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A Study to Determinants of Risk Management and Prevention in Credit Card Business in Commercial Banks

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Abstract

The purpose of this study is to explore and determinants the risk management and prevention in credit card business of Malaysian commercial banks. There were five factors derived through the literature and experimental investigation that are affecting the banks due to credit card which are External Fraud Risk, Internal Operational Risk, Credit Risk of Cardholders, Science and Technology and Intermediary Agency Trades Risk. Hence, 250 respondents participated in this study from state of Selangor and Federal Capital Kuala Lumpur. The data was collected and analyzed by SPPS software and it was concluded that that External fraud risk, Internal operational risk, Credit risk of Cardholder, Science and technology are positively correlated with the Credit card business risks of commercial Banks in Malaysia. These papers have highlighted suggestion for future research to develop this study further by considering the data derived from this study by using Delphi Technique.

Keywords: External Fraud Risk, Internal Operational Risk, Credit Risk of Cardholders, Science and Technology Risk.

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Introduction

Development of science and technology continues to grow in this digital era, and this has also led to various financial crimes that have emerged related to credit cards. In modern life and business operation, credit card as an advanced payment method and flexible form of credit has been recognized by the majority of consumers and has gained rapid development. According to Zandi et. al., (2019), the credit card has been commonly used in society as a part of our daily life in recent years. However, there is risk associated with this credit card that have cause new problems for financial institutions and this may lead to global financial crisis if the risk management and prevention of bad usage of credit is not handled carefully. Ban et al., (2016) stated that it is an important issue for balancing the credit-card relationship between the organization and the individual. At present, international countries and organizations are concerned about preventing credit card risks in advance while obtaining the maximum profit at the same time by reducing the risks to an acceptable range (Hopkin, 2018). Zandi et al., (2019) stated that banks need new knowledge, and they must find ways that can train their staff and the current generation needs to understand the important of financial from the school systems itself to prevent the risk of credit card or the benefits. Therefore, five (5) factors were identified based on research findings that related to this study. The factors were External Fraud Risk, Internal Operational Risk, Credit Risk of Cardholders, Science and Technology and Intermediary Agency Trades Risk. Therefore, this study was based on the research objective indicated below.

Research Objective

1. To examine the relationships between external fraud risk and management prevention of credit card business risks in commercial banks.
2. To examine the relationships between intermediary agency trades risk and management prevention of credit card business risks in commercial banks.
3. To examine the relationships between internal operation risk and management prevention of credit card business risks in commercial banks.
4. To examine the relationships between credit risk of cardholders and management prevention of credit card business risks in commercial banks

To examine the relationships between science and technology risk and management prevention of credit card business risks in commercial banks.

Literature Review

External Fraud Risk

External fraud event belongs to the operational risk type of financial risk. According to Akelola (2012), external fraud event refers to the behaviour that causes losses to commercial banks that caused by the intentional theft, embezzlement or evading of property by external personnel, including external theft, robbery and gun-related behaviours. Forging, altering multiple account checks, fraudulent loans and other fraudulent behaviour. It is a typical external fraud event, whose means and other cases of deceiving bank funds and property have more common characteristics and similarities, and it is also one of the risks that cause the largest number, the most serious and the greatest harm to the bank. At present, there are three main channels to realize the external fraud risk of credit CARDS in commercial Banks: ATM, POS or online transfer. From the perspective of the means of fraud, the external fraud risk is mainly fake card fraud, directly defrauding customers of funds and using ATM to cheat the card three categories (Hoebelt, 2019). This bring illegal benefits through illegal and fraudulent means, mainly through fake card fraud, directly swindling customers' funds and using ATM to cheat CARDS, which is a common financial risk (IBOR, B. I. (2016). This is done by illegally applied credit card to make transactions to obtain goods or services. The direct defrauding of customer funds refers to obtaining part or all of the real information of the cardholder through illegal means and obtaining property by changing part or all of the account information of the real cardholder to achieve the purpose of fraud. In addition, using ATM to cheat a card refers to the external fraudulent behaviour of using the swiper in circulation in the market to write magnetic to a bank credit card, forging magnetization affected by the international financial crisis and the global economic recession. Many small and medium-sized enterprises around the world have stopped production and closed down, migrant workers in many countries have returned to their hometowns, and college graduates are finding it difficult to find jobs. Many graduates have not been employed, the number of laid-off and unemployed people increased than in previous years, and the overall employment pressure of the society increased. The crisis of personal survival is being challenged (Kesimli et al.,2019) .In economic field is present between the new and old contradiction and the contradiction between the other areas and mutual influence, interaction, and so on superposition of contradiction, the property crimes is caused by the rise of the keepers of the bank as the national capital wealth, bank credit card is closely related to everyone at the same time, very easy to contact, so are more likely to become criminals commit crime of credit card of bank of the choice of target (Thai, N ,2018). The main impact of external fraud, the installation of special devices to steal bank credit card information. Criminals through the self-service bank entrance guard system, self-help equipment installed on the device such as camera, keyboard bootleg cardholder bank card number, password, and other security information, using the test record machine (disguised as card slot), and other equipment to steal customers track information on the card, reuse after stolen information produce counterfeit card consumption and cash withdrawal.

The counterfeit device has strong camouflage. Most of the card readers are in the shape of ATM insert buckle, and the pinhole camera is disguised as a metal decorative strip, etc., and most of them are glued on top of the slot and password keyboard. Manufacturing swallow CARDS, not out of money and other false appearance. Criminals to make homemade device inside the ATM card reader first "card" illusion, or roadblocks in mouth of ATM out money, make an ATM spitting chao is not successful, at the same time at the ATM machine paste fake "customer service complaints hotline", to lure the cardholder to the so-called "bank employee" or "public security personnel" revealed card number, password, and other security information, or transfer money directly to the designated account; False notices such as "upgrade of banking system" and "debugging of banking programs" are posted on ATM machines, asking cardholders to transfer funds through ATM to designated accounts. There are also changes to the card by distracting the cardholder (Apostolik, & Donohue, 2015).

Intermediary Agency Trades Risk

The transaction risk of intermediary institutions mainly refers to the funds generated by cardholders or issuers in case of illegal transactions or illegal operations of specially engaged merchants. The transaction risk of financial institutions is mainly reflected in two aspects: first, some illegal merchants provide credit card cash transaction, which provides channels for the realization of criminal purposes, resulting in the transaction risk; The other is the risk of improper or even illegal credit card marketing by intermediaries or individuals (Trautman, 2015). The intermediary transaction risk of ltd. bank credit card refers to that some service merchants or intermediaries cooperating with Banks take some illegal operation mean to seek personal gain for more, thus harming the interests of the public and the interests of the credit card market metrix or Banks, for example. Some intermediary service providers or business organizations will handle credit CARDS for customers in the name of Banks, or for their own sales and performance, to help users cheat the bank. And through these credit CARDS to fake credit card transactions, thus fraudulently handling fees. This kind of illegal operation easily causes the bank to appear the capital loss. This kind of risk formation may be the intermediary service provider's individual behaviour. It is also possible that some intermediary services for others to provide credit card cash services. The transaction risk of Chinese ancient institutions that affect the credit CARDS of commercial Banks is mainly due to merchants' 'inadequate understanding of credit CARDS and intervention operation Process, which increases the use risk of cardholders. It is restricted by system, Experience and social environment. Many merchants generally have insufficient understanding of the particularity of credit card business, Intervention operation links and weak risk awareness. Credit card consumption cannot be effectively monitored by the banking industry. The problem that the transaction risk of credit card cannot adapt to the development of credit card business has been exposed, which affects the internationalization of credit card business to some extent. The transaction problem of prominent organizations of some specially engaged merchants is becoming increasingly prominent. Specially engaged merchants

refer to those who have good cooperative business with Banks and can provide some business authorization by Banks. Specially engaged in this special transaction risk referred to the special merchant's illegal trade or illegal operation cause the Banks Cardholder or the card issuers the risk of loss of funds, main show is illegal to steal or sell the cardholder information risk and get risk of cap - and - trade, Intentionally or negligently accepts the related business, to assist the cardholder to obtain cash, false fraud risk, etc. The understanding of credit card business operation is biased or asymmetric with the information of ltd. Banks. In the operation of many special credit card merchants generally believes that the payment by credit card can be made only by checking the amount without error. No matter whether there is a password or not. It is almost impossible to check the specific relevant information and data of consumers.

Internal Operational Risk

According to the famous Basel accord of the banking industry, internal operational risks include operational risks and internal compliance risks. Refers to the bank staff illegal operation or operation error caused by the bank's capital loss, or the staff to take advantage of their positions, and criminals collude, collude to commit crimes, causing the bank or customer capital loss risk (Akonnor , 2018) .Compared with external fraud risk and intermediary transaction risk, such cases are not universal, but because they are committed by internal professionals, the means are more covert and the impact on the reputation of Banks is more serious (Balmer , 2018). With the industrialized development of the financial market, the financial business is gradually expanded under the promotion of globalization, due to the risk management of commercial Banks. Due to the basic passivity and the limitation of external supervision the hidden risks of internal operation of commercial Banks are increasing. Many commercial Banks have caused significant operational risk loss events or cases due to external fraud, unauthorized transactions, credit disputes and personnel management. The root cause of this risk lies in the weak foundation of compliance risk management and the negligence of internal operators. The core of operational risk and compliance risk are focused on human factors. Besides external events and systems, operational risks are all caused by human factors. Operational compliance risk is caused by bank employees violating rules and regulations. Internal operational risk is divided into operational risk and compliance risk. Internal operation risk is a very important risk in credit card business of commercial Banks. Operational risk is caused by bank staff violation, technology and system mismatch, internal program defects and internal and external fraud. Internal operation compliance risk is the risk caused by the violation of laws or regulatory rules by employees or senior executives. Compliance risk focuses on the absence of banking business processes, internal systems and management decisions (Franzetti, 2016). The occurrence of operational risk will inevitably result in the generation of risk amount, whose loss forms are diverse. Compliance risks involve economic penalties or financial losses, such as regulatory penalties for violating customer privacy rules, and include reputational risks. Operational risks are restricted and controlled by economic capital measurement, and risks are dispersed, transferred, and defused

within risk preference and risk tolerance (Kaufmann, 2017). Compliance risks cannot be covered by capital. Although losses can be controlled through prevention and avoidance, risks themselves cannot be transferred. Operational risk must be restricted by strictly abiding by the rules and regulations of bank operation; Prevents and controls compliance risks by revising internal management methods. Operational risk and compliance risk can be converted to each other within a certain control range. The absence of compliance management will inevitably lead to the occurrence of operational risks, which can also directly trigger compliance risks. Some operational risk events can be converted into compliance risk, which is also the most direct cause of operational risk (Hopkin, 2018). For example, many of the operational risk events in credit disputes are caused by the weak investigation before lending and the weak management after lending, as well as the blind spot of compliance management. Most of the operational risks occur in the grass-roots business institutions, and the statistics of operational risk events tend to focus on the level of tellers, operation directors, lobby managers, etc. The level of concern about compliance risk is concentrated at the management level of branches and above (Engel & McCoy ,2016) . Commercial Banks themselves are operating risk institutions, and compliance risk is caused by employees' failure to comply with laws, regulations and rules and significant financial losses and reputational risks for Banks (Archer, & Haron, 2013). Under the background of industrialization and digital in financial markets, banking products and services increasingly grow in quantity, operation risk is due to the different departments and personnel structure of commercial Banks, as well as the assessment method of different departments and posts, staff basic quality is different, different individual employees to work tasks and performance irregularities, resulting in the internal operation risk.

Credit Risk of Cardholders

According to the Basel agreement, the cardholder's credit risk refers to the current lines on the development of the credit card business, size, quality, cannot effectively distinguish between potential customers and credit to the customer not to be strictly controlled, hairpin object to high-risk group, there were excessive consumption, such as overdraft fry high risk events occur. In addition, many Banks issued credit CARDS to people with unstable incomes, including teenagers without fixed incomes and students in school, which also laid a greater risk (Hossain, 2017). These all reflect the problem that some commercial Banks blindly pursue the quantity of credit card issuance and do not strictly check the status of applicants or lower the threshold, which leads to the problem that cardholders do not have enough ability to repay credit card debt, thus bringing debt crisis to commercial Banks (Ijaz, 2018). Cardholder credit risk is an important direction for Banks in risk prevention and governance which refers to the risk prevention of consumers or cardholders. The risk prevention of the cardholder runs through the whole process of the bank's checking and issuing credit card application and using the card. The main performance is due to the information of the bank and the information of the cardholder asymmetry, the user's malicious application and application data fraud, malicious overdraft,

forgery and use of credit card and other risk behaviour. The credit risk of the cardholder is a kind of borrowing relationship in economics, which promises to repay the principal and interest at maturity. The uneven distribution of banking regions and the cross of banking business, the personal credit has the characteristics of uncertainty, liquidity, and invisibility. Make credit card cross - regional transaction function credit risk more hidden. The credit risk of the cardholder is also a direction that the bank pays most attention to when carrying out risk prevention. The cardholder's credit risk is mainly divided into the cardholder's behaviour is uncertain, the change of the cardholder's solvency, for a bank, also did not establish a system of credit system, involving personal privacy issues at the same time, the bank is very difficult to get the user all the credit and asset information, unable to realize the national personal credit information network. In the credit card business, poor information communication and differences between private and state Banks increase the risk of Banks accurately assessing individual credit (Hossain, 2017). At the same time, management costs increase accordingly. The incomplete credit system has two main impacts on the credit card business in Malaysia: the failure to automate credit verification and credit line management. The cardholder's credit risk, as the credit card risk management as a first line of defence, did not establish a good credit reporting system, user manual operation audit credit and assets, not only increased the staff daily work, and affect the working efficiency, also prone to error, unable to realize effective users of dynamic tracking management, increasing the risk of a cardholder loopholes in management. In addition, the failure to provide timely credit warning, credit card fraud, credit card theft, cash and other capital risks. There are three types of credit risks affecting the cardholder. The uncertainty of cardholder behaviour: in the case of extremely asymmetric information between cardholder and bank, the uncertainty of cardholder behaviour is great. There are three types of uncertainty. Cardholders deliberately exaggerate their ability to repay before applying for a card. Using false information or false security to obtain credit CARDS exceeding the credit line; In the process of using a credit card, the cardholder violates the rules of the credit card, deliberately defrauds the bank of funds, and carries out credit card overdraft by malicious means such as repeated consumption under the limit; Cardholders may conceal or transfer their own assets, creating the illusion of their low solvency and evading repayment under the circumstance of solvency, resulting in moral hazard (Muthinja , 2016). Changes in the cardholder's repayment ability: the cardholder has no fraudulent intention subjectively, and is unable to repay the overdraft due to the deterioration of credit status objectively. Card issuing Banks and institutions are issuing credit CARDS to users, mainly based on the economic status of the customer and the degree of credit. Adverse financial circumstances may occur to the cardholder during the use of the credit card. Changes in any one of these factors can affect a cardholder's ability to repay (Alliance, 2015). If the repayment capacity is insufficient to repay the overdraft, the loss is passed on to the issuing bank. Risks from increased liquidity: referring to the mobility of people. With the rapid development of high-tech and emerging industries. New industries, new jobs. People frequently change work units, especially the highly educated and highly skilled people have greater

mobility, and the mobility of personnel leads to the uncertainty of expected income, resulting in the lack of solvency, forming risks. In addition, the cardholder migration, job transfer, relocation to other places without prior notice to the issuing bank, not to inform the new address, resulting in the interruption of the contact between the card issuing behaviour and the cardholder, will also cause the loss of the issuing bank (Goldin, & Kutarna , 2016).

Science and Technology

In recent years, with the development of technology and technology, the rapid rise of global fintech has had a huge impact on the bank credit card business. Third party payment, mobile payment and network bank are used to review user information, and artificial intelligence collects user credit information. The development of technology and technology changes the way people produce and live (Tapscott, & Tapscott, ,2016). Science and technology is a double-edged sword, criminals using science and technology to implement credit card crime is becoming more and more serious, and the use of technology and science credit card crime is not easy to find, more hidden, victimization of a wider range of characteristics by the international wide attention. The development of science and technology is very important to the financial industry, also known as fintech, which has the good side and can greatly improve efficiency and save cost, but the excessive use of science and technology will also cause great harm. The development of science and technology will have a huge impact on the bank credit card business and users, and the development of technology and science will generate brand new credit card products, business processes or processes, such as cloud computing, big data, artificial intelligence technology and so on. It has accelerated the deep integration of technology and banking, and improved the accuracy and efficiency of financial services. This requires the rational use of science and technology in the use of bank credit CARDS, while strengthening the use of science and technology to the bank credit card crime supervision and combat. The development of science and technology is widely used in the financial field, which is collectively referred to as financial technology. The main fields that affect science and technology are intelligent data analysis and big data. It plays a key role in optimizing financial services and improving financial efficiency. The application of big data technology mainly includes information integration, data architecture, data decision and analysis of artificial modelling, multidimensional data analysis and so on (Ali et al.,2016). Through the integration of a large number of terminal data, a reasonable and sound data foundation can be established to provide necessary data support for the risk control, credit granting and personal credit investigation of credit card business, which greatly improves the rapid development of banking business (Liu, & Zou, 2019). The use of cloud computing in the science and technology of financial technology is of great help to the use of credit CARDS. The use of cloud technology is mainly divided into the use of big data to provide necessary storage and computing power, which is a portable and efficient sharing network mode for resource allocation. Cloud computing mainly includes technology layer, application layer and base layer, as well as a series of methods, technologies and theories. Cloud

computing involves a wide range of fields (Oussous et al., 2018). Scientific and technological development of Fintech is of great significance to modern financial life, and Fintech is an innovation to the development of Banks. Take the customer as the centre, can comprehensively improving customer experience, as the continuous advance of science and technology and the continuous application of financial instruments, the competition between Banks is becoming more and more fierce, Banks are faced with a lot of staff cuts, so the bank began to focus on improving the quality of service, optimize the customer experience, and create a new service mode The development of science and technology to make fundamental changes have taken place in financial form, not only embodies in bank credit card, is the main Banks on finance, then with the development of financial technology, slowly with the securities, insurance, etc., at the same time with the use of the Internet technology, great changes have taken place in financial form, online, online payment, online credit card verification and issuance, the development of financial technology greatly promoted the development of modern finance (Chen et al., 2017). Along with scientific and technological progress, it also promoted the reform of financial regulation. In recent years, both internationally and banking in Malaysia, the regulator itself through science and technology innovation, to strengthen the supervision of financial institutions in the product and risk, improve the effectiveness of the regulation, the whole financial system development is inseparable from the science and technology, science and technology is the development of the financial system's change fundamental motivation (Bakar et al., 2019).

Methdology

Quantitative approach was applied for this study with data obtained from the questionnaire survey and was analysed with SPSS. 276 copies of questionnaires were sent out and 250 questionnaires were used for effective data analysis. The response rate remained at 90.05%, and all questionnaires were complete and valid. The questionnaires were about the prevention and management of credit card business risks in commercial Banks. The participants were citizens living in Selangor and Kuala Lumpur, covering different occupations. Two methods were applied by providing paper questionnaires and online questionnaires using Google form.

Results and Descussion

Among these 250 respondents, 128 are males and 122 are females. Male respondents accounted for 51.2% and female respondents 48.8%. There was no significant difference in the proportion of men and women surveyed. The number of people aged 21-39 is 73, accounting for 29.2%. In addition, the largest numbers of 40- to 59-year-olds were 100, accounting for 40%; among the age groups surveyed, 77 were 60 Years and above, accounting for 30.8%. The ethnic distribution was Malay, with 73 respondents, accounting for 29.2%, followed by Indian, with 70 respondents, accounting for 28%, not much different from Chinese, with 65 respondents, accounting for 26%, and other ethnic groups accounting for the least, accounting for only 16.8%. 123 people were married, accounting for 49.2%, unmarried, accounting for 35.6%, accounting for 89, and other

38, accounting for 15.2%. There were 79 students with High school education, accounting for 31.6% of the total population, and 101 students with Bachelor's degree or diploma, accounting for 40.4% of the total population, and 46 students with master's degree or doctoral degree, accounting for 18.4% of the total population. The number of respondents with other qualifications was 24, accounting for 9.6%. 134 employees, accounting for 53.6%. There were 86 self-employed persons, or 34.4%. The least number of respondents were students, with only 30, or 12%. 83 people with monthly income of RM4, 001-RM6,000 have the largest monthly income, accounting for 33.2%. There were 76 subjects with monthly income of RM6, 001-RM8,000, accounting for 30.4%. The monthly income of RM8,000 and above 8000RM belongs to the higher income group, with 21 employees, accounting for 8.4%. Those earning RM 2,000 and below were the smallest at nine, or 3.6%.

Validity Test:

i External fraud risk is considered to be valid, because the Test value of KMO is 0,094, which is greater than the basic requirement of 0.6.

ii Trades Risk of Agency is considered to be effective. Test value of KMO is 0.848, which is greater than the basic requirement of 0.6. Bartlett's Test is also shown to be 0.000, indicating a 100% significant difference with other factors.

iii Internal operational risk is considered to be effective, because the Test value of KMO is 0.845, which is greater than the basic requirement of 0.6. Bartlett's Test also shows 0.000, indicating a 100% significant difference with other factors.

iv Credit Risk of Cardholder is considered to be valid, because the Test value of KMO is 0.901, which is greater than the basic requirement of 0.6. Bartlett's Test is also shown to be 0.000, indicating a 100% significant difference with other factors.

v Science and technology is the last variable studied In this paper, which is considered to be effective, because the Test value of KMO is 0.897, which is greater than the basic requirement of 0.6. Bartlett's Test is also shown to be 0.000, indicating a 100% significant difference with other factors.

Correlation Test and Multiple Regressions:

i The strongest correlation between External fraud risk and Credit risk of Cardholder was 0.922. The second was Science and technology and Internal operational risk (0.913 and 0.912, respectively). The lowest correlation was between Trade’s risk and Agency risk (0.899).

ii Trades Risk of Agency and other four variables, whose values were all greater than 0.05. After comparison and research, the strongest correlation between Agency Trades Risk and Credit Risk of Cardholder was 0.903. The correlation between External fraud risk and

internal operational risk is the same, both of which are 0.899. The correlation between Agency Trades Risk and Science and technology was 0.895.

iii Internal the operational risk with other four variables that there was a strong positive correlation between its value is greater than 0.05, after contrast and research, the researchers found that Internal the operational risk and External fraud risk in the most relevant, 0.912; Secondly, the correlation with Science and technology and Credit Risk of Cardholder variables was 0.908 and 0.906, respectively. The weakest correlation between Internal operational risk and other Agency Trades risk was 0.899.

iv Credit Risk Cardholder and other variables on the found that Internal operational risk with other four variables that there was a strong positive correlation between its value is greater than 0.05, after contrast and research, the researchers found that the Credit Risk of Cardholder and External Fraud Risk of relevance is strongest, 0.922; The Internal operational risk and Science and technology were 0.908 and 0.906, respectively. The lowest correlation between Credit Risk of Cardholder and trader Agency Trades Risk was 0.903.

v Science and technology with other four variables that there was a strong positive correlation between its value is greater than 0.05, after contrast and research, the researchers found that Science and technology and External fraud risk linked most closely, most relevant, 0.913; Secondly, the Internal operational risk and Credit risk of Cardholder have a correlation of 0.908. The correlation between Science and technology and Trades Risk of Agency was the smallest, which was 0.895.

vi The multiple R of 0.898 is represented as the correlation efficiency of all predictors with the independent variable of Management and prevention of credit card business risks in commercial Banks, The R square is just simple a reference of multiple correlations efficient squared. In fact, Adjusted R square of 0.802 is an important value to indicate that around 80.2% of the variance is able to be predicted from the risk behaviour.

vii The correlation analysis and multiple regression analysis indicated that the Beta values of the five variables are External fraud risk (0.232), bidding Agency Trades risk (0.122), Internal operational risk (0.067), Credit risk of Cardholder (0.266), Science and technology (0.243). More importantly, a Sig value less than 0.05 were considered valid. Therefore, from the data in the above table, it is worth noting that the Sig of External fraud risk, unexplained Agency Trades risk, Internal operational risk, Credit risk of Cardholder, Science and technology are 0.09, 0.115, 0.415, 0.002 and 0.04, respectively, according to the above data. Only the Sig values of investor Agency Trades Risk and Internal Operational Risk were greater than 0.05, which was greater than the required Sig value. Therefore, the hypothesis of its relationship with dependent variables was not supported. H2 and H3 are unacceptable. The data proved that the other three variables, except the Agency Trades Risk and Internal Operational Risk, had significant influence on the dependent variable and showed significant correlation.

Hypothesis Testing and Summary:

i H1(Result Supported): There is a significant relationship between external fraud risk and management prevention of credit card business risk in commercial banks. There is a significant relationship between Intermediary Agency Trades Risk and management prevention of credit card business risk in commercial banks. The research shows that there is a close and positive relationship between External fraud risk and the management and prevention of commercial bank credit card risk. Therefore, on the research surface, the smaller the External fraud risk is, the smaller the credit card risk of commercial Banks will be. Meanwhile, in multiple regressions, the significance value is 0.009, and the correlation between External fraud risk and the governance and prevention of commercial bank credit card risk is 87.1%. Therefore, H1 is supported by the explanation that there is a positive correlation between External fraud risk and the governance and prevention of commercial bank credit card risk.

ii H2(Result Not Supported): there is no sufficient evidence and reasons to explain that there is a positive correlation between Trades Risk of different agencies and credit card Risk of commercial Banks. The result of multiple regression analysis is 0.115, and the significance level requires more than 0.005. Therefore, it cannot be explained that there is a positive correlation between Trades Risk and credit card Risk of commercial Banks. Therefore, H2 cannot be supported.

iii H3(Result Supported): There is a significant relationship between Internal Operation Risk and management prevention of credit card business risk in commercial banks. Internal operational risk has a significant positive correlation with the credit card risk of commercial Banks. According to the data of the researchers, the Internal operational risk is positively correlated with the credit card risk of commercial Banks. Because the Pearson correlation analysis value is 0.912, It indicates that the Internal operational risk is positively correlated with the credit card risk of commercial Banks. Meanwhile, in multiple regression analysis, the significance level was 0.003, lower than the required 0.005. Therefore, data analysis supports a positive correlation between H3, Internal operational risk and credit card risk of commercial Banks.

iv H4(Result Supported): There is a significant relationship between Credit Risk Cardholder and management prevention of credit card business risk in commercial banks. It is believed that there is a positive correlation between Credit Risk of Cardholder and Credit Card Risk of commercial Banks. The larger the Credit Risk of Cardholder, the greater the Credit Risk of the commercial bank's Credit card; the smaller the Credit Risk of Cardholder, the better the Credit of the Cardholder, and the smaller the Credit Risk of the commercial bank's Credit card. Through the SPSS analysis in chapter 4, Pearson correlation analysis is 0.922, which indicates that there is a positive correlation between Credit Risk of Cardholder and Credit

Card Risk of commercial Banks. Meanwhile, in the multiple regression analysis of Credit Risk of Cardholder, the significance level is 0.002, significantly lower than the required 0.05. Therefore, it is verified that H4, Credit Risk of Cardholder and commercial bank Credit Card Risk are positively correlated.

v H5(Result Supported): There is a significant relationship between Science and Technology and management prevention of credit card business risk in commercial banks. Based on the literatures and there was a positive correlation between Science and technology and credit card risks of commercial Banks. The more mature Science and technology was, the lower the risk was, and the lower the credit card risks of Science and technology were when applied to commercial Banks. Pearson correlation analysis was 0.913, indicating a positive correlation between Science and technology and credit card risk in commercial Banks. Meanwhile, in the multiple regression analysis of Science and technology, the significance level was 0.004, lower than the required 0.05. Therefore, it is verified that H5, Science and technology are positively correlated with the credit card risks of commercial banks].

Conclusion

In conclusion, this study explains the factors affecting the risk behaviour of commercial Banks, researchers combine theoretical knowledge with practical knowledge. The research topics mainly include External fraud risk, diversification Agency Trades risk, Internal operational risk, Credit risk of Cardholder, Science and technology. In conclusion, External fraud risk, Internal operational risk, Credit risk of Cardholder, Science and technology are positively correlated with Credit card risks of commercial Banks. These factors can affect the risk of credit card business of commercial Banks. For example, the lower the credit risks of cardholders, the lower the risk of credit card business of commercial Banks. This paper can provide certain help for Malaysian commercial Banks in the management of credit card risks, explore and provide theoretical basis and technical methods for the risk management system of Malaysian commercial Banks' credit card business, and promote the healthy development of Malaysian commercial Banks' credit card business.

At the same time, those interested in carrying out their own research on effective risk behaviour management in the banking industry can get useful information from this study, and researchers from other countries can also use this study to compare with commercial Banks in their countries. The researcher also came across that this study is very suitable to be conducted by applying Delphi Technique (Sheikh et al., 2020) whereby panel of experts can further determine if the factors can be further enhanced or ranked based on higher priorities and additional factor may influence this can lead to improving frameworks in commercial banks. According to Sheikh at al., (2020), Delphi Technique study has no one technique to begin with and usually it is used to seek ‘Consensus of Expert Opinion’ for better results. Hence the

researcher recommends the results from this study can be further developed to a qualitative exploratory study which can help commercial Banks and investors to improve their professional knowledge and skills and reduce the risk of credit cards. Moreover, programmes can be also created to educate consumer even from the school systems.

Conflict of interest

The authors declare no potential conflict of interest regarding the publication of this work. In addition, the ethical issues including plagiarism, informed consent, misconduct, data fabrication and, or falsification, double publication and, or submission, and redundancy have been completely witnessed by the authors.

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References

Alliance S.C. (2015) The true cost of data breaches in the payments industry technical report, Smart Card Alliance, 032015 URL http://www.emv-connection.com/downloads/2015/03/The Cost-of- Data-Breaches.pdf

Akelola,S.E.R.A.H (2012). Fraud in the banking industry: A case study of Kenya (Doctoral dissertation, Nottingham Trent University)

Akonnor , E. O.(2018) Public-Private Partnership in Solid Waste Management in Ghana, The Case of Accra Metropolitian Assembly (Doctoral dissertation, University of Ghana)

Apostolik, & Donohue, C. (2015) Foundations of Financial Risk : an overview of financial risk and risk based financial regulation. John Wiley & Sons.

Ban C., Seabroke, L., & Freitas.S.(2016). Grey matter in shadow banking: international organizatons and experts strategies in global financial governance. Review of International Political Economy, 23(6),1001-1033

Bakar, N.M.A.,Yasin,N.M., Razali, S.S., & Teong,N.S(2019). The Role of Financial Regulator in Protecting Banks Consumers from Unfair Contract Terms: The Case of Malaysian Islamic Banks. Emerging Issues in Islamic Finance Law and Practice in Malaysia, Emerald Publishing Limited, 91-115

Balmer, A.G.(2018)Regulating and Supervisory Expectations on Compliance Function in Banks

Engel,K.C & McCoy P.A (2016). The subprime virus: Reckless credit, regulatory failure, and next steps. Oxford University Press.

Franzett , C.(2016). Operational risk modelling and management Chapman and Hall/CRC.

Goldin I, & Kutarna , C (2016). Age of discovery : Navigating the risks and rewards of our new renaissance. Bloomsbury Publishing

Hoebelt,J.(2019) Bank stress tests: implications on accounting discretion, transparency and market discipline (Doctoral dissertation, University of Sussex)

Hopkin,P.(2018). Fundamentals of risk management: understanding, evaluating and implementing effective risk management. Kogan Page Publishers.

Hossain, M. (2017). Credit Risk Management and Green banking of National Bank Limited: A case study of Lake Circus Branch (doctoral dissertation Daffodil International University).

Ijaz, A. (2018). Risk management of counterfeit card fraud: An empirical study of challenges among South Asian financial instituions (Master thesis, Nord university)

IBOR, B. I. (2016). An empirical investigation of the human resources nexus to frauds in the Nigerian Banking Sector. International Journal of Scientific and Research Publications 6(6)

Kaufmann, W. (2017). Going by the book: The problem of regulatory unreasonableness. Routledge.

Kesimli, I., Kesimili & Achauer (2019). External Auditing and Quantity. Springer

Muthinja M.M, (2016). Financial innovations and bank performance in Kenya: evidence from branchless banking models (Doctoral dissertation)

Sheikh Muhamad Hizam, Ananda Devan Sivalingam, & Gholamreza Zandi. (2020). A Research Study by Delphi Technique in School Counseling. Https://Www.Researchgate.Net/Journal/0193 4120_Test_Engineering_and_Management, 82.

Tapscott , D & Tapscott, A (2016). Blockchain revolution: how the technology behind bitcoin is changing money business and the world. Penguin

Thai, N.D (2018). Liquidity Risk Management in Banking Activities Research at Military Banks in Vietnam

Trautman , L.J.(2015) E-Commerce,cyber and electronic payment system risks : lessons from Paypal.UC Davis Bus.L.J,16,261.

Zandi Gholamreza, Sivalingam, A. D., & Mansori, S. (2019). An Empirical Study in Human Resource Management to Optimize Malaysian School Counselling Department. International Journal of Financial Research, 10(5), 32. https://doi.org/10.5430/ijfr.v10n5p32

Zandi Gholamreza, Shaheen Mansori & Ong Boon Hai (2019). The Effect of Demographic Variables and Ownership on Credit Card Market in Malaysia. International Journal of Financial Research (IJFR), Vol. 10, No. 5, Special Issue; 2019.

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