The Sustainability of Electricity Sector during Covid-19 Outbreak in Malaysia

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Abstract

This empirical study the relationship between risk management, security supply, financial flow and technology acceleration with sustainability of the business of TNB Malaysia. The study utilised a sample of 107 staff of TNB in Brickfields, Kuala Lumpur. The independent variable risk management, security supply, financial flow and technology acceleration while the dependent variables, is measured by sustainability of the business. The conceptual framework was proposed and the hypotheses of this study were developed. Besides, the multiple regression analysis was used in analysing the data collected in this study. The finding of the study showed that risk management, security supply, financial flow, technology acceleration and sustainability of the business have a high level. Analysis also shows that there is a positive relationship between risk management, technology acceleration and security supply and financial flow with sustainability of the business. The study concluded that it provides a useful insight to different users, the pandemic is accelerating many trends and companies need to adopt new norms for the business sustainability in the future.

Keywords: COVID-19, Electricity, Sustainability.

1. Introduction

The dry season in March initially boosted energy consumption in Peninsular Malaysia to a record high of 18,808 MW on 10 March 2020. The increase, however, was not long, as a result of the enforcement of the Movement Control Order (MCO) which began on 18 March 2020. As a result, overall electricity consumption in Peninsular Malaysia declined following the temporary closure of businesses to comply with government directives to sit at home during MCO. Electricity consumption for industrial and commercial sectors declined between 25 per cent to 50 per cent following the temporary cessation of operations, while electricity consumption for the residential sector jumped between 20 per cent to 50 percent following compliance with instructions to sit at home and work activities from home.

Overall, electricity demand declined 1.9 percent at 1QFY'20 before the overall effect of COVID-19 and the period of Movement Control Order (MCO). However, demand for May 2020 dropped 28 percent compared to May last year. TNB expects electricity consumption to decline between 7-15 per cent year-on-year by 2020 due to the slowdown in commercial sector activity. Nevertheless, TNB's regulated entity income is guaranteed with demand growth of 1.8 per cent and 2.0 per cent as stipulated by the Incentive Based Regulation (IBR) guidelines in the second regulation period (2018 to 2020).

The profit after tax of Tenaga Nasional Berhad (TNB) group decreased 51.6 per cent to RM736.7 million in the First Quarter of

Financial Year 2020 from RM1.52 billion for the same period last year. The lower PAT included unrealized foreign exchange losses worth RM388 million. This quarter saw volatile foreign exchange due to the volatile global economy. The group's revenue declined 12.0 per cent to RM11.65 billion from RM13.24 billion in the same period last year due to overall revenue affected by the Fuel Cost Release Imbalance at a rebate of RM307.5 million compared to a surcharge of RM1.37 billion in the quarter same last year. However, electricity sales in the first three months of this year were stable at 27,938.2 Gigawatt/hours (GWh) or RM11.78 billion compared to 28,471.1 GWh or RM12.03 billion in the first quarter of 2019. EBITDA margin increased 3.8 per cent year-on-year following a decrease in operating costs of 15.4 per cent in the quarter first 2020.

The Malaysian economy contracted 0.7% in the first quarter of 2020 * (4Q 2019: 3.6%) reflecting the impact of measures taken, both domestically and internationally, to curb the spread of the COVID-19 pandemic, including the enforcement of MCO in Malaysia. Malaysia's economic outlook for 2020 is affected by the COVID-19 pandemic. However, economic activity is expected to increase gradually in the second half of 2020 and record a positive recovery in 2021. Given ongoing COVID-19 pandemic the uncertainty in the global economic environment, the TNB Board of Directors expects continued challenges to the Group 's prospects for the financial year ended 31 December 2020. The Group has taken the necessary steps to ensure its financial stability and operations.

Immediately after the Government announced an immediate and follow-up response to address the adverse effects of COVID-19 on the country's economy and people's lives, TNB led a group of national private companies by making appropriate contributions to alleviate the burden immediately, as well as supporting long-term economic recovery initiatives. Apart from the immediate contribution of RM10 million to the Ministry of Health at the beginning of the pandemic, TNB also contributed RM17.5 million to the State Government for the purchase of medical supplies and personal protective equipment as

well as meeting urgent needs during the early stages of MCO.

In March 2020, TNB bought the remaining 20 per cent stake in Tenaga Wind Ventures UK Ltd. The Group focuses on investments and assets in the UK as a platform to expand its portfolio of renewable energy (RE) based on its significant growth potential following the global shift to renewable energy sources. TNB, however, has reported that the COVID-19 pandemic affected the Group's initiatives to reduce current exposure; including restructuring and investment recovery and resale matters. This proves that the situation of infectious disease outbreaks such as Covid-19 has had a huge impact on the survival of the company. Therefore, this study was conducted to see the extent to which TNB is on a safe track to maintain the continuity of its business of supplying electricity throughout the country now and in the future.

2. Business sustainability

Tarihiran (2017)state business that sustainability is a condition in which a business entity or entity is expected to continue indefinitely in the future. A business sustain statement may be measured by the auditor on the financial statements of the company being audited. The users of financial statements generally also pay close attention to the statements given by the auditors, where the audit statement is one of the auditors' images or assessments of the condition of the company whether it can survive or not for the future. However, the form of other indicators besides finance affects the sustainability of the company. A study of going-concern statements can be measured by looking at the company's financial condition, company growth, company size and others. Generally, the company's financial condition will be the basis for determining the acceptance of a going concern statement. The company's financial condition describes its financial performance of a company. Companies can experience financial difficulties, especially in a downturn in economic conditions. When the company is in a liquidation state, the company can sell all of the company's assets or reorganize so that the company will remain sustainable. So that when economic conditions are not supportive, small companies in particular tend to receive a bad impression and may be closed.

2.1. Risk management and organizational sustainability

The Centre for Risk Management and Sustainability (2020) analyses that assessment is an important activity for management and corporate internal auditors, so that internal auditors must understand the processes and means for identifying, assessing, measuring and determining risk levels as a basis for developing internal audit procedures. Each entity faces external internal risks and these risks must be identified and assessed, focused on securing the corporate strategic objectives. Changes in socio-political-economy-industrylaw and changes in the operating conditions of the audited company are subject to risks, the company's management must establish a mechanism to recognize and deal with these changes. The main basis of risk management is risk assessment in which these two steps are risk management that needs to be done. For business continuity, risk assessment is the responsibility of management that is integral and continuous, because management cannot formulate goals with the assumption that the targets will be achieved without risks or obstacles. Examples of risks, dangers, threats, or obstacles to achieving corporate goals are such as a competitor launching a new product, a change in technology causing a service or product to not sell, a mainstay manager suddenly resigning as an employee and so on. Risk analysis is used to reduce risk, the smaller the risk, the more likely it is to achieve corporate goals.

According to the Prime Minister of Malaysia through his statement (Astro Awani, 2020) in a special message in conjunction with the recent Labour Day celebration, the country suffered losses of around RM2.4 billion a day, making the total loss estimated at RM63 billion during the PKP implementation period. The negative impact of this economy will affect many business sectors, especially the air transport (commercial aircraft), tourism and small and medium enterprises (SMEs). Rumours of business closures and layoffs following the COVID-19 epidemic are gaining traction, especially on social media. So the question arises whether business entities in this country do not have any plans to deal with emergency situations such as the COVID-19 pandemic threat? Based on the Federal Emergency

Management Agency (FEMA) USA, there are four phases in emergency management, namely (preparedness), preparedness (response), action (response) and recovery (recovery). Therefore, to ensure that an organization is able to survive, they must provide a comprehensive planning plan in dealing with all these phases effectively because around 40 to 60 percent of SMEs cannot operate again after facing a disaster or crisis. Basically, it can be said that most business entities in the country do have emergency preparedness and response plan (ERP) in dealing with certain emergency situations but most do not emphasize the recovery phase (recovery) which is the most important element to determine the continuity of a business, where in this phase a business must take all necessary steps to enable their business to return to normal operation after a crisis.

Yakob et al. (2016) in a study found that after the financial crisis that hit the United States in 2007, firms began to realize Integrated Risk Management (IRM) as a way to solve the problem of economic complexity. Many firms have begun to shift to the IRM approach (Giorgio et al., 2013). IRM is starting to be a firm strategy to manage the risks faced and at the same time can improve the performance of the firm. Therefore, there are several researchers who have made a study to see the implementation of this IRM and its relationship with the performance of the firm. A study conducted on firms on the Indian Stock Exchange found that firms that practice IRM have increased the value of their firms (Arpita, 2013). However, another study conducted on insurance firms in America found that IRM has a positive effect on the value of the firm (Hoyt et al., 2008). In line with a study conducted on insurance firms in China also showed a positive relationship between IRM and firm value (Li et al., 2013). Studies by Gordon et al. (2009) also show a positive relationship between IRM and firm values or performance. Findings from the above studies show that IRM has a positive effect in improving the performance of the firm and this is no exception in the context of SMEs. According to Charles (2012), SMEs need to use an integrated risk management system to ensure business continuity. The study used a sample of 120 SMEs in Sub-Saharan Africa. The implementation of a risk management system

becomes important to the survival of the firm because it affects the ability to receive credit from banks. Studies conducted on SMEs in Nigeria show that there is a significant relationship between business risk and sustainability.

H1: There is a positive relationship between risk managment and sustainability of business

2.2 Security supply and organizational sustainability

Hanim (2019) argues that the risk of goods mismatches and security incidents such as theft, boycott, smuggling, and terrorism are very likely to occur in the shipping process, so adequate controls are needed to reduce adverse consequences. To solve this problem, research was conducted on supply chain security risk management based on the ISO 28001 security supply chain. ISO 28001 has the benefit of increasing transportation efficiency feasibility in supply chain management, optimizing supply chain processes that are free from disruption, preventing losses, and complying with global supply chain security requirements. To see the level of conformity of the company to ISO 28001, a gap analysis approach is used to assess the company's security performance by filling out a 1-5 scale questionnaire. For risk assessment using FMEA with data input on probability, impact, and risk frequency obtained by interviews questionnaires with a scale of 1-5. The resulting level of conformity is above 75% which indicates that the company is ready to complete the ISO 28001 supply chain security management system and carry out certification. From the results of the risk assessment, it is known that 17 of the 32 identified risks are critical risks. Based on the analysis of the causes of risk, there are 9 dominant risk causes from critical risks which are the top priority for mitigation strategies and security plans. The mitigation strategy proposed in general to reduce risk is reducing, share and avoid.

H2: There is a positive relationship between security supply and sustainability of the business

2.3 Financial flow and organizational sustainability

Based on a study by Mariam and Nobanee (2019) showed that the allocation of capital

budget for sustainable issues will increase the competitive advantage in business and the use of western and Islamic finance is an efficient measure. This study uses thematic analysis that is to obtain resources from various scholars and the results of the study confirm that an appropriate financial management model is needed to increase productivity while reducing the problem of financial risk. The findings of the study conclude that financial flow management has a role in promoting the relationship between practices and sustainable business development.

According to a study by Presber (2011) who examined the consumers of specialized financing in the Chinese economy, including public and private companies, small and medium enterprises (SMEs), and the rural and agricultural sectors. This study examines China's financial system and its impact on China's economic growth in the period 1988 to 2008. In addition, it also examines China's financial system from the intermediate perspective of major financial institutions as well as focusing on institutions in China by examining the presence of each institution as funding provision for growth. economics, and by assessing the efficiency of their respective allocations as a measure of both economic optimism and sustainability. The conclusion is about China's financial system and its contribution to economic growth. These findings show that financial flow management factors have a relationship with business sustainability.

H3: There is a positive relationship between financial flow and sustainability of the business

2.4 Technology acceleration and organizational sustainability

Based on a study by Rajuddin et al., (2010) on 80 batik entrepreneurs registered with the Kelantan State Handicraft Development Corporation. This study aims to identify the extent of the level of basic management practices business among small and medium industries (SMIs) batik entrepreneurs through a survey of the level of human resource management practices, marketing management, use of technology and financial management. This study is a quantitative study and the instrument used to collect data is a questionnaire containing 40 items. The results of the study were analysed using descriptive

statistical analysis methods namely frequency and percentage and to facilitate the analysis of SPSS software (Statistical Package for the Social Sciences) version 15.0 for windows is used. Average overall percentage of each management practice obtained from the results of the study shows that the level of basic business management practices among small medium industries (SMIs) entrepreneurs is at a moderate level. However, the level of entrepreneurial practice on the use of technology is at a weak level. This shows that the use of technology acceleration has a relationship with business sustainability. Inefficient management is one of the problems in small industrial operations. In general, the majority of small industrial entrepreneurs have low formal education. Only a small number of small industrial entrepreneurs are exposed to the knowledge of management principles an organized foundation especially in more modern and forceful management systems high competitiveness.

According to a study by Ibrahim (2006) on the AnggunAsia.com website in the herbal industry. This study is related to the AnggunAsia.com Internet business system which is a facilitator for business transactions and makes sale and purchase transactions carried out using only the internet. This technology system is a platform for business sustainability by making the internet an efficient marketing medium for a service and product offered. This website study was

conducted in the herbal industry which promotes herbal -based products and healthcare produced in Malaysia. With the existence of this system, business entities have a comprehensive solution for Internet business that better covers business and technical aspects and at the same time can increase sales in the market. This shows that there is a relationship between technology acceleration and business sustainability.

H4: There is a positive relationship between technology acceleration and sustainability of the business

3. Methodology

This section discusses the procedures adopted in realising these objectives, which include the measurement of variables in the study

3.1 Conceptual Framework

Based on the above literature review and the objectives of this study, sustainability of the business has been identified as a dependent variable, by which the measurement of risk management, security supply, financial flow and technology acceleration is an independent variable. Therefore, a conceptual framework is developed to study the relationship between risk management, security supply, financial flow and technology acceleration with sustainability of the business of TNB Malaysia.

Independent Variables

Risk Management

Security Supply
Financial Flow

Technology
Acceleration

Dependent Variable

Sustainability of the
Business

Figure 1 The conceptual framework

3.2 Variable Measurement

There are generally two main types of sources in collecting this data, namely through primary data and secondary data. Primary data is information obtained from a sample of respondents. In particular, the purpose of data

collection using primary data is to obtain real information in more depth and accurately related to the study conducted. The source in this study is to use a questionnaire. The primary data method used by the researcher is through the distribution of survey forms that will be given to the respondents. The population of this study focused on TNB staff of 120 people. Survey forms will be distributed to them at random. The sampling method refers to the table made by Krecjie and Morgan (1970) which states that if the population is 120 then the sample size is a minimum of 92 people. Syed (2007) proposed that regression is a statistical technique or approach operated to determine the significant and linear relationship between independent variables and dependent variables and make linear predictions.

The F value from the ANOVA regression table was used to test whether the existing relationship between the dependent variable (Y) and the independent variable (XI, X2, and X3) could be significant or vice versa (Pedhazur, 1982 and Syed, 2007). Multiple linear regression models can be described as follows:

$$Y = +1XI + 2X2 + 3X3 +n = constant,$$

Note:

1, 2, 3 = regression coefficient

Y= dependent variable,

X1, X2, X3= independent variables

Data for multiple regression analysis can be used when linear and normalized tests are first performed. This step is important because the condition of multiple regression analysis is when the data used are linear and normal correlation.

4. Results and Discussions

Discuss the results of the analysis from the data analysis and findings of the study.

4.1 Descriptive Statistics

In explaining the relation between risk management, security supply, financial flow and technology acceleration with sustainability of the business of TNB Malaysia, the dependent variables are represented by sustainability of the business, while the independent variables include risk management, security supply, financial flow and technology acceleration. From Table 1, it can be depicted that there is a total of 107 observations and the mean score for Risk Management is 4.01, while its minimum value is 1.5, the maximum value is 5.0, and the standard deviation is 0.82. It was also observed that Security Supply had a mean score of 3.99, 1.5 as the minimum value, 5.0 as the maximum value, and the standard deviation is 0.80. Besides, financial flow which is depicted in the table had 4.01 as the mean score, 1.75 as its minimum value, and 5.0 as the maximum value while its standard deviation is 0.81. However, technology acceleration had a mean score of 4.04, a minimum value of 1.5, a maximum value of 5 and its standard deviation is 0.82.

Table 1 Descriptive Statistics

Independent Variables	N	Minimum	Maximum	Mean	Std. Dev.
Risk Management	107	1.5	5	4.01	0.82
Security Supply	107	1.5	5	3.99	0.8
Financial Flow	107	1.75	5	4.01	0.81
Technology Acceleration	107	1.5	5	4.04	0.82

4.2 Multiple Regression Analysis

Table 4 shows the result of the regression analysis which indicates that the p-value of the model is equal to 0.082, meaning that risk management in this model that significantly affects sustainability of the business. It is clear that TNB needs to provide a more effective disaster management framework following the

Covid-19 that is plaguing the country. However, for users of more severe disasters in the future, TNB must ensure that their management is stronger so as not to be affected. These findings indicate that the H1 hypothesis is supported.

Referring to Table 2, it can be seen that the strength of the relationship between security

supply and sustainability of the business is significant at the level of p <0.01 is positive (B = 0.943, sig = 0.003). This means that TNB's ability to supply electricity to consumers is not affected even when Covid-19 hits and runs as usual. However, it is expected to continue to provide electricity to consumers. This makes the sustainability of the business stronger and this shows that hypothesis H2 is supported.

It shown that the strength of the relationship between financial flow and sustainability of the business is very strong and significant at the level of p <0.01 is positive (B = 0.943, sig = 0.000). This means that there is a significant positive relationship between financial flow and the sustainability of the business. This shows that the staff understands that the financial flow for TNB is very high and strong even when the symptoms of Covid-19 hit. This is likely to be a factor of no competition and even very high demand. This makes the

sustainability of the business stronger. This indicates that hypothesis H3 is supported.

The strength of the relationship between technological rapidity and business sustainability is strong and significant at the level of p <0.01 is positive (B = 0.14, sig = 0.000). This suggests that there is a significant positive relationship between technological rapidity and business sustainability. This shows that TNB is moving towards a technology based digitization system in terms of management, financial management, bill payment, public relations, and complaints and so on. Further to the current movement constraints of Covid-19, consumers no longer go to the counter instead they only use technology to make payments and so on only through cyberspace. This is actually made easier and faster. This indicates that the H4 hypothesis is supported.

Table 2 Coefficient of Multiple Regression

Model	Unstandardized Coe	Standardized Coefficient	f	Sig	
	В	Std. Error	Beta	·	515
(Constant)	0.557	0.106		5.233	0.00
Risk Management	0.006	0.024	0.007	0.251	0.082
Security Supply	0.07	0.023	0.093	3.022	0.003
Financial Flow	0.943	0.04	1.063	23.736	0.00
Technology Acceleration	0.14	0.031	0.188	4.552	0.00

5. Conclusions

The implications of this study are very beneficial to the management of TNB to improve level of risk management, security supply, financial flow, technology acceleration and sustainability of the TNB business. This is to improve efficiency and the excellence of TNB staff in Brickfield. The findings of this study may also have some implications for other TNB subsidiaries throughout Malaysia. Overall, this study shows that the majority of TNB company employees have a high level of risk management, security supply, financial flow, technology acceleration and sustainability of the business in the organization. The analysis also shows that risk management, security supply, financial flow, technology acceleration

has a good and positive influence on the sustainability of the organization's business and should be given emphasis by the management of TNB (Mustafa et al., 2020). Whereas, if a disaster like Covid-19 does not recover and becomes increasingly extreme it can actually have a negative impact on the company in particular and it will affect the course of operations of the organization as a whole.

Research on the study "The Sustainability of Electricity Industry in Covid-19 Outbreak in Malaysia" is very useful and relevant to the current situation. This is because most studies such as this study have been conducted abroad and do not focus specifically on Malaysian industry. Research on the sustainability of TNB's electricity in Malaysia is still new, in

addition, this research will also help the Department of the Ministry of Energy and Natural Resources and Tenaga Nasional Berhad (TNB) to identify and study which factors can contribute to the sustainability of the electricity industry during Covid-19 and they can improve their policies according to results and recommendations. COVID-19 became an unexpected disaster in the dynamic corporate governance landscape. In fact, the epidemic is accelerating many trends and companies need to adopt new norms that can bring more dynamic benefits in the long run, rather than trying to resort to short -term operational methods by turning a blind eye to corporate governance. Therefore, companies need to show awareness and adapt to the sentiments of stakeholders. The proactive role management is important and remains fiduciary. Every management is entrusted with promoting the well -being of the company no matter what the circumstances. They are bound to act honestly and fulfil the trust in the interests of the company as well as its stakeholders.

Meanwhile, the business sector also needs to work with the government to start economic operations and activities. Meanwhile, the growing need in more sophisticated technological capabilities to connect businesses is making the world shift to the digitalization process and Malaysia cannot be left behind. In a related development, this study also proposes solutions to the problems faced by large companies and SMEs and divides them into five elements namely Finance, Customers, Technology, Supply Chain and Employees.

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