Coefficients		Standardized Coeffiecients	t	Sig.
		B	Std.Error	Beta		
1	**(Constant)**	0.975	0.330		2.957	0.004
	Motivation	0.607	0.082	0.637	7.432	0.000
	Working Environment	-0.002	0.003	-0.043	-0.537	0.593
	Job Satisfaction	0.149	0.073	0.174	2.036	0.045

Table 4 shows the three most influencing independent variables towards the various level of employee's productivity. As motivation increases by one standard deviation, employee's productivity increases by 0.607 of a standard deviation. Working environment shows the standardized coefficients is at -0.002, which means every unit increase in working environment is -0.002 unit decrease in employee's productivity. For job satisfaction which increases by one standard deviation, employee's productivity increases by 0.149 of standard deviation.

The highest number in beta column under standardized coefficients, 0.637 shows that motivation which is the most influencing factor of employee's productivity. This is followed by job satisfaction with beta value 0.174 and working environment with beta value -0.043.

Table 5: Correlation Analysis

Variable	Motivation	Working Environment	Job Satisfaction	Productivity	Mean	Std. Deviation
Motivation	1				3.8438	0.46490
Working Environment	-0.063	1			4.8729	10.27383
Job Satisfaction	0.379**	0.000	1		3.6792	0.51747
Productivity	0.705**	-0.083	0.416**	1	3.8482	0.44329

Table 5 shows the correlation analysis to test the relationship, direction and the strength of association between variables to elaborate more on inter-relation between those variables. Only two variables that are motivation and job satisfaction have positive correlations with employee's productivity. On the contrary, working environment has negative correlation with employee's productivity. Table 6 shows the degree of the relationships of the variables. The tolerance value more than 0.1 means that there are no duplications for each variable as there was no confusion between variables.

Table 6: Correlation Strength Based on Guilford's Law

R	Strength of relationship
<0.20	Almost negligible relationship
0.20-0.40	Low correlation; definite but small relationship
0.40-0.70	Moderate correlation; substantial relationship
0.70-0.90	High correlation; marked relationship
>0.90	Very high correlation; very dependable relationship

Table 6 shows the correlation analysis and the strength of association between variables. It is used to trace the mutual influence of variables on one another. The result shows that motivation has a high correlation (p=0.705) which is definite but marks relationship with employee's productivity. However, it has a significant relationship at the 0.01 level. Meanwhile the result has shown that there is an insignificant negative relationship correlation (p= - 0.083). The result is not significant because it is below 0.01. Working environment is not related to employee's productivity because some of the employees were not affected with the working environment. They often went outstation and were not interested in working environment. The nature of business industry also influences the working environment because the staff that handle clients always have different clients and different services.

Regression Analysis

Multi-regression is an extension of bivariate correlation. Regression analysis is used to measure how many percentages of dependent variables can be explained by independent variables. It represents the best prediction of dependent variables from independent variables.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.725[a]	.525	.506	.31152

a. Predictors: (Constant), JOB SATISFACTION, WORKING ENVIRONMENT, MOTIVATION
b. Dependent Variable: PRODUCTIVITY

Based on the table of model summary, it shows a standard multi regression analysis which was conducted to evaluate motivation, working environment and job satisfaction. The multi correlation coefficient was at 0.725. The three independent variables which are motivation, working environment and job satisfaction explained 51 percent of the variance in competitive performance. This is indicated by the value of adjusted R square, while another 49 percent of employee's productivity was not explained by the variables.

R-Square is the proportion of variance in the dependent variable (employee's productivity) which can be predicted from the independent variables (motivation, working environment and job satisfaction). It indicates that 52.5% of the variance in employee's productivity can be predicted from the variables of motivation, working environment and job satisfaction. The remaining 47.5% of the model can be explained by other factors. R-Square is also called the coefficient of determination. The R value in the table is the multiple correlation coefficients between all predictor variables and the dependent variable. In this model, the value 72.5%, indicates that there is a deal of variance shared by the independent variables and the dependent variable.

Conclusion

It can be concluded that not all of the objectives of the study can be achieved. However, the main objective of the study which is to determine the most influencing factor in employee's productivity is achieved. The finding shows that motivation is the most influencing factor of employee's productivity followed by job satisfaction.

The second objective is to determine the relationship between employee's productivity and motivation. The study shows that motivation is an important factor that can affect employee's productivity. A motivated work force is necessary in the execution of strategies to achieve the organization goals. The employees in the company agreed that motivation, including reward and power might influence their productivity. They would perform well with the increase of their motivation level. Therefore, Hypothesis number 1 is accepted.

The third objective of this research is to determine the relationship between employee's productivity and working environment. This research shows that there is no relationship between working environment and employee's productivity. This is due to the reason that most of the employees agree that working condition is not the influencing factor that may contribute to their productivity. It is because most of the employees in the company are technical staff from operation department who work remotely from multiple locations. Therefore, they believe that it is not a major contributor. Thus, hypothesis number 2 is not accepted.

The next objective is to determine the relationship between employee's productivity and job satisfaction. The result found that most of the employees were satisfied with all systems provided by the company. They were also satisfied with the information they received from the management. The more satisfied workers with their jobs, the better the company is likely to perform to the optimum profitability and productivity. It will produce the output that may satisfy the clients and the company. Thus, hypothesis number 3 is accepted.

This research also examines strategies to improve productivity of the employees which are explained in recommendation section.

Recommendation

The result shows that working environment has a negative relationship with employee's productivity. Employers should create a safer working area to their employees to prevent injuries and ensure efficient job is achieved. Working environment that is equipped well will provide a better and positive atmosphere for the employees. They will feel calm in performing their tasks. Good working environment is essential in improving the company performance, productivity and goal achievement. Enhancing the work environment can allow the employees to attach more to the task, promote a sense of satisfaction and pleasure while improving their productivity.

One of the most vital elements in increasing employees' productivity is by enhancing a good communication among them. For instance, a clear work instruction to the employees can increase their motivation. The employer should deliver a clear explanation about the task including what the employees need to do to complete the task successfully. Therefore, the worker will do a good job because of the clear information received from the management. Employer should create a good communication channel with all employees. Two-way communication is very essential to make the information well delivered. Appreciating the ideas and listening to the employees' suggestions before making a decision will acknowledge them as part of the team. Meanwhile, the company or management should create a positive and strong relationship with all employees and guide them towards task fulfilment.

Appreciation is also one of the influential factors needed by employees. When the employer appreciates their employees through recognition, they will be more motivated to perform and improve their task. As their work is valued, it will lead to productivity rise. Employees can best be motivated by giving incentives and rewards. More importantly the good work they do in the organization are appreciated and recognized.

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COMPARING THE PERFORMANCE OF ARDL AND VECM ESTIMATION METHODS FOR THE PURPOSE OF FORECASTING MONEY DEMAND IN THE MEMBER STATES OF THE SHANGHAI COOPERATION ORGANISATION (SCO) WITH THE INCLUSION OF FINANCIAL INNOVATION

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Abstract: *In this paper we applied two different estimation methods, namely ARDL and VECM to estimate real demand for money in the member states of the Shanghai Cooperation Organisation (SCO) with the inclusion of financial innovations using panel data (all in real term) during 2004-2017. We use a conventional money demand function that was enriched with a proxy for financial innovation proxied by the number of automated teller machines (ATMs). The study found one cointegrated long run relationship among the logarithmic forms of Broad Money (M2), gross domestic product (GDP), interest rate and ATMs which paved the way for applying ARDL and VECM. The results indicate that for ARDL estimation, static forecasting outperforms dynamic forecasting while for VECM estimation, dynamic forecasting is slightly superior to static forecasting. Comparison of these two methods shows that forecasting power of VECM is higher than that of ARDL meaning that estimation based on VECM provides more accurate forecast with regards to both dynamic forecasting and static forecasting.*

Keywords: *Shanghai Cooperation Organisation, financial Innovations, Money Demand, Dynamic Forecast, Static Forecast, VECM, ARDL.*

Introduction

Several empirical studies have included financial innovation in the money demand specification due to the growth in financial innovation over the last few years. A money demand function that does not include financial innovation will face the misspecification of the money demand through over estimation, commonly referred to as "missing money" (Arrau and De Gregorio, 1991). Some of the issues such as autocorrelated errors, persistent over prediction and implausible parameter estimates can be solved by including financial innovation in the money demand specification which is all backed by empirical evidence (Arrau et al, 1995). Furthermore, the failure of cointegration of the money demand could be explained by non-

stationary processes such as financial innovation, so that accounting for financial innovation will eliminate the periods of "missing money" (Arrau and De Gregorio, 1991). Arrau and De Gregorio (1993), Ireland (1995), Attanasio et al (2002), Alvarez and Lippi (2009) and Nagayasu (2012) are examples of the studies that have accounted for financial innovation in the money demand specification.

Central bankers have a strong interest in forecasting (including demand for money) simply because the monetary policy transmission mechanism involve substantial time lags and as a consequence, they cannot influence current inflation and output. It justifies the fact that monetary policy should be forward-looking to make them effective and efficient in the monetary policy decision-making process and fulfilling their objectives.

The objectives of the current paper is to estimate the demand for money in the presence of financial innovations (namely ATM) using panel data from the countries covered by "The Shanghai Cooperation Organisation (China, India, Kazakhstan, Kyrgyz Republic, Pakistan, Russian Federation and Tajikistan)" for the period 204 to 2017. Uzbekistan was not included in the study as the data for money demand for this country was not available. We shall use ARDL and VECM methods to estimate the model for the period 2004 to 2014. Then, we do static and dynamic forecasts for the period 2015-2017 based on these two methods and finally, we compare these two forecast to find out which of them outperform the other.

Plan of the paper is to provide a review of literature in section 2. Theoretical background and measurement of variables is mentioned in section 3. Results and discussion of results are reported in section 4. Lastly section 5 is reserved for the main conclusions.

Literature Review

There are few studies aiming at forecasting money demand based on a particular estimation method. However, there are practically no empirical works for the purpose of forecasting that includes financial innovation in the model for a more accurate and realistic results. The most recent of these studies include Anderson-Reid (2008) who estimated the effect of the non-cash means of payment (debit and credit cards in particular) on the demand for currency in Jamaica by applying the error correction method.

The performance of this ECM model was compared to that of a short-run model and a univariate Autoregressive Integrated Moving Average (ARIMA) model to analyse the power and ability of the model for forecasting purpose. ECM model included currency in circulation, consumer goods imports, the consumer price index (CPI), the 3-month Treasury bill rate and the exchange rate. ATM volume, EFTPOS volume and the number of debit cards and credit cards were also included. The model was of the logharithm functional form that included M (currency in circulation), P (the price level), NOND (consumer goods imports) and TBlL (the interest rate on 3-month Treasury bill). ATM volume, EFTPOS volume and the number of debit and credit cards in circulation are denoted by ATMV, POSV and Card, respectively. All of the variables are in logarithms except for the interest rate variable that is in levels. Consequently, estimates of the coefficients are actually the elasticity as the model is in log functional form.

Methodology

Specification

Specification: An ARDL is a least squares regression containing lags of the dependent and explanatory variables. ARDLs are usually denoted with the notation ARDL $(p, q_1, \dots, q_k)$,

where p is the number of lags of the dependent variable, q_1 is the number of lags of the first explanatory variable, and q_k is the number of lags of the kth explanatory variable.

An ARDL model may be written as:

$$y_t = \alpha + \sum_{i=1}^{p} \gamma_i y_{t-i} + \sum_{j=1}^{k} \sum_{i=0}^{q_j} X'_{j,t-i} \beta_{j,i} + \epsilon_i \quad (1)$$

Some of the explanatory variables, x_j , may have no lagged terms in the model (q_j=0). These variables are called static or fixed regressors. Explanatory variables with at least one lagged term are called dynamic regressors.

To specify an ARDL model, you must determine how many lags of each variable should be included (i.e. specify p and $q_1, \ldots, q_k$). Fortunately, simple model selection procedures are available for determining these lag lengths. Since an ARDL model can be estimated via least squares regression, standard Akaike, Schwarz and Hannan-Quinn information criteria may be used for model selection. Alternatively, one could employ the adjusted R^2 from the various least squares regressions.

Forecast Evaluation

When constructing a forecast of future values of a variable, economic decision makers often have access to different forecasts; perhaps from different models they have created themselves or from forecasts obtained from external sources. When faced with competing forecasts of a single variable, it can be difficult to decide which single or composite forecast is "best". Fortunately, there are some tools for evaluating the quality of a forecast which can help one determine which single forecast to use, or whether constructing a composite forecast by averaging would be more appropriate.

Evaluation of the quality of a forecast requires comparing the forecast values to actual values of the target value over a forecast period. A standard procedure is to set aside some history of actual data for use as a comparison sample in which one will compare of the true and forecasted values. It is possible to use the comparison sample to: (1) construct a forecast evaluation statistic to provide a measure of forecast accuracy, and (2) perform Combination testing to determine whether a composite average of forecasts outperforms single forecasts.

There are four different measures of forecast accuracy; RMSE (Root Mean Squared Error), MAE (Mean Absolute Error), MAPE (Mean Absolute Percentage Error), and the Theil Inequality Coefficient. These statistics all provide a measure of the distance of the true from the forecasted values. Suppose the forecast sample is j = T+1, T+2,…, T+h, and denote the actual and forecasted value in period t as $\mathcal{y}_t$ and y_t, respectively (Eviews help). The forecast evaluation measures are defined as table below.

Table 1: The Forecast Evaluation Measures

Measure	Statistics
Root Mean Squared Error	$\sqrt{\sum_{t=T+1}^{T+h} (\mathcal{y}_t - y_t)^2 / h}$
Mean Absolute Error	$\sum_{t=T+1}^{T+h} \lvert \mathcal{y}_t - y_t \rvert / h$
Mean Absolute Percentage Error	$100 \sum_{t=T+1}^{T+h} \left\lvert \frac{\mathcal{y}_t - y_t}{y_t} \right\rvert / h$
Theil Inequality Coefficient	$\frac{\sqrt{\sum_{t=T+1}^{T+h} (\mathcal{y}_t - y_t)^2 / h}}{\sqrt{\sum_{t=T+1}^{T+h} (\mathcal{y}_t)^2 / h} + \sqrt{\sum_{t=T+1}^{T+h} (y_t)^2 / h}}$

Empirical Model

The general form of the theory of money demand can be represented as below:

$$\frac{M_t}{P_t} = \Phi(R_t, Y_t) \quad (2)$$

where M_t is the demand of nominal money balances, P_t is the price index that is used to convert nominal balances to real balances, Y_t is the scale variable relating to activity in the real sector of the economy (here, GDP as the best proxy for such a variable), and R_t is the opportunity cost of holding money (here, the interest rate or IR as the best proxy). We start the empirical estimation of money demand functions with introducing the long-run, log linear function that is of the form

$$\text{Log}\left(\frac{MD_t^*}{P_t}\right) = \alpha + \beta_1 \log GDP_t + \beta_2 IR_t + \varepsilon_t \quad (3)$$

Desired stock of nominal money is denoted by MD^*, P is the price index that we use to convert nominal balances to real balances, GDP is the scale variable, and IR is the opportunity cost variable. The conventional money demand $M^d = (Y_t, R_t)$ is misspecified and leads to the bias that gets into the estimated coefficients. Therefore, it has to be enriched with proxy for financial innovation (ATM) so that it can be represented implicitly as $M^d = (Y_t, R_t, r^*)$, (Serletis, 2007) that is:

$$\text{Log}\left(\frac{MD_t^*}{P_t}\right) = \alpha + \beta_1 \log GDP_t + \beta_2 IR_t + \beta_3 ATM_t + \varepsilon_t \quad (4)$$

Automated teller machines (per 100,000 adults) are computerized telecommunications devices that provide clients of a financial institution with access to financial transactions in a public place.

PPP GDP (constant 2011 international $) is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2011 international dollars.

Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. The terms and conditions attached to lending rates differ by country, however, limiting their comparability.

Broad money (constant 2011 international $) is the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveler's checks; and other securities such as certificates of deposit and commercial paper.

Estimation Results

Before proceeding to estimate the model using VECM, we need to make sure that variables are not stationary at level but they become stationary after first-differencing. The requirement for ARDL, however, is that no variable is integrated of order 2 or I(2) meaning that all of the

variables should be stationary either at level or at first-differenced. Therefore, we need to apply panel data unit root tests.

Table 2(a): Augmented Dickey-Fuller Test Statistic for LMD

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	3.80555	0.9999	7	86
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	0.94108	1.0000	7	86
PP - Fisher Chi-square	0.80337	1.0000	7	91

Table 2(b): Augmented Dickey-Fuller Test Statistic for DLMD

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-8.48231	0.0000	7	82
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	76.1555	0.0000	7	82
PP - Fisher Chi-square	77.8119	0.0000	7	84

The Augmented Dickey-Fuller test is conducted for the rest of the variables in the same way. Here, we provide one of the most popular cointegration tests which is Kao test. This test is based on Engle-Granger (1987) two-step resudual-based) cointegration tests.

Table 3: Kao Residual Cointegration Test

	t-Statistic	Prob.
ADF	-3.188787	0.0007
Residual variance	0.009801	
HAC variance	0.004540	

Table 3 indicates that we can reject the null hypothesis of no cointegration meaning that the variables are cointegrated. Next, we estimate the model using ARDL method.

Table 4: ARDL Model Estimate

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Run Equation				
LGDP	0.111474	0.000321	347.2232	0.0000
IR	-0.000838	0.000295	-2.841343	0.0071
LATM	0.009821	0.004451	2.206677	0.0333
Short Run Equation				
COINTEQ01	-0.549393	0.374220	-1.468101	0.1501
D(LMD(-1))	0.266260	0.207854	1.280996	0.2078
D(LGDP)	2.401982	2.258868	1.063356	0.2942
D(IR)	-0.216252	0.207913	-1.040106	0.3047
D(LATM)	-0.158274	0.208342	-0.759683	0.4520
Mean dependent var	0.032970	S.D. dependent var		0.102691
S.E. of regression	1.182736	Akaike info criterion		-2.440989
Sum squared resid	54.55572	Schwarz criterion		-1.284306
Log likelihood	131.9781	Hannan-Quinn criter.		-1.978326

ARDL (2, 1, 1, 1) is chosen as selected model (based on Akaike info criterion) meaning that the best ARDL model is fitted using 2 lags of dependent variable along with I lag of the independent variables. In doing so, data from 2004 to 2014 was used for estimation so that we can use the estimation result for forecasting dependent variable for the period 2015-2017. Although ATM in this model has a significant and positive impact on the demand for money, it is not our concern and we only aim at forecasting money demand in the presence of financial innovation.

There are four different measures of forecast accuracy; RMSE (Root Mean Squared Error), MAE (Mean Absolute Error), MAPE (Mean Absolute Percentage Error), and the Theil Inequality Coefficient. These statistics provide a measure of the distance of the true from the forecasted values.

Root Mean Square Error (RMSE) is the standard deviation of the residuals (prediction errors). Residuals are a measure of how far from the regression line data points are; RMSE is a measure of how spread out these residuals are. In other words, it tells you how concentrated the data is around the line of best fit. Root mean square error is commonly used in forecasting, and regression analysis to verify experimental results.

Mean absolute error (MAE) is a measure of difference between two continuous variables. Assume X and Y are variables of paired observations that express the same phenomenon. As the name suggests, the mean absolute error is an average of the absolute errors $|e_i| = |y_i - x_i|$ where y_i is the prediction and x_i the true value.

The mean absolute percentage error (MAPE), also known as mean absolute percentage deviation (MAPD), is a measure of prediction accuracy of a forecasting method in statistics, for example in trend estimation. It usually expresses accuracy as a percentage.

Theil inequality coefficient measures the accuracy of a set of predictions generated from the model.

Table 5 shows dynamic and static forecasts for 3 years (2015 – 2017) based on ARDL estimation technique for the sample period 2004 – 2014.

Table 5: Dynamic Forecast vs Static Forecast for ARDL Estimation

Forecast measures	Dynamic forecast	Static forecast
Root Mean Squared Error	3.5350	1.6092
Mean Absolute Error	1.5741	0.7302
Mean Absolute Percentage Error	39.4822	18.3647
Theil Inequality Coefficient	0.4311	0.2063

Now, we can compare the predictive power of these two forecasts. Because all of data is known, we call it ex-post forecasting. Forecasting is a sequence of one-step ahead forecasts. The difference between static and dynamic forecast arises because of their estimation procedure. Dynamic forecast uses the value of the previous forecasted value of the dependent variable to compute the next one. On the other hand static forecast uses the actual value for each subsequent forecast. First, we have to deal with forecasting error which is the gap between actual and forecasted dependent variable. The method with smaller forecasting error is superior.

For the purpose of forecast evaluation, first we choose "Root Mean Squared Error" (RMSE) as benchmark. This statistic refers to the gap between forecasted LMD and actual LMD. Smaller RMSE means better forecasting or more predictive power. By comparing the magnitude of this statistic for the two procedure from table 6 3 (3.5350 for dynamic forecast compared to 1.6092 for static forecast), we simply find out that static forecast is superior to dynamic forecast for forecasting purpose. We may also consider Theil Inequality Coefficient (TIC) as another measure of the forecasting performance. If TIC = 0, there is a perfect fit meaning that forecasted LMD and actual LMD are the same. If TIC = 1, the predictive power of the model is worst. TIC is between 0 and 1. Again, TIC for static forecasting (0.2063) is less than that of dynamic forecasting (0.4311) certifying the fact that the forecasting performance of static forecasting is better than that of dynamic forecasting. The rest of the measures (Mean Absolute Error and Mean Absolute Percentage Error) also indicate the superiority of static forecasting over dynamic forecasting for the ARDL estimation. To see this better, we plot the forecasted LMD based on these two forecasts along with actual LMD.

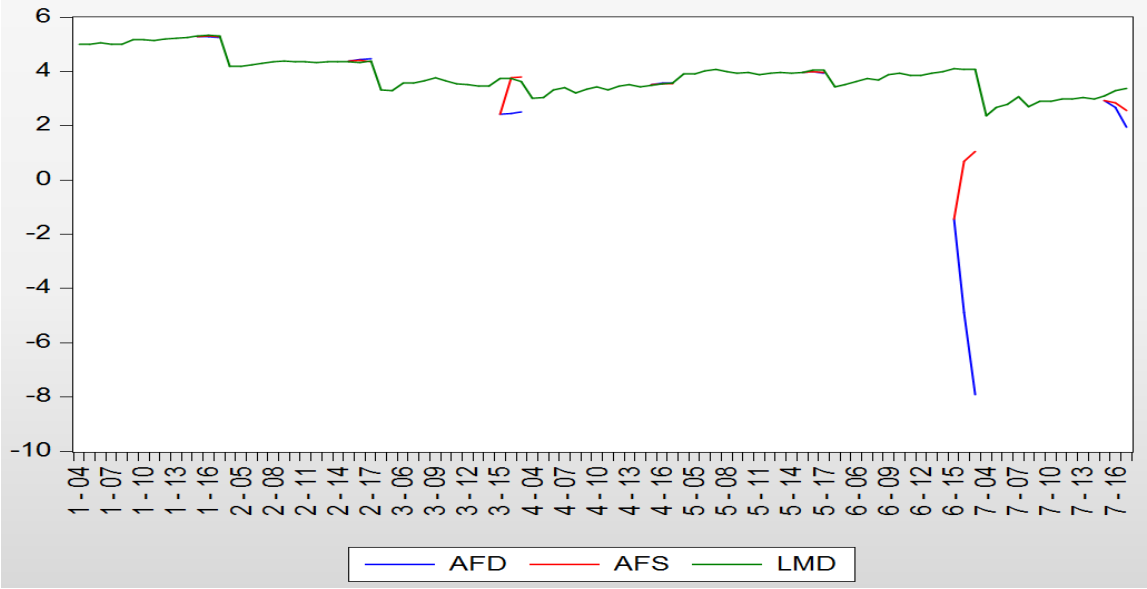

Figure 1: Dynamic vs Static forecast for ARDL Estimation

AFD, AFS and LMD represents forecasted values of dependent variable based on dynamic forecasting, forecasted values of dependent variable based on static forecasting and actual values of dependent variable. Before interpreting this plot, we need to mention that cross-sections 1 to 7 refers to China, India, Kazakhstan, Kyrgyz Republic, Pakistan, Russian Federation and Tajikistan, respectively. As can be seen from Figure 1, actual and forecasted value of dependent variable (which is money demand in logarithm form) are almost the same for China, India, Kyrgyz Republic and Pakistan based on dynamic forecast and static forecast. However, Kyrgyz Republic, Russian Federation and Tajikistan the discrepancy between actual and forecasted value of dependent variable in two forecasts (dynamic and static) is large. The gap is particularly large for Russian Federation. Forecasted value based on static forecast for these countries (Kyrgyz Republic, Russian Federation and Tajikistan) is much closer to actual values of dependent variable compared to forecasted value based on dynamic forecast. Now, we turn our attention to forecasts based on VECM estimation method. Therefore, we first estimate our model using VECM.

Table 6: VECM Long-run Estimation

Cointegrating Eq:	CointEq1
LMD(-1)	1.000000
LGDP(-1)	-0.577306 (0.14286) [-4.04115]
IR(-1)	-0.173041 (0.07556) [-2.29003]
LATM(-1)	0.157525 (0.23073) [0.68274]
C	12.21942

Table 6 provides long-run coefficients of the variables used in the model based on cointegration equation.

Table 7: VECM Short-run Estimation

Error Correction:	D(LMD)	D(LGDP)	D(IR)	D(LATM)
CointEq1	-0.028452	0.009280	1.563396	0.026224
	(0.01785)	(0.00556)	(0.80146)	(0.02532)
	[-1.59353]	[1.67024]	[1.95069]	[1.03557]
D(LMD(-1))	-0.391853	0.148508	-17.98434	0.609622
	(0.12876)	(0.04007)	(5.77987)	(0.18262)
	[-3.04322]	[3.70634]	[-3.11155]	[3.33811]
D(LMD(-2))	-0.117414	0.019352	-11.41673	0.417757
	(0.15248)	(0.04745)	(6.84453)	(0.21626)
	[-0.77003]	[0.40784]	[-1.66801]	[1.93170]
D(LGDP(-1))	-0.909280	0.503653	-4.299924	0.406648
	(0.44609)	(0.13882)	(20.0240)	(0.63269)
	[-2.03833]	[3.62823]	[-0.21474]	[0.64273]
D(LGDP(-2))	0.768994	0.072338	17.30080	-0.044149
	(0.45702)	(0.14222)	(20.5146)	(0.64819)
	[1.68262]	[0.50865]	[0.84334]	[-0.06811]
D(IR(-1))	-0.002529	0.000326	-0.323863	-0.005611
	(0.00314)	(0.00098)	(0.14095)	(0.00445)
	[-0.80526]	[0.33362]	[-2.29765]	[-1.25977]
D(IR(-2))	0.001216	0.000211	-0.288496	-0.001969
	(0.00254)	(0.00079)	(0.11381)	(0.00360)
	[0.47953]	[0.26777]	[-2.53485]	[-0.54754]
D(LATM(-1))	0.261383	-0.075832	5.568208	0.110704
	(0.09801)	(0.03050)	(4.39965)	(0.13901)
	[2.66678]	[-2.48626]	[1.26560]	[0.79635]
D(LATM(-2))	-0.023967	0.017734	-3.335243	0.061183
	(0.08250)	(0.02567)	(3.70328)	(0.11701)
	[-0.29051]	[0.69077]	[-0.90062]	[0.52288]
C	-0.023089	0.030129	0.257594	0.130793
	(0.03206)	(0.00998)	(1.43896)	(0.04547)
	[-0.72024]	[3.02031]	[0.17901]	[2.87670]

Table 7 provides short-run estimates of the coefficients for the lags of variables. Based on Akike information criterion (AIC), 2 lags is decided as the optimum.

Table 8: VECM Estimation Statistics

R-squared	0.309961	0.412052	0.555964	0.439365
Adj. R-squared	0.174953	0.297018	0.469088	0.329675
Sum sq. resids	0.389650	0.037731	785.1100	0.783815
S.E. equation	0.092036	0.028640	4.131296	0.130535
F-statistic	2.295874	3.582021	6.399478	4.005530
Log likelihood	59.63950	125.0127	-153.3938	40.06959
Akaike AIC	-1.772839	-4.107595	5.835492	-1.073914
Schwarz SC	-1.411169	-3.745925	6.197162	-0.712244
Mean dependent	0.013963	0.055204	0.394133	0.235233
S.D. dependent	0.101326	0.034159	5.669895	0.159436

Determinant resid covariance (dof adj.)	1.54E-06
Determinant resid covariance	7.02E-07
Log likelihood	78.88400
Akaike information criterion	-1.245857
Schwarz criterion	0.345491

After estimating the model using VECM method, we can proceed to do forecast based on the estimation. Again, we compare the two forecasts (dynamic and static forecasts) using the four different measures already explained for the first estimation (ARDL).

Table 9: Dynamic Forecast vs Static Forecast for VECM Estimation

Forecast measures	Dynamic forecast	Static forecast
Root Mean Squared Error	3.9816	4.0105
Mean Absolute Error	3.9174	3.9508
Mean Absolute Percentage Error	98.6592	98.6623
Theil Inequality Coefficient	0.9674	0.9677

According to table 9, this time dynamic forecast seems slightly better than static forecast. All of these measures (RMSE (Root Mean Squared Error), MAE (Mean Absolute Error), MAPE (Mean Absolute Percentage Error), and the Theil Inequality Coefficient) are lower for dynamic forecasting than static forecasting indicating that dynamic forecasting is slightly superior to static forecasting.

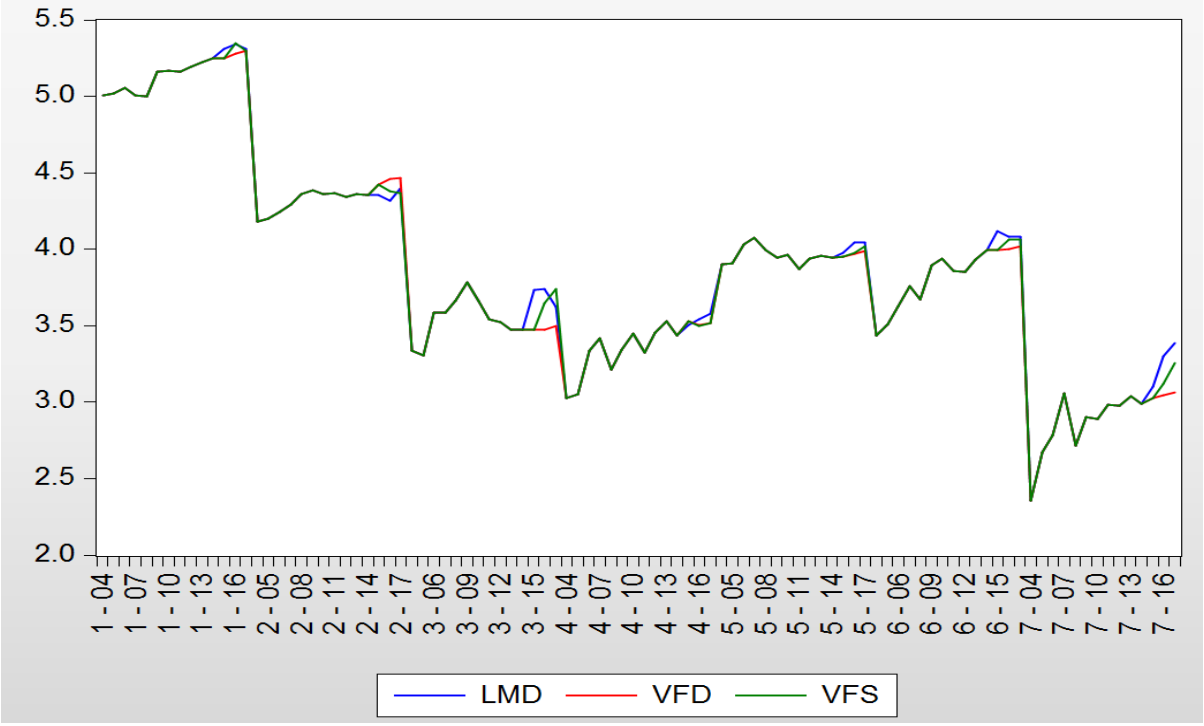

Figure 2: Dynamic Forecast vs Static Forecast for VECM Estimation

This fact can be seen better by looking at Figure 2. For the forecasted period (2015-2017), the gap between actual values and forecasted values of dependent variable is pretty close for both dynamic and static forecasts though the dynamic forecast is slightly closer to actual

values than that of static forecast. Now, it is time to compare dynamic forecast for ARDL and VECM estimation methods.

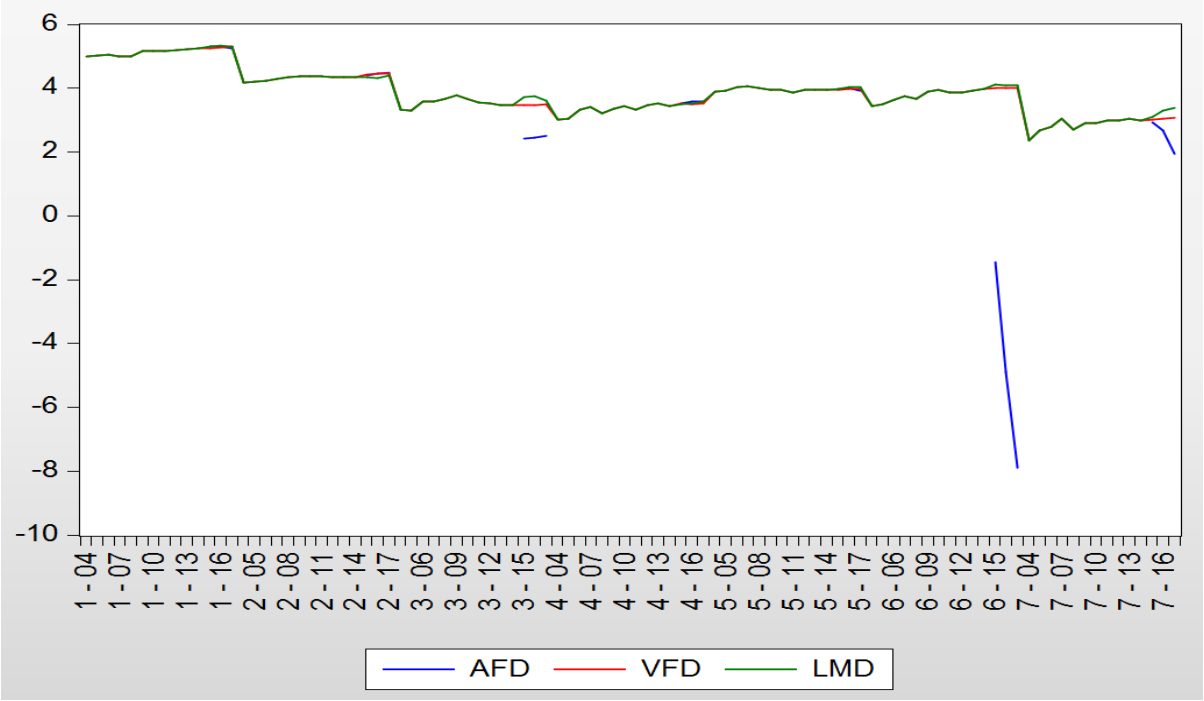

Figure 3: Comparing Dynamic Forecast for ARDL and VECM Estimation

AFD, VFD represents forecasted values of dependent variable based on dynamic forecasting obtained from ARDL and VECM estimation, respectively. LMD as before, represents the actual value of LMD as the dependent variable. According to Figure 3, dynamic forecasts obtained from these two estimates (ARDL and VECM) are pretty close to each other for China, India, Kyrgyz Republic and Pakistan and the gap between actual values and forecasted values of dependent variable is quite narrow for the two estimations meaning that forecasting performance of dynamic forecasting for both estimations are very good. However, this gap gets wider and more obvious for Kazakhstan, Tajikistan and Russian Federation in particular. It is a clear indication of the fact that VECM provides more accurate forecast than ARDL when it comes to dynamic forecasting. Next, we make comparison between static forecast for the two estimations.

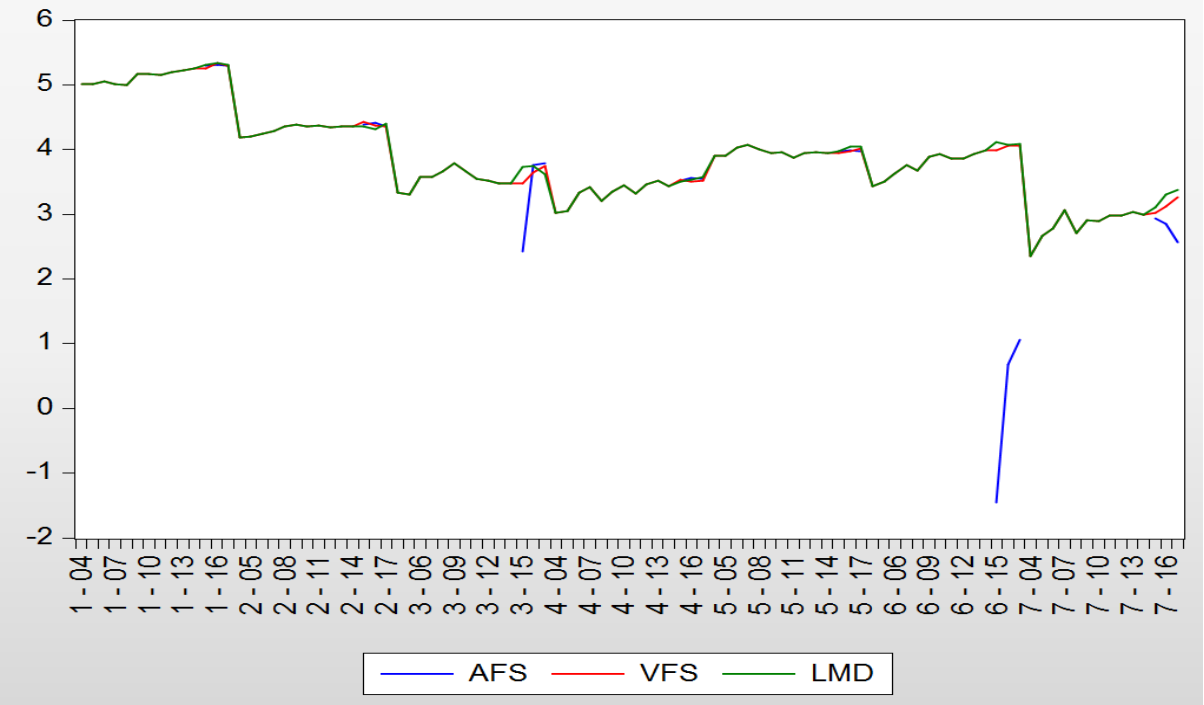

Figure 4: Comparing Static Forecast for ARDL and VECM Estimation

AFS, VFS represents forecasted values of dependent variable based on static forecasting obtained from ARDL and VECM estimation, respectively. LMD represents the actual value of LMD as the dependent variable. Figure 3 provides a comparison of static forecast for the two estimations. Again, it is clear that static forecast from VECM provides more accurate forecast than ARDL meaning that static forecast from VECM performs better than static forecast from ARDL. This is more obvious for Kazakhstan, Russian Federation and Tajikistan.

From Figure 3 and Figure 4, we conclude that the forecasting power of VECM is bigger than that of ARDL with regards to both dynamic forecasting and static forecasting.

Conclusion

In this paper we applied two different estimation methods, namely ARDL and VECM to estimate real demand for money in the member states of the Shanghai Cooperation Organisation (SCO) with the inclusion of financial innovations using panel data (all in real term) during 2004-2017. We use a conventional money demand function that was enriched with a proxy for financial innovation proxied by the number of automated teller machines (ATMs). The study found one cointegrated long run relationship among the logarithmic forms of Broad Money (M2), gross domestic product (GDP), interest rate and ATMs which paved the way for applying ARDL and VECM.

The results indicate that for ARDL estimation, static forecasting outperforms dynamic forecasting while for VECM estimation, dynamic forecasting is slightly superior to static forecasting. Comparison of these two methods shows that forecasting power of VECM is higher than that of ARDL meaning that estimation based on VECM provides more accurate forecast with regards to both dynamic forecasting and static forecasting.

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INTERNET FINANCE AND ITS POTENTIAL RISKS: THE CASE OF CHINA

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***Abstract**: Internet finance is a global phenomenon that further close the digital divide and sidelining of small-medium enterprise (SMEs) equipping for a fourth industrial revolution market. This study reviews the development of internet finance in China deemed to be the largest internet finance market in the world. The extant of literature and market reports suggest that this overwhelming performance of China internet financing is due to factors such as financial market gap, popularity of third-party payment and high returns. However, against the traditional financing operations, investors in this sector suffer substantial degree of risks due to fraud leading to huge losses. We argue that there need a concerted effort by government and oversight bodies to improve market disciplines to ensure a healthy development of this alternative financing thereby enhancing the economy development of China and elsewhere where internet financing is operating.*

***Keywords:** internet finance; risk; governance; China; SMEs.*

Introduction

The development of advanced information technology is changing the financial market today (Han & Greene, 2007). In recent years, internet lending sites have become new means of mobilising and disseminating small business funds. Individuals who wish to make a profit by investing directly through the Internet are providing credits to small businesses without the need for traditional financial institutions such as banks. Indeed, Internet finance has provided new investment choices for individual investors and solve SME financing problems in various countries including China.

The objective of this paper is to review the development of internet finance in China and analyze the potential risk of its internet finance operation. The remainder of this study proceeds as follows. In section 2, literatures related to internet finance are reviewed. Section 3 presents the internet finance development in China while the potential risks of internet finance are discussed in Section 4. The final section presents the conclusion and further implications brought from this study.

Literature Review

The technologies based on the internet such as mobile payments, social networks, search engines and cloud computing has led to an evolution in the financial sector (Xie & Zou, 2013). Internet finance usually plays the role of the middleman, acting for those who need money and those who are rich in the financial sector. In addition to indirect financing through commercial

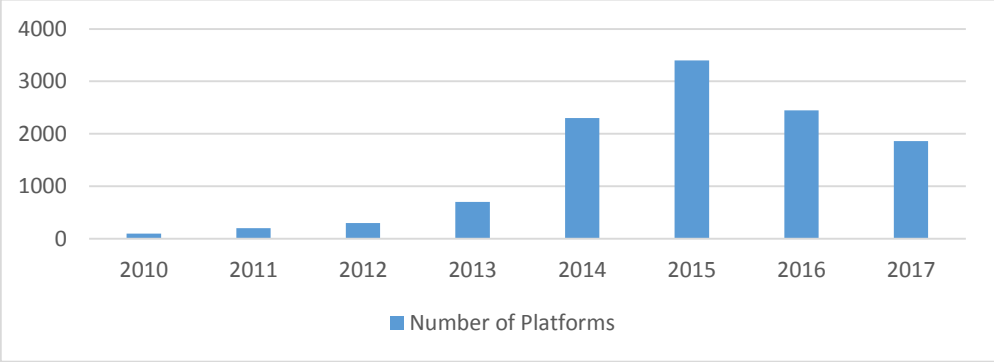
banks and direct financing through the securities market, the third way of conducting financial activities is now through internet finance platforms.

With the latest financial crisis followed by a slowdown in traditional bank loans within developed economies, the emergence of the internet lending is a welcoming scenario (Kulkarni & Rigal, 2016). LendingClub and Prosper are the two major platforms in the US projecting the loan volumes. These two sites basically bring people together – those with surplus money and those who need money. These two new P2P loan sites US had increased loan volumes by USD2.4 billion in 2013, up from USD870 million in 2012 (Blackman, 2014). From 2006, LendingClub, for example, has issued USD4 billion in loans, reaching USD2.3 billion by the end of 2013 (Demos, 2014). Further, it has reached USD3.8 billion after completing the acquisition of Springstrone (Moore & Massoudi, 2014). In just a few years, it had moved from a USD1 million start-up company to a USD8.9 billion listed company (Alloway & Platt, 2014). Lending Club is now a giant in the online market place that the total loans issued as of March 2018 amounted to $35,940,013,016 (Bajpai, 2018).

The Development of Internet Finance in China

The first internet finance platform that was established in China started in 2007. Since then, internet finance has increasingly acquired popularity and market recognition (Xinhua, 2017). Inspired by the internet lending platforms in the United States, the PPdai became China's first internet lending site in June 2007. This establishment was soon followed by other internet finance platforms such as Lufax, Hongling Capital, and Renrendai. As a whole, the internet finance industry has entered the "fast lane". This industry's explosion began in 2013 where a total of about 150 platforms were established (Wei, 2015). The P2P platforms continued to bourgeon from 2014 until mid-2015 where more than 2000 platforms were recorded to be in operation. Figure 1 below shows the number of internet finance platforms in China, from 2010 to 2017, based on the data taken from China's internet finance annual report 2017.

Figure 1: Number of Platforms



Source: China internet finance annual report 2017

Given that the internet finance promotes lending through a non-conventional banking system, by 2013, there were about 800 P2P lending platforms that were serving loans to more than 200,000 people with amounts totaled to USD105.8 billion (Wei, 2015). From 2013 to 2014, it was observed that participating investors and borrowers had risen 364% and 320% respectively on a yearly basis (Wei, 2015). In recent years, China's internet finance business has developed even more rapidly. Based on Table 1 below, the total P2P loan transaction volume had reached 830 billion yuan in 2015, up from almost nothing in 2010 and 97.6 billion

yuan in 2013. Since November 2015, the transaction volume has been stable at approximately 130 billion yuan per month (Xu, 2017). There were more than 2,000 online P2P lending platforms in China in 2015 (Williams-Grut, 2015). It was reported that the market was transacting nearly USD150 billion in 2015, more than ten times the size of the US marketplace (Xinhua, 2016).

Table 1: Growth of China Internet Finance (RMB)

	2012	2013	2014	2015
THIRD-PARTY PAYMENT(TN)	3.66	5.37	8.08	11.90
P2P LOAN PLATFORMS	298	814	1544	2595
P2P VOLUME(BN)	22.9	97.6	251.5	830.2
YU'E BAO BALANCE(BN)		185.3	578.9	620.7

Source: Xu, 2017.

Factors Contributing to Internet Finance Development in China

SME financing institutional gap in China

The popularity of the internet finance among investors in China and their eagerness to invest in online financial products displays the weakness of China's financial system. Unlike in western countries, the choices of financial products under the traditional financial operation for investors are lower in China. In China's financial markets, for instance, some large state-owned commercial banks dominate China's financial system. History dictates that these large banks mainly finance large SOEs and government borrowers (Deer, Mi, & Yu, 2015) sidelining SMEs. Hence, without much choices, these SMEs have to raise capital by borrowing from informal channels such as friends, families, and business partners. This has been occurring since the 'reform and opening' policy conducted in 1978.

Although the pattern of financing noted in Chinese commercial banks has changed over the past decade (Lardy, 2014), there is still a large "institutional gap" lurking among small businesses, individuals and households (He, Yan, & Chen, 2013). This institutional situation creates opportunities for the internet lending with many entering the field of consumer finance. They offer diversified lending services in areas such as consumer credits, car financing, education and training, and mortgage financing in areas where traditional banking finds it too cumbersome (Deer, Mi, & Yu, 2015).

The widespread influence of third-party payment

China's economy is bourgeoning. Its e-commence with third-party payment (TPP) approaches is thriving. TPP is the core driving force of e-commerce development (Shim & Shin, 2015), a payment service provider that is independent of merchants and banks. Chinese customers prefer cash payments rather than the credit cards to make online purchases, and this unique situation has created the development of the TPP.

Payment is the infrastructure of finance. It can impact the form of financial activity. Since the payment method under the internet finance model is based on the TPP, mobile communication equipment and wireless communication technology is applied for transferring the value of money (Shuai, 2011). Alipay and WeChat Pay have become the two dominant TPP approaches in China as they are very convenient and accessible for users to transfer money in the internet environment.

Alternative financing

Internet finance, as the alternative source of funding for small businesses and individuals allow borrowers to utilize the platform to access money for mortgaging assets normally rejected by conventional banks (Wei, 2015). For example, a considerable number of firms with high productivity suffer from discrimination in credit markets and credit constraints due to their limited collateral and lack of political support (Du, Li, & Wang, 2016).

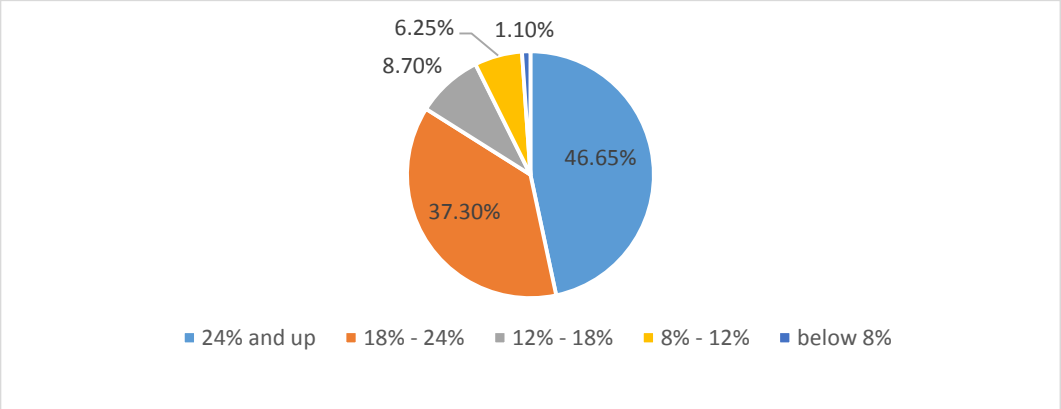
Technology has allowed money demanders who face problems as banking customers and investors who dislike the low-interest rate from banks to deal with each other as lenders and borrowers directly. Internet finance platforms usually provide high-interest rates than banks and fast loan approvals and this creates a win-win situation for both parties, thereby contributing to the blooming of the internet finance.

High return in short-term

The supply of funds for retail investors is the main reason pushing the growth of China's internet loans. These loans can be three to five times higher than traditional bank deposit rates as has been verified by a survey conducted by ACCA (the Association of Chartered Certified Accountants). The report indicates that 57% of lenders offer loans at a rate of 12% to 18%.

Although the investment rate of the internet finance platform is different, the average return level is relatively high making this venture very attractive for investors. Figure 2 below shows the average annual production of China's P2P platform. More than 80% of the P2P platform average annual rate of return is between 8% and 18%, which is much higher than those offered by traditional credit financing channels (China internet finance annual report 2016). The figure reflects the strong demand for borrowers and the difficulty of SME financing from conventional banks.

Figure 2: Average Return



Source: China internet finance annual report 2016

Potential Risks in China's Internet Finance Market

Unlike the financial landscape of the UK and US where the internet finance market is dominated by large companies such as Lending Club and Prosper, the situation in China is slightly different. To date, China has around 2000 companies which offer internet finance in the market (Williams-Grut, 2015). These internet finance companies bring investment choices and financing channels to individual investors and borrowers. However, internet finance also bring with it other disadvantages such as regulations to monitor the financial transactions which may incur huge sums of money. This can lead to bankruptcies when re-payments cannot be met or

fraud and other financial risks (Liu, 2015). The prevalence of the internet finance has also created other distractions such as disruptions to traditional banking services where certain business territories have become affected negatively (Chen, Li, Wu & Luo, 2017).

Potential risks from governance problem

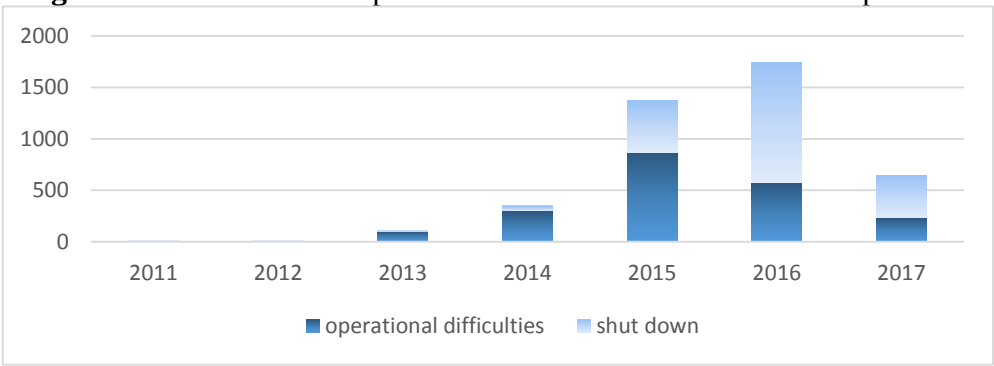
The P2P loan platform of China began in 2007. It flourished and became very popular. However, these platforms were not well managed. When borrowers defaulted on the loans, the owner of the platform is involved and is required to compensate the lender. It was reported by the "National Business Daily" (January 21, 2014) that in Hangzhou, Shanghai and Shenzhen, the P2P loan platforms have created scandals of equivalent to 231 million yuan of loans. Owners of those platforms fled their obligations, leaving other investors and borrowers in limbo. In recent years, this occurrence has increased. The surge in the irregularities of internet finance and loans have sparked fears of social unrest among platform users and borrowers. These fears are expressed through protests because protests is the only way for the lenders to express their anger about the lost investments. From the perspective of attracting attention, it is undeniable that such protests can also attract government attention who can then be motivated to look for resolutions that can address the rescue plans (Wei, 2015).

The form of the risks experienced in recent years

The risks faced by internet lending platforms are "run-away" or "closure" both of which relate to loans given being unpaid or investors having to close shop due to no returns on investment made. Run-away is close to a "bank run" where the owners of the platform run away and make the platforms no longer able to pay off outstanding debts to other investors or they discontinue from serving clients.

Fraud refers to the instance where some owners use the platforms to solicit money without having the intention of staying in the lending business. In 2013, 74% of the P2P platforms were reported to be in "operational difficulties, cash squeezes or owners running away" and, it was reported that 1.2 trillion yuan of the money was lost (Jane, 2014). Between January and March 2015, 130 platforms closed and more than 1,250 platforms were regarded to be at risk by local credit rating agencies (Chen, 2015). Figure 3 below illustrates the P2P lending industry of 2016 where rectification, high operation pressure and other reasons had led to a number of the industry being pushed out of business as compared to 2015, resulting in 1741 of these investors being out of business. It appears that the number of closed platforms were comparatively higher than those that were suffering from operation problems, showing that this industry is developing in a positive direction.

Figure 3: Shut down and operational difficulties internet finance platforms.



Source: China internet finance annual report 2016

From the operational perspective, the risks faced by internet finance platforms are mainly attributed to technology, operations and law. The technology risks come from the loan issuing methods. This is because internet finance platforms mainly issue loans based on the concept of data analysis instead of manual investigation. It appears that when the loan market changed, the data of the borrower and lender were not adjusted duly or immediately (Huang, 2013). This caused a mismatch in information which may not be current or true to some extent. Operational risk refers to the risk of direct or indirect loss resulting from incomplete or problematic internal operating processes, personnel, systems, or external events.

Potential risks from Supervision vacuum

China's financial legislation is based on the formulation of traditional financial activities. As a result of this, it can be said that these laws and regulations are not suitable for internet finance platforms. Thus far, there are no such aspects pertaining to the identification of the internet financial market, the identification of transaction subjects, and the validity of electronic contracts. This situation may result in unclear rights and obligations between trading entities. Internet lending is currently not very strictly regulated in China. They also cannot be easily classified as regular commercial lenders because their primary function is to promote loans by providing credit information rather than the credit itself.

The Chinese government had proposed the first major internet financial guidance policy in July 2015 after allowing internet financing and P2P loans to grow rapidly over the years (Deer, Mi & Yu, 2015). This ‘guidance' is a loose regulatory policy which encourages the innovation of internet finance and which supports internet finance. Even though the regulation on third-party internet payments became effective on 1 July 2016[1] and the regulation imposed on P2P lending platforms became effective on 17 August 2016[2] the problem on number of internet finance platforms reduce still continue. In 2018, 88 internet finance platforms reported as operation problem in June and 220 platforms reported in July (wdzj.com, 2018). The current situation is that the internet finance platforms lacks adequate regulations and information disclosure; it also involves high-risk lending and occasional fraudulent activities. The fast increasing "in-trouble" platforms reflect the serious situation of the supervision vacuum.

Conclusion and Implication

To the year 2018, internet finance has developed over decade and this method for financial transaction is accepted by the public. In China, the economic growth and traditional financial system provide sound environment for the development of internet finance. The widely used third-party payment such as Alipay and Wechat pay connected people from traditional financial activities to internet activities and make people access internet finance easily. However, the fraud internet finance platforms exposed the potential risks in the development of internet finance. This situation bring requirement for regulation on the internet finance market. In the first half year of 2018, based on the financial report Yirendai got 0.7 billion yuan profit while PPdai got 1 billion yuan profit which demonstrate the potential development of internet finance in China (wdzj.com, 2018). For individual investors, the decision of investment on internet finance platforms directly related to its potential risks and returns. Hence, in the situation on waiting for more regulation to be enforced on internet finance market, some technic to help investors decision making should be the focus of future research.

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2 Interim Measures for the Administration of the Business Activities of Online Lending Information Intermediary Institutions, CLI.4.278756

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ANALISIS KESAN SUBSIDI TERHADAP PENGELUARAN PADI DI KAWASAN MUDA

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Abstrak: *Kawasan Muda merupakan salah satu kawasan jelapang padi utama di Malaysia. Kawasan ini merupakan penyumbang terbesar kepada pengeluaran beras negara. Kawasan ini juga menerima insentif atau subsidi yang paling banyak daripada kerajaan melalui pelbagai jenis skim subsidi padi. Pelbagai usaha dan pendekatan melalui perbelanjaan kerajaan (subsidi) telah dilaksanakan bagi memastikan kawasan ini terus menyumbang hasil pengeluaran padi dan beras kepada negara. Kajian ini bertujuan untuk melihat keberkesanan skim subsidi padi yang telah diberikan oleh kerajaan terhadap perubahan hasil pengeluaran dan pendapatan petani di kawasan Muda. Antara skim subsidi yang dikaji termasuklah harga minimum terjamin, skim subsidi harga padi dan skim subsidi baja padi. Pembolehubah bebas tambahan seperti keluasan tanaman padi dan bilangan peladang telah dimasukkan. Kajian ini memfokuskan kepada kesan skim subsidi kepada pengeluaran padi dengan mengaplikasi ujian kointegrasi dan ralat pembetulan mengikut pendekatan Autoregressive Distributed Lag (ARDL) bagi mengesahkan kewujudan dan arah hubungan antara kesemua pembolehubah dengan menggunakan data siri masa 37 tahun (1980-2016). Hasil kajian mendapati wujud hubungan jangka panjang (kointegrasi) antara perbelanjaan kerajaan (subsidi) terhadap pengeluaran padi di Kawasan Muda.*

Kata kunci: *Kawasan Muda, perbelanjaan kerajaan, skim subsidi padi, ARDL.*

Pengenalan

Perbelanjaan kerajaan merupakan salah satu alat penting yang menyumbang kepada pertumbuhan ekonomi sesebuah negara. Perbelanjaan kerajaan merangkumi peruntukan yang disediakan oleh kerajaan bagi menjalankan pelbagai projek kerajaan dengan hasrat dapat meningkatkan pertumbuhan ekonomi negara. Secara umumnya, perbelanjaan kerajaan dapat dibahagikan kepada dua iaitu perbelanjaan mengurus dan perbelanjaan pembangunan. Perbelanjaan kerajaan atau intervensi kerajaan melalui skim subsidi khususnya adalah diperlukan dan sangat penting bagi memperbaiki kebajikan masyarakat secara keseluruhannya (Md. Zaidi Md. Tahir, 1995). Dalam pembangunan sektor pertanian padi, peruntukan atau perbelanjaan kerajaan kepada sektor pertanian ini lebih tertumpu kepada pembangunan fizikal infrastruktur seperti jalan, sistem pengairan dan tali air, subsidi input pengeluaran (seperti baja, racun dan benih) bagi tujuan peningkatan hasil padi. Dalam sektor pertanian padi khususnya, program penyelidikan dan pembangunan (R&D) turut diberi perhatian oleh kerajaan bagi mengeluarkankan benih yang lebih bermutu, dan meningkatkan rangkaian

pemasaran. Secara umumnya, perbelanjaan kerajaan dalam konteks pengeluaran dapat diterjemahkan dalam dua komponen utama iaitu pembangunan institusi dan polisi harga (Amin Mahir Abdullah, 2009).

Skim subsidi baja dan subsidi harga padi pada dasarnya bertujuan untuk meningkatkan taraf hidup petani padi melalui pengurangan kos pengeluaran dan jaminan harga. Di samping itu, skim ini juga bertujuan untuk menggalakkan petani menambah pengeluaran bagi meningkatkan pendapatan. Secara tidak langsung, penambahan pengeluaran dapat mengganti import beras yang semakin meningkat di samping memenuhi matlamat Dasar Keselamatan Makanan Negara. Bermula pada 1980 hingga Jun 2009, kerajaan telah membelanjakan sebanyak RM9.7 bilion ke atas Skim Subsidi Harga Padi (SSHP) dan antara tahun 1990 hingga 2008, sebanyak 2.4 bilion telah dibelanjakan ke atas Skim Subsidi Baja Padi Kerajaan Persekutuan (SSBPKP) (Amin Mahir Abdullah, 2009). Walaupun hampir RM12 bilion telah diperuntukkan untuk menyediakan subsidi padi, tetapi jumlah pengeluaran padi negara hanya berkisar sekitar 2.2 hingga 2.3 juta tan metrik semenjak lima tahun yang lalu (tahun 2004 hingga 2008). Purata produktiviti pengeluaran padi juga tepu pada 3.4 hingga 3.6 tan metrik per hektar (Amin Mahir Abdullah, 2009). Pengairan Muda merupakan kawasan yang menerima peruntukan subsidi yang paling banyak iaitu hampir 50 peratus daripada keseluruhan subsidi yang diagihkan setiap tahun kerana kawasan ini merupakan jelapang padi terbesar negara. Walaubagaimanapun, pencapaian purata hasil padi di Kawasan Muda adalah masih rendah berbanding dengan kawasan penanaman atau jelapang padi utama yang lain di Malaysia (MADA, 2016).

Kawasan Pengairan Muda merupakan kawasan yang menerima peruntukan subsidi paling banyak kerana kawasan ini merupakan jelapang padi terbesar negara. Setiap tahun, hampir 50 peratus daripada peruntukan keseluruhan subsidi sektor padi telah disalurkan bagi kawasan ini. Walaubagaimanapun, pencapaian purata hasil padi di Kawasan Muda adalah masih rendah berbanding dengan kawasan penanaman padi utama yang lain di Malaysia (MADA, 2016). Memandangkan sejumlah wang yang sebegitu besar telah diperuntukkan dan dilaburkan setiap tahun kepada sektor pertanian padi melalui skim subsidi padi dalam usaha membasmi kemiskinan serta mengurangkan kos pengeluaran, sektor ini sepatutnya diberi perhatian yang serius supaya tidak membebankan pihak kerajaan dari segi kewangan dan memastikan agar pelaburan yang begitu besar ini benar-benar memberi manfaat kepada golongan petani padi khususnya serta memberi pulangan kepada kerajaan.

Sorotan Literatur

Dalam konteks pengeluaran makanan, intervensi kerajaan bertujuan memastikan pengeluaran makanan dapat dicapai sebagaimana yang disasarkan dan menampung keperluan pemakanan penduduk. Terdapat tiga objektif penglibatan kerajaan dalam pengeluaran bahan makanan iaitu (i) memastikan keselamatan makanan; (ii) meningkatkan pendapatan dan produktiviti ladang; dan (iii) memastikan pengguna mendapat makanan pada harga yang berpatutan. Bagi mencapai matlamat tersebut kerajaan telah memperuntukkan sebahagian besar perbelanjaan negara bagi mencapai tujuan di atas. Secara keseluruhan kerajaan telah memperuntukkan sebanyak 12.5 peratus daripada bajet tahunan bagi tujuan pembangunan infrastruktur, pertanian dan pembangunan kawasan luar bandar (Dano & Samonte, 2005).

Banyak kajian menjelaskan bahawa intervensi kerajaan seperti melalui penetapan harga, subsidi, penggunaan baja dan penggunaan teknologi memberi kesan

positif ke atas pengeluaran padi atau bahan makanan. Shafique et al. (2007) menjelaskan wujud hubungan yang positif dan signifikan di antara harga gandum dan keluasan tanaman di Punjab. Kenaikan harga gandum sebanyak satu peratus akan meningkatkan 0.125 peratus kawasan tanaman. Dalam menentukan hubungan ini beliau dan rakan-rakan menggunakan kaedah *Ordinary Least Square (OLS)* dan *Error Correction Model (ECM)*. Situasi ini menjelaskan bahawa kenaikan harga tanaman ini di pasaran secara tidak langsung akan menyuntik semangat dan motivasi kepada para petani untuk berusaha meningkatkan hasil pengeluaran. Sementara itu, Vijayakumur et al. (2008) menggunakan data siri dalam persamaan linear ke atas pengeluaran jagung di Karnataka bagi tempoh 1985/86 hingga 2004/2005 mendapati terdapat hubungan yang signifikan di antara hasil pengeluaran jagung di Karnataka dengan harga komoditi. Peningkatan satu peratus harga komoditi berkenaan akan meningkatkan hasil pengeluaran jagung sebanyak 1.3 peratus. Pada masa yang sama pengeluaran jagung di kawasan ini turut mempunyai hubungan positif dengan penggunaan baja ke atas tanaman tersebut.

Dengan menggunakan model jangkaan Nerlovian, Mohamad & Khair (2008) mendapati terdapat hubungan negatif di antara harga komoditi kapas dan gandum pada tahun sebelumnya dengan keluasan dan pengeluaran tanaman kapas dan gandum di North West Frontier Province (NWFP) Pakistan bagi tempoh 1981/1982 hingga 2006/2007 dan 1991/1992 hingga 2007/2008. Molua (2010) turut menjelaskan bahawa perbelanjaan kerajaan dalam pengeluaran padi di Cameron menunjukkan hubungan positif dengan pengeluaran padi di negara berkenaan. Nilai keanjalan dianggarkan sebanyak 0.135, di mana peningkatan satu peratus dalam peruntukan kerajaan dalam komoditi padi akan meningkatkan pengeluaran padi sebanyak 0.135 peratus pada model keempat dan 0.115 pada model kelima. Kajian yang dilakukan oleh Tey et al. (2010) ke atas pengeluaran padi di Malaysia dalam jangka masa 1961 hingga 2007 mendapati terdapat hubungan yang signifikan dan positif di antara peruntukan kerajaan dengan pengeluaran padi negara dalam tempoh berkenaan. Melalui model jangkaan Nerlovion yang digunakan, didapati peningkatan satu peratus dalam peruntukan kerajaan dianggarkan akan meningkatkan hasil pengeluaran sebanyak 0.289 peratus dalam jangka masa pendek. Bagi tempoh jangka masa panjang dijangkakan hasil pengeluaran akan meningkat sebanyak 0.605 peratus dengan peningkatan satu peratus dalam peruntukan kerajaan.

Metodologi

Dari sudut teori, pengeluaran padi ditentukan oleh input pengeluaran. Bagi menentukan faktor pengeluaran yang signifikan, model pengeluaran Cobb-Douglas seperti di bawah akan digunakan bagi mengkaji hubungan impak perbelanjaan kerajaan (subsidi) ke atas pengeluaran padi di kawasan Muda. Data yang digunakan adalah data siri masa tahunan selama 37 tahun bagi tempoh 1980 hingga 2016. Fungsi ini akan memudahkan interpretasi keputusan kerana tindak balas angkubah bersandar terhadap pembolehubah tak bersandar adalah berbentuk keanjalan. Oleh itu, berpandukan persamaan dia atas, maka hubungan antara pengeluaran padi dan faktor-faktor pengeluaran padi di kawasan Muda dapat dinyatakan seperti persamaan berikut:

$$\text{LNPRO} = a_0 + a_1\text{LNFSUB} + a_2\text{LNPSUB} + a_3\text{LNGMP} + a_4\text{LNAREA} + a_5\text{LNLABOUR} +$$

u_i

LNPRO = Pengeluaran padi (tan metrik)
LNFSUB = Peruntukan Kerajaan/Skim Subsidi Baja Padi Kerajaan Persekutuan (RM juta)
LNPSUB = Peruntukan Kerajaan/Skim Subsidi Harga Padi (RM juta)
LNGMP = Harga Minimum Terjamin (RM)
LNAREA = Keluasan tanaman (hektar)
LNLABOUR = Bilangan Peladang/Buruh (orang)
α_0 = Pemalar
u_i = Pemboleh ubah rawak
$\alpha_1 \ldots a_5$ = Koefisien kolerasi

Kajian ini bertujuan untuk mengenalpasti hubungan antara perbelanjaan kerajaan (skim subsidi padi) dan pengeluaran padi di kawasan Muda. Bagi mengesahkan kewujudan dan arah hubungan antara kesemua pembolehubah, maka kajian ini telah mengaplikasikan ujian kointegrasi dan ralat pembetulan mengikut pendekatan *Autoregressive Distributed Lag* (ARDL) seperti yang disarankan oleh Pesaran et al. (2001). Kaedah ARDL telah diaplikasikan untuk melihat kewujudan hubungan jangka panjang (kointegrasi) serta arah sebab menyebab dalam jangka pendek dan jangka panjang antara perbelanjaan kerajaan (skim subsidi padi) dan pengeluaran padi di kawasan Muda. Sebagaimana yang diandaikan berdasarkan teori, skim subsidi baja padi yang dibekalkan akan meningkatkan pengeluaran dan seterusnya dijangkakan akan memberi impak yang positif dan signifikan kepada pengeluaran padi di kawasan Muda. Begitu juga dengan skim subsidi harga padi dijangka berhubungan positif dengan pengeluaran padi. Sumber data bagi pembolehubah-pembolehubah adalah berbentuk data sekunder siri masa dari tahun 1980 hingga 2016 yang diperoleh daripada Lembaga Kemajuan Pertanian Muda (MADA) dan PadiBeras National Berhad (BERNAS).

Keputusan Empirikal dan Perbincangan

Jika dilihat kepada analisis deskriptif seperti di Jadual 1, didapati pombolehubah skim subsidi baja dan harga minimum terjamin (GMP) mempunyai taburan yang pencong ke kanan (*long right tail*) dan manakala pembolehubah yang lain seperti pengeluaran padi, skim subsidi harga, keluasan tanaman dan bilangan buruh/pesawah mempunyai taburan yang pencong ke kiri (*long left tail*). Kesemua pembolehubah mempunyai taburan yang memuncak kecuali pembolehubah subsidi baja dan bilangan pesawah yang mempunyai taburan mendatar. Nilai min, median, maksimum dan minimum pula mencerminkan bahawa kerajaan memperuntukkan lebih banyak dana kepada subsidi harga atau dikenali sebagai Skim Subsidi Harga Padi (SSHP). Dapatan ini mengesahkan bukti *prima facie* iaitu perbelanjaan kerajaan bagi skim subsidi harga padi lebih besar daripada perbelanjaan bagi skim subsidi baja padi di Kawasan Muda.

Jadual 1: Statistik Deskriptif

Statistik Deskriptif	PRO	FSUB	PSUB	GMP	AREA	LABOUR
Min	13.58045	18.74042	19.64401	6.391255	12.15403	11.03892
Median	13.57743	18.56910	19.83410	6.309918	12.16759	11.04846
Maksimum	13.87835	19.95755	20.04796	7.090077	12.21225	11.09293
Minimum	13.01816	17.94264	18.29285	6.206576	11.97446	10.95578
Sisihan Piawai	0.169762	0.704436	0.421114	0.261523	0.035250	0.048363
Kepencongan	-0.879619	0.577987	-1.363964	1.545447	-3.606123	-0.516714
Kurtosis	4.697513	1.703915	4.137189	4.597680	19.50626	1.782223
Jarque-Bera	9.213720	4.649837	13.46614	18.66374	500.2296	3.932718
Kebarangkalian	0.009983	0.097791	0.001191	0.000089	0.000000	0.139966

Jadual 2 menunjukkan pemboleh ubah skim subsidi harga, skim subsidi baja, harga minimum terjamin dan keluasan tanaman padi berhubungan secara positif pada darjah korelasi yang tinggi. Walaupun begitu, jika diperhalusi didapati darjah korelasi antara LABOUR berhubung secara negatif dengan kebanyakan beberapa pemboleh ubah lain adalah kurang daripada 70 peratus, lantas ini mencerminkan bilangan peladang/pesawah adalah kurang produktif terhadap pemboleh ubah pengeluaran lain. Namun, bagi mengesahkan kewujudan dan arah hubungan antara kesemua pemboleh ubah, maka kajian ini mengaplikasi ujian kointegrasi dan ralat pembetulan mengikut pendekatan *Autoregressive Distributed Lag* (ARDL) seperti yang dikemukakan oleh Pesaran et al. (2001).

Jadual 2: Matriks Korelasi Pairwise

Pemboleh ubah	PRO	FSUB	PSUB	GMP	AREA	LABOUR
PRO	1.000000	0.724879	0.739197	0.715750	0.77882	-0.436381
FSUB	0.724879	1.000000	0.601499	0.891803	0.37852	-0.736940
PSUB	0.739197	0.601499	1.000000	0.555781	0.62872	-0.018325
GMP	0.715750	0.891803	0.555781	1.000000	0.34479	-0.724724
AREA	0.778820	0.378520	0.628725	0.344790	1.000000	-0.020022
LABOUR	-0.436381	-0.736940	-0.018325	-0.724724	-0.02002	1.000000

Pada asasnya, pendekatan ARDL tidak memerlukan ujian kepegunan pemboleh ubah dilakukan terlebih dahulu. Ini bererti ujian kointegrasi berasaskan pendekatan ARDL boleh terus diaplikasi tanpa mengambilkira sama ada kesemua pemboleh ubah dalam bentuk I(0), I(1) atau campuran I(0) dan I(1). Di samping itu, ARDL turut membenarkan kointegrasi dikenalpasti bagi pemboleh ubah yang berlainan lat optimum serta bagi kes siri masa kecil yang merangkumi 30 ke 80 tahun cerapan. Jesteru, bagi mengenalpasti kointegrasi mengikut pendekatan ARDL, maka persamaan dia atas perlu ditulis semula seperti berikut:

$$\Delta PRO_t = \theta_1 + \sum_{i=1}^{p} \lambda_i \Delta PRO_{t-i} + \sum_{i=1}^{k} \lambda_i \Delta FSUB_{t-i} + \sum_{i=1}^{k} \lambda_i \Delta PSUB_{t-i} + \sum_{i=1}^{k} \lambda_i \Delta GMP_{t-i} + \sum_{i=1}^{k} \lambda_i \Delta AREA_{t-i} + \sum_{i=1}^{k} \lambda_i \Delta LABOUR_{t-i} + \pi_1 Y_{t-i} +$$

$\pi_2 \Delta PRO_{t-i} + \pi_3 \Delta FSUB_{t-i} + \pi_4 \Delta PSUB_{t-i} + \pi_5 \Delta GMP_{t-i} + \pi_6 \Delta AREA_{t-i} + \pi_7 \Delta LABOUR_{t-i} + \mu_{1t}$

Yang mana Δ adalah operator pembezaan pertama, k adalah lat optimum dan pula μ merujuk kepada sebutan ralat. Kebiasaannya, terdapat tiga langkah dalam proses penganggaran ARDL. Langkah pertama memerlukan kita mengenalpasti kewujudan hubungan jangka panjang di antara pemboleh ubah dengan menggunakan ujian statistik F. Ini bermaksud hipotesis nol akan diuji kesahihannya melawan hipotesis alternatif seperti berikut:

H0: tiada kointegrasi: (γ=0), (ε=0), (π=0)
H1: ada kointegrasi: (γ=0), (ε=0), (π=0)

Jika nilai statistik F yang teranggar melebihi daripada nilai kritikal had atas (*upper bound critical value*), dapatlah dirumuskan wujudnya kointegrasi antara pemboleh ubah. Tetapi, jika nilai statistik F yang teranggar kurang daripada nilai kritikal had bawah (*lower bound critical value*), lantas hipotesis nol tidak dapat ditolak. Namun, jika nilai statistik F yang teranggar berada di antara nilai kritikal had bawah dan atas, maka tidak dapat dikenalpasti sama ada kointegrasi wujud atau sebaliknya disebabkan darjah integrasi pemboleh ubah penerang tidak diketahui sejelasnya. Namun, sekiranya terbukti kointegrasi bagi setiap persamaan wujud menerusi ujian statistik F, analisis perlu diteruskan dengan langkah kedua iaitu menganggar model bersyarat ARDL jangka panjang seperti berikut:

$$PRO_t = \theta_{11} + \sum_{i=1}^{p} \pi_{11}\, PRO_{t-i} + \sum_{i=1}^{p} \pi_{11}\, FSUB_{t-i} + \sum_{i=1}^{p} \pi_{11}\, PSUB_{t-i} + \sum_{i=1}^{p} \pi_{11}\, GMP_{t-i} + \sum_{i=1}^{p} \pi_{11}\, AREA_{t-i} + \sum_{i=1}^{p} \pi_{11}\, LABOUR_{t-i} + \sum_{i=0}^{q} \pi_{22}\, FSUB_{t-i} + \sum_{i=0}^{q} \pi_{22}\, PSUB_{t-i} + \sum_{i=0}^{q} \pi_{22}\, GMP_{t-i} + \sum_{i=0}^{q} \pi_{22}\, AREA_{t-i} + \sum_{i=0}^{q} \pi_{22}\, LABOUR_{t-i} + \mu_{11t}$$

Tetapi, jika tidak wujud kointegrasi antara pemboleh ubah, maka seterusnya model *vector autoregressive* (VAR) akan dianggarkan dalam bentuk pembezaan pertama (I(1)). Manakala langkah ketiga pula menuntut pengujian kedinamikan dalam jangka pendek, maka penganggaran terhadap model ralat pembetulan (*error correction model* atau ECM) perlu dilakukan seperti berikut:

$$\Delta PRO_t = \theta_{111} + \sum_{i=1}^{p} \lambda_{111}\, PRO_{t-i} + \sum_{i=1}^{p} \lambda_{111}\, FSUB_{t-i} + \sum_{i=1}^{p} \lambda_{111}\, PSUB_{t-i} + \sum_{i=1}^{p} \lambda_{111}\, GMP_{t-i} + \sum_{i=1}^{p} \lambda_{111}\, AREA_{t-i} + \sum_{i=1}^{p} \lambda_{111}\, LABOUR_{t-i} + \sum_{i=0}^{q} \lambda_{222}\, \Delta FSUB_{t-i} + \sum_{i=0}^{q} \lambda_{222}\, \Delta PSUB_{t-i} + \sum_{i=0}^{q} \lambda_{222}\, \Delta GMP_{t-i} + \sum_{i=0}^{q} \lambda_{222}\, \Delta AREA_{t-i} + \sum_{i=0}^{q} \lambda_{222}\, \Delta LABOUR_{t-i} + \varphi_2 ECT_{t-1} + \mu_{11t}$$

Model ini hanya mengambilkira pemboleh ubah yang telah menjalani pembezaan pertama serta ditambah dengan pemboleh ubah ralat pembetulan pada lat satu (ECT_{t-1}). Nilai koefisyen model ini juga mencerminkan kedinamikan jangka pendek setiap pemboleh ubah untuk menumpu ke arah keseimbangan jangka panjang. Kelajuan pelarasan ke arah keseimbangan jangka panjang ini pula sebenarnya ditunjukkan oleh nilai koefisyen bagi ralat pembetulan.

Ujian Kointegrasi Pendekatan ARDL

Langkah seterusnya adalah untuk mengesahkan kewujudan hubungan jangka panjang antara pemboleh ubah. Memandangkan cerapan merupakan data tahunan yang mana tempoh masanya terhad, maka didapati lat satu menjadi lat optimum yang ditentukan menerusi aplikasi *Akaike Info Criterion* (AIC). Dalam masa yang sama, nilai statistik-F yang diperolehi akan dibandingkan dengan jadual: *unresricted intercept and no trend* dalam Narayan (2005). Keputusan ujian kointegrasi berasaskan statistik-F adalah seperti yang dipaparkan di Jadual 3. Bagi persamaan tersebut, keputusan mengesahkan bahawa hipotesis dapat ditolak kerana nilai F statistik lebih besar daripada had atas (*upper bound*) pada aras keertian 1%. Ini bererti, di peringkat keseluruhan, wujud hubungan jangka panjang (kointegrasi) antara pengeluaran padi dengan subsidi dan faktor-faktor pengeluaran padi (pembolehubah bebas) di Kawasan Muda.

Jadual 3: Ujian Kointegrasi Statistik-F

Model	AIC Lag Order	F Statistic
k=5	(4,4,4,2,1,4)	4.49*
Critical Values of F Statistic	Lower Bound, I(0)	Upper Bound, I(I)
1%	3.06	4.15
5%	2.39	3.38
10%	2.08	3

Nota: Model ini dijana dengan pintasan. Lat optimum ditentukan menerusi kaedah Akaike Info Criterion (AIC).

*Signifikan pada aras keertian 1%

Jadual 4 menunjukkan keanjalan pembolehubah jangka panjang. Terdapat hubungan yang signifikan dan positif antara perbelanjaan kerajaan (skim subsidi baja dan skim subsidi harga) harga minimum terjamin, keluasan tanaman padi dan bilangan pesawah terhadap pengeluaran padi di kawasan Muda. Peningkatan 1% dalam skim subsidi baja, skim subsidi harga, harga minimum terjamin, keluasan tanaman dan bilangan petani akan meningkatkan 0.002%, 0.398%, 0.161%, 1.603% dan 1.777% pengeluaran Padi di kawasan Muda. Walaubagaimanapun, subsidi baja tidak secara signifikan mempengaruhi jumlah pengeluaran padi dimana angka pekali 0.002 bagi pembolehubah subsidi baja menunjukkan tidak anjal; iaitu jika 1% peningkatan nilai subsidi baja, jumlah pengeluaran padi akan meningkat hanya 0.002% sahaja.

Keputusan sememangnya terjangka kerana baja subsidi yang diedarkan adalah sebahagian daripada jumlah baja yang diperlukan untuk pengeluaran padi. Keperluan baja tambahan untuk memaksimumkan pengeluaran padi seharusnya dibeli oleh pesawah itu sendiri. Manakala pembolehubah harga minimum terjamin dan bilangan peladang/pesawah berhubung secara negatif terhadap pengeluaran padi di kawasan ini. Harus juga dingatkan bahawa pengeluaran padi tidak sahaja dipengaruhi oleh faktor-faktor ekonomi sahaja tetapi juga dipengaruhi oleh faktor bukan ekonomi seperti kesuburan tanah, bekalan dan sumber air, perubahan cuaca dan iklim, kawalan rumpai dan makhluk perosak.

Jadual 4: Keanjalan Jangka Panjang bagi Pengeluaran Padi di Kawasan Muda

C	LNFSUB	LNPSUB	LNGMP	LNAREA	LNLABOUR
14.266	0.002	0.398	0.161	1.603	1.777

Nota: (***),(**),(*) Signifikan pada aras keertian 1%, 5% dan 10%

Jadual 5 menunjukkan keputusan keanjalan jangka pendek dan istilah pembetulan rawak (ECT). Penerangan keanjalan jangka pendek hanya berdasarkan kepada lag 0. Dalam jangka pendek, pembolehubah skim subsidi harga padi dan keluasan tanaman mempunyai hubungan yang positif dan signifikan terhadap pengeluaran padi di Kawasan Muda. Dalam jangka pendek, skim subsidi harga padi perlu diteruskan bagi memastikan petani menerima pendapatan yang lebih tinggi untuk menggalakkan pengeluaran padi di Kawasan Muda. Pembolehubah kawasan tanaman dan bilangan peladang/pesawah perlu ditingkatkan bagi meningkatkan pengeluaran padi dalam jangka pendek di kawasan ini. Nilai saiz R square dan adjusted R square menunjukkan *good fit* dalam model ini dan 99% pembolehubah di dalam persamaan menerangkan pembolehubah bersandar (pengeluaran padi).

Jadual 5: Keanjalan Jangka Pendek dan Istilah Pembetulan Rawak bagi Model Pengeluaran

Pembolehubah	lnpro	lnfsub	lnpsub	lngmp	lnarea	lnlabour
Koefisyen	-	0.002	0.398	0.161	1.003	1.777

Pembolehubah	$ECT_{(-1)}$	R square	Adj. R square
Koefisyen	-2.431	0.99	0.95

Kesimpulan

Tahap pengeluaran padi di kawasan Muda mempunyai potensi untuk ditingkatkan kerana kawasan dengan signifikannya jauh lebih tinggi dari segi produktivitinya. Kajian ini mengambilkira bahawa faktor lain seperti kesuburan dan kesesuaian tanah serta perubahan cuaca dan iklim adalah diluar kawalan pengeluar. Namun begitu, faktor-faktor lain seperti pengurusan sawah, penggunaan input pengeluaran secara optimum juga akan menyumbang kepada peningkatan produktiviti dan pengeluaran padi di kawasan ini. Campur tangan kerajaan seperti Harga Minimum Terjamin (HMT), skim subsidi baja padi dan skim subsidi harga padi bertujuaan melindungi pesawah dari ketidakstabilan harga beras dunia, mengurangkan kos pengeluaran dan meningkatkan pendapatan pesawah. Kajian ini mendapati campurtangan kerajaan dapat membantu pendapatan pesawah dan mengekalkan pesawah untuk terus mengusahakan sawah di jelapang padi ini. Kajian ini juga mendapati campurtangan melalui perbelanjaan kerajaan (skim subsidi padi) telah membolehkan industri pengeluaran padi untuk terus bertahan serta berdaya saing. Nyata bahawa industri padi telah dilindungi daripada ketidakstabilan pasaran dunia melalui polisi perlindungan yang kukuh terutamanya kawalan harga dan pemberian subsidi harga dan baja. Kajian ini mencadangkan bahawa campur tangan kerajaan khususnya melalui subsidi sektor padi iaitu (Skim Subsidi Baja Padi Kerajaan Persekutuan (SSBPKP) dan Skim Subsidi Harga Padi (SSHP) diteruskan

tetapi perlu ditransformasi agar industri padi dan beras negara lebih maju, berdaya saing dan mampu menjadi pengeluar/ pengeksport beras ke negara luar.

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