Risk management practice for foreign banks in the Chinese financial sector: a case study of HSBC China

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Abstract. This dissertation uses a single case study approach with a mix of qualitative and quantitative analysis of secondary data for research process. It aims to answer the research questions of how does risk management framework of foreign banks work in China's regulatory and economic environment. Through an in-depth analysis of the risk management practice of HSBC Bank (China) in 5 years period, the author finds risk management policies and assessment procedures are always align with organization's risk appetite and strategy. In addition, based about HSBC, the portfolio with higher capital requirement has lower return due to the extra cost. And there is no clear evidence that stricter supervisions will impact the efficiency of risk management.

Keywords: risk, risk management framework, efficiency, financial ratio, case study.

1. Introduction

This paper conducts a single case study of HSBC which has a long development history in China and has extensive service networks. Due to the outbreak of COVID-19, it is hard to get access to risk officers to conduct an interview so that the analysis of the dissertation is mainly based on the secondary data. A mix of qualitative and quantitative method was utilized to gain an in-depth understanding of the research topic with the support of quantitative calculations results.

The literatures in this field are almost empirical studies to test the correlation between two variables under risk management framework, however, there is limited literature concerns how does the risk framework of foreign banks work in China's regulatory and economic environment and whether it is efficient. This paper aims to get new insights about the research procedures which narrow the broad topic to the evaluation of efficiency of managing four types of risks. Several financial ratios and models that are identified in the previous studies are used as metric to measure the efficiency[1].

This paper will start with an extensive literature review which provides background information for China's regulatory environment and the new standards as well as explain the concept related to risk and risk management.

Then, the methodological position and philosophy of research process will be introduced with the explanation about data collection and analysis vehicles. The reason why chooses case study method and positivism, and the quality concerns will be explained in the chapter. Chapter 4 focus on answer the research question: how the risk management framework of foreign banks work in China does, whether it is efficient and to what extent. The performance of managing credit risk, market risk, capital and liquidity risk and operational risk will be examined by serval ratios. The findings will be summarized in chapter 5 and the theoretical and practical contribution of this project will be explained. Recommendations on foreign banks and future research directions will be given at the end [2].

This chapter defines related concepts of risk management framework and how does it interact with corporate's management to identify the necessity of selected research question and gaps of the theoretical and empirical findings.

2. Literature Review

2.1. Corporate governance and risk management

Risk was generally be considered as the possibility of events that affect organizations to achieve strategies. The term governance firstly appeared in 1970s and being introduced in academic literatures through Cadbury report in 1992. It demonstrated that the corporate governance not only includes carrying out organization activities but also take responsibility to make risk at an acceptable level. Generally, the management are responsible for shareholders and the value of the whole organization, however, Soin and Collier (2013) indicate that the corporate governance of banks goes beyond the shareholders to include debtholders (customers) so that there are more governance concerns during the risk assessment procedures.

In past decade, there is a developing concern with the relationship of risk management and corporate governance and there is a recognition that managerial action presumes provision reformulation. In order to improve the management efficiency and create more value for shareholders, moving emphasis to how to manage risk is essential [3]. According to McKinsey quarterly report on banking industry (2018), risk management has become the most important aspect of bank operation. The management literatures in recent decades also revealed some theoretical concepts of modes, control styles, context-specific and organizationally dependent concepts [4]. The particular application outcomes of those concepts in specific organizationally environment has not been fully discovered. Additionally, today's organization seeks to actively manage risks rather than containment. In order to better assess the quality of internal management and achieve higher degree of alignment between decision making and organizational strategy, it is inadequate for firms to simply deploy perceived managerial controls while the external factors should also be explored and considered. The traditional risk management mainly focuses on the financial activities of derivatives and financial statement reporting procedures while the financial crisis highlights that there is little attention on the operational risk and external factors that could influence the strategic decision-making process and the value of the firm[5].

2.2. Risk management framework

According to the committee of sponsoring orgnisations of the national commission of fraudulent financial reporting (COSO) framework (2004), the enterprise risk management (ERM) is defined as the process effected by management which employs to the whole entity to manage risk within its risk appetite and provide assurance to achieve the entity objectives. It consists of eight interrelated components which are integrated with the management process:

- Internal environment which includes the risk appetite and operation environment;
- Objective setting;
- Event identification (internal and external events affecting achievement of an entity's objective);
- Risk assessment to determine how risks should be managed;
- Risk response (management develop a set of actions to align risks with the entity's risk appetite);
- Control activities (policies and procedures are established and implemented to ensure the risk responses are effectively carried out);
- Information and communication
- Monitoring

COSO defines whether the right components are present and functioning properly as judging criteria to assess the effectiveness of ERM. Under enterprise risk management framework, the risks are all within the risk appetite, the ability of managers' detection of risks are increasing and managers could respond to risky events with reliable outcomes [6-7]. Thus, ERM could be regarded as a significant sign of competitive advantage and essentially be considered in developing countries. Additionally, under effective risk management framework, the four types of objectives should be all achieved with actionable strategic and operational objective, reliable reporting and applicable laws

are being complied with. Respectively, a board of directors and management which has reasonable understanding of entity's strategic is essential [8].

2.3. Impact of risk management failure on the financial crisis

Based on the findings of Financial crisis inquiry commission (2011), the failures of corporate governance and risk management at many systemically important financial institutions are the key causes of the crisis. Many institutions focused on risky activities with high returns, such as acquiring and supporting subprime lenders which had been involved in the issuing of trillions of dollars in mortgage-related securities. The decisions with short term focus damage the long-term outcomes. Additionally, risk models were over-relied upon to predict risk while the qualitative judgment and review was diminished. In addition, management behavior was frequently misaligned with corporate strategy, thereby rendering it difficult for management to operate efficiently [9].

In conclusion, a hunger for larger market share and profits lead financial institutions to ignore risk exposure and involved in high risk activities. These poor choices perfectly illustrate the manner in which both theory and practice can collapse [10].

2.4. The role of a risk committee

The group of risk committee undertakes oversights of enterprise risk management and internal control systems [11]. In addition, these committees assume responsibility for the regulation of financial crime, such as money laundering, bribery, and corruption. In the aftermath of the financial crisis, institutions began to search for ways to maintain ongoing basis advantages. One way that can be accomplished is using risk management committees comprised of various management team leaders to strategically mange risks at an enterprise level.

There are vast empirical results shows the positive relationship between the size of the risk committee and profitability. AI-Hadi et al. (2016) also find that firms with a separate risk committee are associated with greater market risk disclosures. Increasingly, scholarship, in the shape of resource-based theory and agency theory, is devoting attention to the significance of external risk committees. Chief Risk Officer (CRO) first emerged in the later 1990s and has since been located at the center of corporate governance issues by ERM. There is also growing importance attached to the capacity of enterprises in their function as regulators and innovators of improvements.

The underlying causes of failure to manage risk on the part of boards are that boards lack sufficient access to pertinent data or cannot adequately process the risk-related data to which they do have access [12]. Hence, it is clear that forming external risk committees, augmenting the roles of risk officers, and inviting multiple stakeholders to participate in decisions are central to the achievement of superior risk management.

2.5. Three lines of defense

The three lines of defense model encompasses the core elements of risk management [13]. The first line of defense is business management, which included med-level and front-line management, wherein responsibility is assumed for the implementation and support of internal controls. The second line of defense comprises professionals who are responsible for the creation of risk management techniques and for helping the first line defenders to identify risk and regulate risk management procedures. The third line of defense consists of internal auditing which exists to offer assurance in relation to the existing risk management systems and internal controls.

Boards of directors and senior management are charged with supervision of both risk management and strategy, wherein is its assumed that each organization division can manage their own risks. Hence, the dominant approach is characterized by integration as a means of realizing compliance with organizational goals. The recommendation of the Institute of Internal Auditors is that all three lines of defence are employed in enterprises, irrespective of their size. Furthermore, it is essential that there exists effective coordination between each line, as exemplified in knowledge sharing in relation to the operating of risk management systems.

2.6. Chinese regulatory and market environment (Basel iii)

Chinese government rebalanced the emphasis on economy development and tightened the regulation on foreign bank over the past few years. Based on the survey results that PwC obtained from 41 foreign banks in China, there is no evidence to suggest the regulatory burden for the foreign banks is becoming any lighter. Most foreign banks also feel challenged by staged approval processes. For example, the inability for branch approvals and the three years wait period for granting of a RMB license. Additionally, the restrictions on level of investment in local banks and securities companies are also concerned. Moreover, the Chinese version of Basel iii brought challenges of regulatory reform to foreign banks. Those unexpected risks limited the room for foreign banks' development.

China's banking regulatory commission (CBRC) published the new standards and guidelines of "China's Basel III" on January 2012. The Guidelines comprise five sections, covering overall aims and principles, the need to improve the banking industry's prudential regulatory standards, the need to improve the regulation of systemically important banks, the need to do more to implement Basel II, and future policy. It shows how the CBRC is going to incorporate Basel III within China's own regulatory standards, for example, by adopting capital adequacy rules that are stricter than those of Basel III [14]. In order to optimize the calculation method for risky asset, CBRC intends to incorporate operational risk and other risks that presented by dealing derivatives. The adoption of those new standards is like to put pressure on domestic bank which was protected by regulated interest as well as the foreign banks with pushing them to change their business model. However, there was some considerations on how these rules might apply to foreign banks. For example, the strict loan provisioning rules could penalize foreign banks that already have sound provisions.

3. Research design

This Chapter outlines the research method used to complete research process for this dissertation. It is ethical approved by the university of Bristol in July 2020. It will include a Section 3.1 outlines the methodological position and its implication on how this dissertation was conducted; Section 3.2 describes the case study and the reason to use it; Section 3.3 discuss the data collection vehicles and selection criteria; Section 3.4 describes how the data were analysed; Section 3.5 defines the quality of the data which relates to the measures author took to ensure the reliability, validity and causality.

3.1. Case study method

Qualitative case study method provides tools for researchers to study complex theory within their selected contexts. A case study method should be considered when the focus of the study is to answer how and why questions and the author want to cover the contextual conditions which is believed relevant to the research fields. An embedded single case study involves only one case but with multiple units of analysis. The author chooses case study method to narrow the board topic into the operation efficiency of a sample organization and focus on its four major types of risks.

This case study is explanatory which were seeking to investigate the causal links in real life context that is too complex to do survey or experiment. In order to enhance the credibility of data, there will be multiple data sources which includes the past interview, documents and archival records. Under the single case study method, all the data are from the same organization or industry.

The goal of the report is to answer the research question in a comprehensive perspective and gather study result which is suitable to apply in real world practices and reference valuable for other studies with a similar situation.

3.2. Data collection and selection vehicles

This dissertation chooses HSBC (China) Co. Ltd as the sample organization to do the case study as it has a long history of development in China which contains rich and evident information about the conceptual and real-world practice. HSBC construct a consistent risk management framework for the Group and relies heavily on the global business, however, the unique business culture and

centralized regulatory systems lead the branches in China face totally different situation. This paper will focus on those difference and try to analysis the efficiency of its daily operation through comparing the ratios and empirical result with China's regulatory requirements and identify the changes in a time series manner. It sets the risk management policies based the International financial reporting standards (IFRS)9, however, there is some difference under CBRC requirements. All the data collected are only within the HSBC (China) organization and China's banking industries and subject to China's regulatory standards.

In theory, the choice of time horizon for measuring risk is over 5 years or 10 years. However, due to the disclosure limit of China's banking industry, it is hard to get reliable data for 10 years long period. Considering there are many events, for example the outbreak of COVID 19, the US-China trade war and Brexit happened recent years which significantly influence the performance of world economy, the time horizon for the case study is set as five years and for some metrics, if the data of 2020 H1 are available, they were covered as well.

3.3. Quality of qualitative research

In general, a single case study is not regarded as reliable as other empirical studies, as the situation varies for each case. However, results of this dissertation have reference valuable for other foreign banks in China. The recommendations are for all foreign banks and repeatability exists. However, subjective sample selection bias till reduces the reliability. The author also believes that this case study is of high validity as all the data are collected through public documents or database which is objective and accurate. The regulatory standards are also objectively existing, and the comparison result is valid. For causality, risk type selections and findings were link back to the literature following the theoretical logic.

However, only use secondary data may lead to bias and human fault during the research process and the short time horizon limits the depth of analysis. There are no ethical problems as all the data are publicly available.

In conclusion, this chapter provide details about how data collected and analyzed during the research process, next chapter answers research questions.

4. Research findings

This chapter aims to answer the research question: how does the risk management framework of foreign banks works under Chinese regulatory and economic environment, does it work effectively, why and to what extend? Section 4.1 provides a case description; sections 4.2 describes how does the risk framework of HSBC works in China according to the analysis of its material risk types including credit risk, capital and liquidity risk, market risk and operation risk; Section 4.3 give guidance on the efficiency testing.

4.1. Case description

The HSBC group is one of the largest banking and financial services organisations in the world with assets of $2.7 Tn and operations in 64 countries and territories. It serves customers through four global businesses: retail banking and wealth management, commercial banking, global banking and market and global private banking. HSBC China has been established in Hongkong for over 150 years and regard Chinese market as the heart of its strategy. With rich knowledge of mainland China and largest service network covering the widest geographical reach of over 57 cities and 8000 staff, it achieved great success in its international operations with a 21% of total profit gaining from global business and 3% of total customer account from Asia. HSBC bank (China) Ltd. started operations on 2007 as a locally incorporated foreign bank which is owned by the funding member of the HSBC group-Hongkong and Shanghai Banking corporation. In past decades, it is increasingly noticed that middle class has become the main demands for consuming goods while the manufacturing sector is

moving up the value chain, the country with a large population of middle class attractive to foreign businesses.

In their annual report, the Group identifies that China is the second largest economy in the world that operates in a unprecedented scale with unique business culture that they league with its own. Although the multinational group applies management policies and strategies to entity level for every subsidiaries around the world, there are some difference in mainland China due to the unique context. Thus, in order to analyse how does the risk management framework of foreign banks works in China, HSBC is a typical example to use here to do a case analysis.

The Group provides a comprehensive range of financial services and products to corporates, governments and institutions which is appropriate to do analysis from every dimensions. It aims to maintain a strong capital and liquidity position with a strategy to become world's leading international bank, helping clients thrive through faster growing, higher returning markets, particularly in Asia and the middle east. It maintains a privileged position in growth market, has a strong performance in wealth business with client assets of $1.4 Tn and leads retail banking operations in HONG KONG and the UK. The fast-growing retail banking business leads to a large increase of personal lending and mortgage transaction which increase the probability of default and credit risk. According to the annual report, there is a $16 Tn growth in mortgage book in Hong Kong in 2019 and a $9 bn growth in loans and advances.

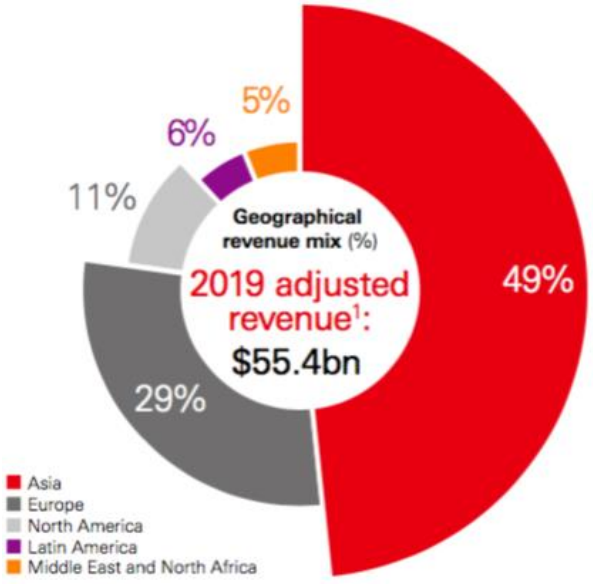

Figure 1. Geographical revenue mix for revenue

The global banking and markets service reflects to the global ongoing uncertainty through the revenue and return on investment. In 2019, 49% of adjusted revenue generated from Asia market (see Figure 1). The impact of US-China trade war may also influence other markets particularly in Europe, new regulations from both the US and China will likely increase uncertainty of companies involved in cross border and limit the resource transfer which brings market risk to the Group. Global private banking regards the personal lending and deposit considers liquidity risk as a necessary metric to monitor.

The primary role of risk management is to protect customers, business, shareholders and communities that ensure a sustainable growth and keep the management align with the strategy.

HSBC use a comprehensive risk management framework across the organization and across all risk types, underpinned by the Group's value which outlines the key principles, policies and practices that employ in identifying, monitoring, assessing the material risks, both financial and non-financial (see *Figure* 2).

Key components of our risk management framework

	HSBC Values and risk culture	
Risk governance	Non-executive risk governance	The Board approves the Group's risk appetite, plans and performance targets. It sets the 'tone from the top' and is advised by the Group Risk Committee (see page 166).
	Executive risk governance	Our executive risk governance structure is responsible for the enterprise-wide management of all risks, including key policies and frameworks for the management of risk within the Group (see pages 75 and 83).
Roles and responsibilities	Three lines of defence model	Our 'three lines of defence' model defines roles and responsibilities for risk management. An independent Global Risk function helps ensure the necessary balance in risk/return decisions (see page 75).
Processes and tools	Risk appetite	The Group has processes in place to identify/assess, monitor, manage and report risks to help ensure we remain within our risk appetite.
	Enterprise-wide risk management tools	
	Active risk management: identification/assessment, monitoring, management and reporting	
Internal controls	Policies and procedures	Policies and procedures define the minimum requirements for the controls required to manage our risks.
	Control activities	Operational risk management defines minimum standards and processes for managing operational risks and internal controls.
	Systems and infrastructure	The Group has systems and/or processes that support the identification, capture and exchange of information to support risk management activities.

Figure 2. HSBC risk management framework

The risk management framework is consistent throughout the history which is align with the risk appetite and corporate's strategy. The risk appetite includes maintain strong capital position, generate returns in line with a conservative risk appetite, deliver sustainable earnings and consistent returns for shareholders etc. (see Figure 3).

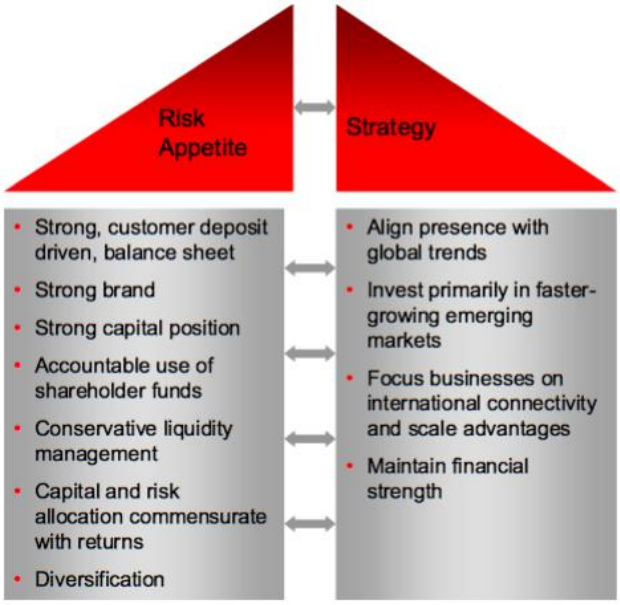

Figure 3. HSBC risk appetite and strategy

To create a robust control environment to manage risks, HSBC use three lines of defence model which defines management responsibilities for risk management at different levels. The board has the responsibility of approving the group risk appetite and policies, Group risk committee of the board formed to provide oversight and advice to the board on material risk related matters. The group chief risk officer reports to the GRC. Risk governance by the executive is exercised at group level through the risk management meeting. Day-to-day responsibility for risk management is delegated to senior managers with individual accountability for decision making. All employees have a role to play in risk management.

In past 40 years since China's reform and opening up policy released in 1978, that there it has retained a breakneck speed of growth however, slowdown in recent years. Foreign banks need to learn how to navigate to its market and understand the risk so that could identify the forward-looking risks and ensure that the right controls and assessments are in place to mitigate them for on-going purpose. Chinese version Basel iii identifies HSBC as the systematically important banks whose collapse will pose serious to the economy. The new standards set specific requirements for those banks (see table 1) so that the assessment of HSBC risk management efficiency will be examined through those indicators.

4.2. The analysis of risk framework efficiency

HSBC briefly categories risk into two types, top risks and emerging risks. The group defines a 'top risk' as the thematic issue that may materially affect the Group's financial performance, reputation or damage the business model within one year. While the 'emerging risk is the unknown components that may have material effect on long term strategy, reputation and performance. It needs high level analysis and stress testing to assess the potential impact. Some principal risks are identified and considered under top and emerging risks: credit risk, liquidity risk, market risk and operational risk. The group could improve the performance through closely monitor the identified risks and ensure robust management actions are in place. The following analysis will try to evaluate the efficiency of managing those risks following the risk management framework. Some typical financial ratios identified by Basel Committee and China Banking Regulatory Commission (CBRC) as the tools for quantifying and managing those risks based on the requirement of Basel regulatory standards. This paper also describes specific systems or models that used in previous empirical practices in order to examine how does the risk management framework works and whether management practice improve the performance.

4.2.1. Credit risk

Credit risk is the risk of incurring financial loss when a customer or counterparty fails to meet an obligation under a contract. It normally arises from direct lending, trade finance and guarantee derivatives. The objective of the Bank's credit risk management is to optimize the capital allocation at the acceptable level of risk-taking units and maximum the return for shareholder which is in align with the bank's conservative risk appetite and the group's strategy.

Risk can be measured along two dimensions-expected loss and unexpected loss. In credit risk, the losses are intended to be covered by operating earnings so that the loan-loss provisions are essential to identify when assess the efficiency. The unexpected loss creates need for capital allowance. Under the new standards released in 2012, banks will be expected to have a loan provision ratio of at least 2.5%, non-performing loan ratio of less than 5% and a provision coverage ratio of at least 150%. The classification of the different grades of provision was adjusted in line with the quality and profitability of banks' receivables. According to the CBRC (2012), China's banks have an average loan provision ratio of nearly 2.5% and an average provision coverage ratio of 230%, with more than 50% of its banks already in compliance with the new loan provision requirement and more than 80% in compliance with the new provision coverage requirement.

Non-performing loan (NPL) ratio is the ratio of the amount of non-performing loans in banks' portfolio to the total amount of outstanding loans that bank holds. It measures the efficiency in receiving repayments on loans. HSBC determine that a financial instrument is credit impaired when the contractual payments is 90 days past due. It is frequently used to access the quality of loans within the portfolio or among banks. Based on the formula and data from the Bankscope, the author generates a line chart for HSBC's NPL ratio in 5 years (see *Figure* 4). It is clear that in 2016, NPL is higher than the regulatory standard which means there is an amount of higher risk lending.

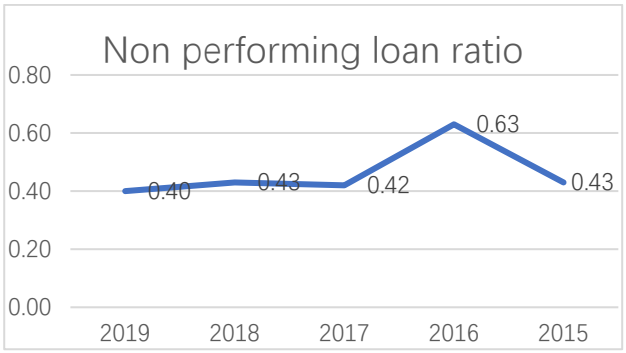

Figure 4. Line chart for non-performing loan ratio

The loan loss provision coverage (LPC) ratio is an indicator of how protective a bank is against future losses. Banks usually set aside a portion of their profit as a provision against bad loans. HSBC set a 99% confidence level to guarantee the solvency so that the implicit risks and default rates of debt over a one-year horizon should be limited to less than 1%. A high LPC ratio means there is more loan quality issues has been considered and the bank is less vulnerable to future losses(Figure 5).

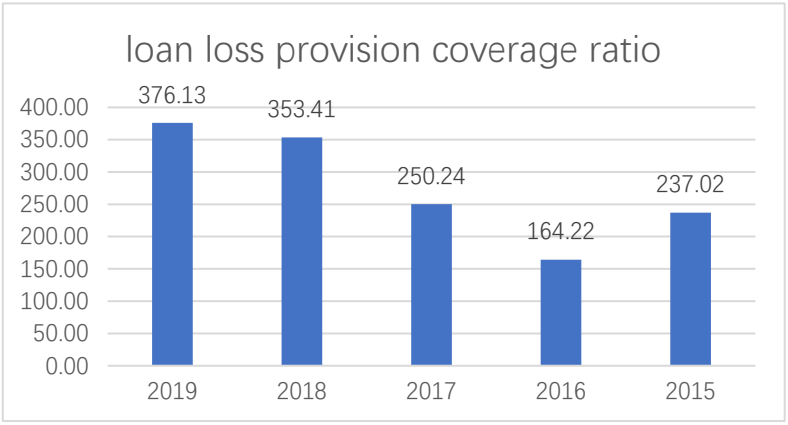

Figure 5. loan loss provision coverage ratio

In past five years, the loan loss provision coverage ratio met the requirement of CBRC standards. There is an uptrend development for LPC ratio except 2016 and achieved far more above the average level of industry in 2019 which means the Bank has made enough preparation for future losses.

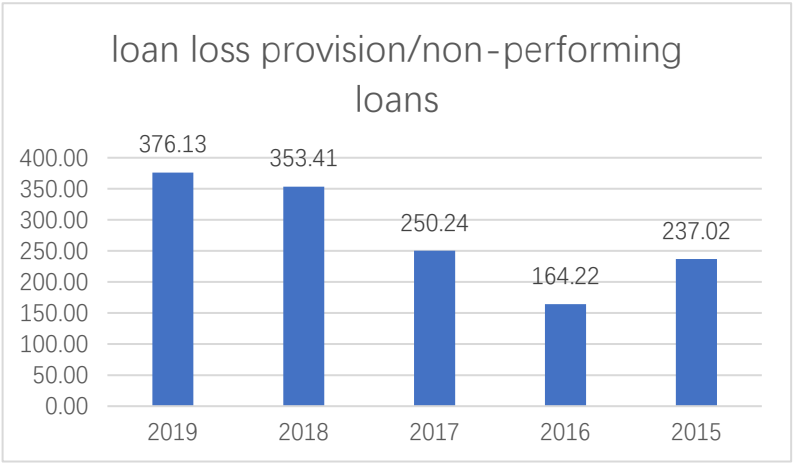

Figure 6. loan loss provision/non-performing loans

According to Figure 6, the average loan loss provision is over 250% of the non-performing loans. It is clear that the HSBC has a health development in dealing with bad loans with adequate capital allocations and meet the regulatory requirement of not less than 150%. Associated with the nonperforming loans ratio, 2016 is a year that HSBC did lending to customers with high risk. the bank should moderate this ratio in line when there is downtrend of economy development.

As for the two sets of rules mentioned above, the banks will have a period of grace before they are expected to comply with the new provisioning rules. For the SIBs, this will be until the end of 2013 while those that are unprofitable and need to make considerably more provision will have until the end of 2018.

The management make decisions about the concentration, renegotiation and write off depends on the credit quality which was facilitated by the internal rating system of banks' receivables and retail and wholesale lending. The key metrics here that for validation checks and enhancements is the expected credit loss (ECL) which is the probability weighted estimate of credit losses following the requirement of IFRS 9.

It is demonstrated that ECL mainly being recognized in two accounts, the loans and advance to customers and banks. The allowance for ECL reflects the economic conditions while the ECL charge reflects the underlying credit quality to some extent. Due to the outbreak of COVID-19, the allowance for ECL increased from $9,4 bn in December 2019 to $14,5 bn in June 2020. In order to determine an unbiased ECL, HSBC took the 5-year horizon as time period and tested multiple economic scenarios to predict the probability-weighted results. In 2019, the events that has serious impact on economy including US-China judgement and UK economic uncertainty should be considered to estimate the worst scenario for ECL charge.

In order to have a more straightforward comparison with China's domestic banks, the author chose the 3 largest listed banks and calculation the loan loss provision/gross loans ratio to test the efficiency of credit risk measurement *(Figure 7).* The average loan loss provision/gross loans ratio of HSBC is around 1.2% while the big 3 domestic bank of China will have the average rate of over 2.2%. According to S&P global, the China's bank has improved 70% of loan loss provision to hedge against loan loss because of the coronavirus. In order to enhance the profitability and protect the group from unexpected risks of loan loss, it is recommended that HSBC generate more provision in recent years.

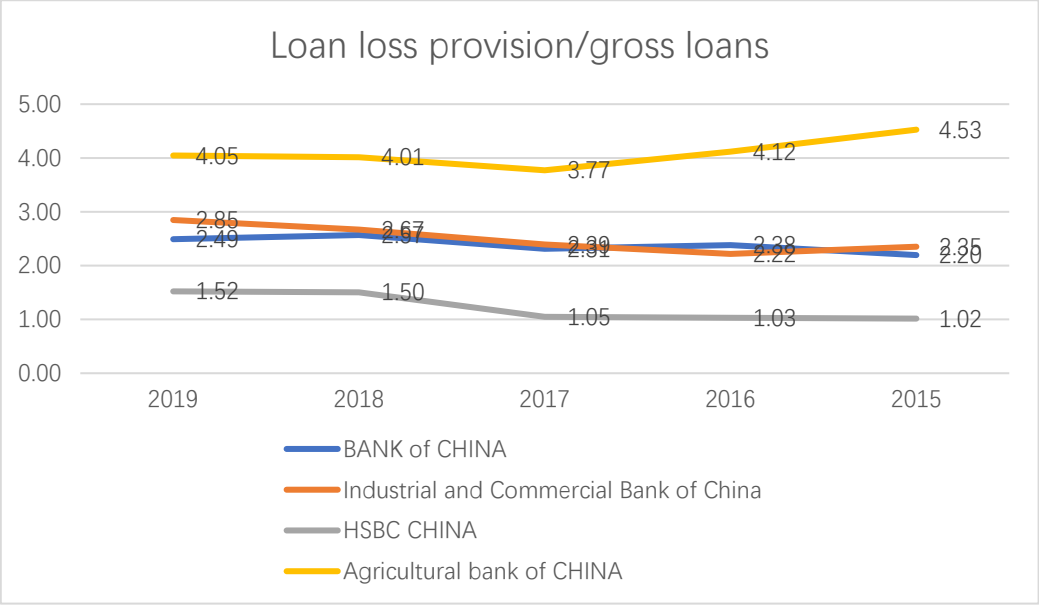

Figure 7. loan loss provision/gross loans

In conclusion,througn make comparison of ratios among HSBC, regulatory requirements and the performance of domestic banks, we can conclude that although meeting the requirement of China's regulatory, it still not enough for HSBC to respond to the unexpected risks.

4.2.2. Capital and liquidity risk

Capital and liquidity risk is the risk of having insufficient capital to meet financial obligations of expected and unexpected cash outflows and satisfy regulatory requirements. Liquidity is the ability of a bank to fund increases in assets and meet obligations as their come due, without incurring unacceptable losses. As the capital allocation is central to not only the liquidity risk but also credit

risk, HSBC restructured the risk management system, a dedicated second line of defence will provide independent oversight of the capital management. The risk function was actively involved the capital risk appetite that maintain a strong capital position to support the investment in accordance with the strategy. The capital adequacy could be monitored through the risk appetite, target ratios, the requirements of regulators and the control of liquidity resources. The common metrics for assessing the capital requirement includes the common equity tier 1, tier2, capital adequacy ratio and leverage ratio[15].

The new standards released in 2012 by CBRC set a tightening capital adequacy rule. There is a reserve excess capital conservation buffer of 2.5%, a countercyclical capital buffer of 0-2.5% and a 1% additional capital surcharge for SIBs. As a result, there is an overall capital adequacy requirement of 11.5% while other types of banks will have a requirement of 10.5% (see Figure 8).

	SIBs	All banks excl. those in the preceding column	Basel III
Core Tier 1	5%	5%	4.5%
Tier 1	6%	6%	6%
Tier 2	8%	8%	8%
Capital buffers	2.5%	2.5%	2.5%
Countercyclical capital buffers	0 ~ 2.5%	0 ~ 2.5%	0 ~ 2.5%
Capital surcharge (for the time being)	1%	–	
Capital adequacy ratios	11.5%	10.5%	10.5%
Deadline	End-2013	End-2016	End-2018
Leverage ratios	4%	4%	3%

Figure 8. guidelines for capital ratios

Basel III introduces two new liquidity ratios, the liquidity coverage ratio (LCR) and the Net Stable Funding Ratio (NSFR) to assess the efficiency of measuring liquidity risk.

The liquidity coverage ratio refers to the proportion of highly liquid assets held by financial institutions to ensure the ability to meet short term obligations. It can be used as the metric of stress test that aims to test whether the financial institution has enough reserves for short term liquidity problem. Based on the requirement of Basel committee, the systematically important financial institutions are required to maintain a 100% LCR over a 30 days stress test period.

The net stable funding ratio is a liquidity standard requiring banks to hold enough funding to cover the long-term obligations. Under Basel provision, banks with assets of over 200 billion yuan must maintain a ratio of 100% to satisfy the requirement. This ratio ensure that banks do not use short term funding to meet long term obligations which aligns with the strategy that encourage banks to consider for long term outcomes at an ongoing basis.

4.2.3. Market risks

Market risk refers to the loss from the on-balance sheet and off-balance sheet due to the adverse movements in market factors, such as foreign exchange rates, interest rates and credit spreads which will impact the income of the portfolio. Exposure to market risk is assess through trading and non-trading portfolios. The objective of the Bank's market risk management is to improve market risk capital allocation through policies in line with the overall risk appetite to maintain a market profile and control the market risk within an acceptable level to the Bank. The management use a range of tools to monitor market risk, including the sensitivity analysis, value at risk and stress testing.

2019 and 2020 are challenging years that global economic conditions worsened rapidly with the covid-19 outbreak, US-China trade war and Brexit. The volatility of market indicators reached extreme levels and equity prices fell sharply from peak levels. Spreads and yields in credit market reached new highs. It is predicted that the financial markets will back to stable for the rest of the year as the governments announced economic recovery programmes and central banks also provide support to keep the equity price. HSBC will continuously manage the exposure of market risk through

sensitivity and stress test to support customers and take hedging instruments to protect the business for long term obligations[16].

4.2.4. Operational risk

The operational risk refers to the conditions that the group cannot provide services to customer due to signification operational disruption. It arises from the failures in process or external interruptions which could be managed by continuously monitor the process and those external factors. PwC generate surveys to foreign banks every four years to collect response for the conditions that they operate in China and the areas that most concerned. Based on the survey result (see Figure 9) with a sample of 41 foreign banks, there are some areas that were regarded as "restrictions" by foreign banks. For example, the cross-border settlement restriction, branch expansion limitation, license approval process and tightening loan loss provisions. The increasing reporting requirement also brings pressure for some banks. In addition, some foreign banks with limited branch network feels difficult to meet the requirement of 75% deposit to equity ratio. Those unexpected external factors from the government are operational risks which is regarded as the "emerging risk" by HSBC.

Score	10	9	8	7	6	5	4	3	2	1	Number	Average
Foreign bank approval to allow bond underwriting	9	3	9	4	2	3		1		1	32	7.8
Access to the RMB derivatives market	7	3	12	5	1	7		1	2		38	7.3
Capital requirements	5	2	7	3	1	7	6	2		1	34	6.4
CNAPS (Advanced payments membership)	3	5	3		1	6	1	4	2	1	26	6
Equal treatment for foreign banks on QDII	2	1	5	4	6	4	1	2	2	1	28	6
Branch expansion (multiple branches and sub branches)	3	2	4	4	2	10	2	2		3	32	5.8
Equal access to the local Fund Agency	1	2	5	4		5	2	2	2	1	24	5.8
Granting permission for local banks to obtain custody licenses to manage insurance funds, private equity etc.	1	1	4	1	3	7		3	3	1	24	5.3
China Union Pays monopoly on clearing and settlement of card transactions			1		1	4		2	3	2	13	3.7

Figure 9. survey result by PwC

What's more, the socio-economic disruption following the outbreak of coronavirus, like the interruption of daily work, social distancing policies also increase the uncertainty of operational risk, particularly in mainland China and Hong Kong. However, the income in first half of year doesn't drop because of the less lending transactions and insurance revenue, which may impact the capital position. HSBC invoked the business continuity plans to ensure the safety of our staff, as well as support customers and maintain business operations. The US-China trade war may lead to new regulations released by both country and raised the cost of operating business in both markets. The forward-looking stress tests have to done to estimate the external cost of future operations[17].

In conclusion, the external factor should also be considered during the process of adjusting the influence of risk. Refer to graph 8, operational risk occupies the second largest capital allocation which needs to be carefully managed. Some high level of stress testing has been applied to assess the potential impact and ensure the efficiency of management.

4.3. Efficiency testing

All the financial ratios discussed above could be used as metrics of evaluation efficiency of Bank's risk management in a particular dimension. The overall efficiency ratio the author selected is the efficiency ratio for bank which is calculated by dividing overall expense by the revenue to access the ability to turn asset to revenue. Refer to Figure 10, there is an uptrend for the efficiency ratio in past 5 years which indicates that there is an increasing cash outflow in recent year that brings more uncertainty on credit and liquidity problems. There is no evidence that correlation between the capital ratio and efficiency exits.

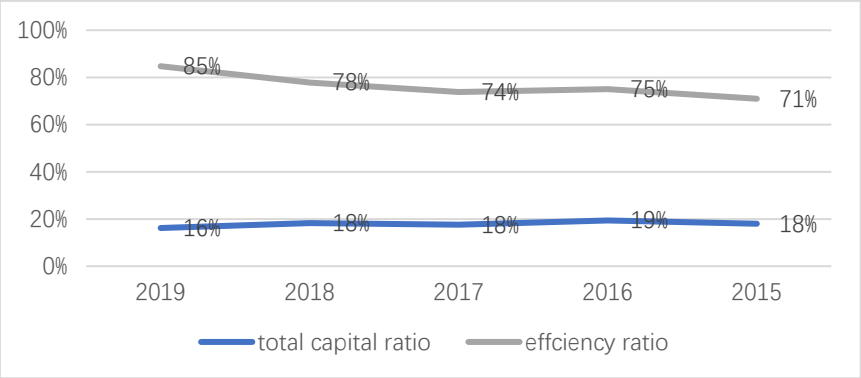

Figure 10. efficiency ratio

4.4. Conclusion

In conclusion, HSBC Bank (China) meets the regulatory requirements of Basel III new standards, the management practices for identifying, monitoring and managing the risks are align with the risk appetite and corporate's strategy. It performs well in capital allocation and adjusting portfolio results based on risk-weighted manner, however, there are some high-risk lending or investment exists in 2016 which implies a risk-taking altitude. The Further explanation will be discussed in next chapter.

5. Conclusion

This dissertation focuses on discover the efficiency of risk management framework of foreign banks in managing the risks under China's regulatory and economic environment. The quantitative results are generated from the annual report and Bankscope database. According to the findings from chapter 4, we can conclude that HSBC has a good performance in managing risks which meets most of the regulatory requirement and performs better than some domestic banks under the same regulation standards. Within a strategy of creating values for shareholder and risk appetite to maintain a strong capital position, the management practice is designed to consider the long-term outcomes rather than just short-term profit. The high capital adequacy ratio gives the bank confidence to absorb funding in the future. The capital allocation is the central to analysis as it links to credit and market risk in the process of making adjustment based on risk weighted factors. Through discovering the components of risk weighted asset, we can conclude that the credit risk is super high in Asia market and operational risk follows it. Besides the traditional credit risk, market risk and liquidity risk, the unique characteristic of Chinese market decides that there are some external 'restrictions' for foreign banks which is regarded as the 'emerging risk' by HSBC. With a mature and comprehensive risk management framework, HSBC take advantages in managing risks however, some risks are unexpected and cannot be hedged. Foreign banks should take the opportunities of interest rate liberalization and market-driven development policy to open up the market.

Due to the time and access limit during the research process, it is a pity that didn't conduct interview with the risk officers who can share their experience in real practice which improves the reliability and validity of this project. What's more, the single case study with secondary data may lead to bias and human default that influence the accuracy of analysis result. The future research could test the efficiency from other perspective or through interview in order to gather more comprehensive insights into the risk management practice.

There use of historical as the proxy for estimating future losses in VaR calculation and the use of a 99% confidence level does not encompass all potential events and losses that might occur beyond the confidence level. The monte carlo simulation is suitable to try for future research.

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