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**Explore VaR implementation in the  
Chinese bank context and Risk  
Management Officers'  
understanding**

**by**

**Mo Zhou**

**2006**



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## **ACKNOWLEDGEMENT**

**This work is for my dear parents, sister, and brother in law.**

**Thanks a lot for advice and help of my supervisor –**

**Professor Kevin Dowd**



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## ABSTRACT

This dissertation aims to explore the feasibility and validity of implementing Value-at-Risk (VaR) in the Chinese bank context and Risk Management Officers' understanding, perception and values by the method of participant observation, interviews and questionnaires. As the existing literature indicates, Chinese financial institutions, especially Chinese banks introduce VaR for multiple objectives with discretion, but there is a gap between official objective and real practice. This dissertation will examine how VaR is applied and explore relative problems during the implementation, particularly relating to the Chinese bank context. The second focus is how the Risk Management officers at both executive and staff level evaluate VaR during the Chinese banks' Risk Management reform.



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# 1. INTRODUCTION

This chapter will introduce the researcher's motivation and objective of carrying on this research. Then it will brief the structure of this dissertation.

## 1.1. Motivation

Risk management is a pressing task for Chinese banks, as the China Banking Regulatory Commission (hereinafter referred to as CBRC) urges the asset management corporation and joint-stock commercial banks to strengthen their risk management and internal controls.

During the Chinese banking industry risk management reforms, all banks recognized the importance of risk management. Although a variety of derivatives and the western risk management techniques have been introduced into practice, the Chinese banking sector is still suffering from a poor risk profile in recent years, due to lack of experience and advance-risk management techniques and so on. Currently, the Chinese banking industry is endeavouring to prudently and modestly study from the western banks advanced and modern techniques in order to improve their risk management systems.

Amongst the western risk management techniques, Value-at-Risk (hereinafter referred to as VaR) is introduced widely in terms of measuring market risk. Currently, Chinese banks are critically introducing VaR during their risk management reform procedures.



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However, there is literature discussing the feasibility and validity of fully introducing western risk management models in Chinese banks is disputed. It is claimed that the implementation of western risk management techniques, including VaR, in China, needs some preconditions to some extent in order to accommodate the Chinese socialist economic system. Therefore, I am endeavouring to seek how and how well the VaR is being implemented in the Chinese bank context, and the Chinese banks risk management staff value of VaR and their reasons for doing so in the light of available evidence.

## **1.2. Objective**

The first objective of this research aims to examine the implementation of VaR in Chinese banks and to discover any relative problems in term of practice, and to further explore its feasibility and validity in the Chinese bank context. In order to achieve this objective, this research will review risks faced by banks and the relative management methods, particularly VaR, for measuring market risk, are highlighted. Chinese banking risk management is discussed. Analysis is carried out, based on the empirical literature and available information.

The second objective of this research is to explore risk management staffs' understanding, perceptions and values of VaR. The discussion will justify their decisions, based on the qualitative interview and quantitative survey.



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## 1.3. Structure

In order to achieve the research aims effectively and present the report logically, this dissertation contains five chapters.

### *Chapter one* – Introduction

It begins with an introduction to the research. In this part, the basic issues of the research, which involve the researcher's motivation for carrying out this study, and objectives of the research are specified. The structure is also outlined.

### *Chapter two* - Literature review

Chapter two discusses and criticises the relevant literature on the themes of risk management, particularly on the issues of the VaR. The literature review is mainly arranged to examine three points. Firstly, the relevant issues of risk management types within the banking industry, including Market Risk management, Credit Risk management, Liquidity Risk management, and Operational Risk management. Secondly, with regard to Market Risk, the fundamental information about VaR and its implementation are stressed. Thirdly, the situations and characteristics of risk management and VaR in the Chinese bank context are discussed.

### *Chapter three* - Research methodology

Chapter three focuses on the research design, methodology and methods which are used to address the research questions, and these focuses are laid out. It discusses the



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philosophical stance of the research, i.e. ethnography, the multiple case study design, and the use of questionnaires, interview and documentary data. Also, the banks selected for this case study and their descriptions are presented in this chapter. At the end, a critical justification of the research methodology is addressed.

***Chapter four*** - Research findings and analysis

In chapter four, attention is drawn to the research findings from the research. Analysis of the findings is carried out to provide evidence for the research questions.

***Chapter five*** - Conclusion and limitation

Finally, chapter five not only brings the research together and concludes the whole investigation, but also highlights the limitations of the research and provides some suggestions for future research.



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## 2. LITERATURE REVIEW

This chapter reviews existing literature in order to introduce the main themes and controversies around the research issues of the research. It provides a holistic view of risk management in the bank context, by tracing the evolution of VaR as a risk measure of market risk. It begins with an explanation of various risks in the bank context and analyses their characteristics. It then goes on to explore the VaR by presenting the definitions, estimation approaches, advantages and limitations. Next, the Chinese banking industry is highlighted. In this section, the background of the Chinese banking industry is reviewed in historical terms. Then, how risk is managed in the Chinese bank sector is discussed. From the analysis, it is clear that it is valuable to investigate the implementation of western practices within the Chinese banking context.

### 2.1. Bank risk

*“The fact is that bankers are in the business of managing risk. Pure and simple, that is the business of banking.”*

-Walter Wriston, former Chairman, Citicorp<sup>1</sup>

Banks are subjected to a wide array of risks in the course of their operations. Heffernan (1996) asserts that banks are particularly exposed to market risk, arising

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<sup>1</sup> Quoted in Roshini 2001



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whenever open position in debt, equity held in the banks' trading portfolio, foreign exchange, and derivatives are subject to volatility.

In the last decade, dramatic losses relating to bank failure and bank crisis are evident due to different risk elements. It has been said that risk rises exponentially with the pace of change, but that bankers are slow to adjust their perception of risk. In practical terms, this implies that the market's ability to innovate is, in most circumstances, greater than its ability to understand and properly accommodate the accompanying risk (Greuning, 2003).

On the other hand, better risk management has already begun to show real potential in reducing the wide swings in bank credit availability that historically have been associated with the economic cycle. Sound procedures for risk quantification generally lead to tighter controls and assigned responsibilities and to less unintended acceptance of risk during both the strengthening and weakening phases of the business cycle (Greenspan, 2004).

Before risk manages you, you should manage risk. Therefore, to identify, measure, and manage risk in the bank context is indispensable and exigent. The following sections will provide an overview of the typical risk faced by banks.



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### **2.1.1. Market risk**

Dowd (1998) defines market risk as the risk of loss arising from adverse movements in market prices or market rates. Market risk is categorized into four main types.

Exchange risk arises from potential movements in the value of foreign currencies. It refers to currency-specific volatility, correlations across currencies, and devaluation risk.

Interest rate risk is because of potential movements in the level and volatility of bond yields. A large source of market risk for banks is non-traded interest rate risk. This source of risk is a direct consequence of banks' role as intermediaries.

Equity risk arises from potential movements in the value of stock prices. Crouhy et al (2001) describe the components of equity risk as the general market risk, which relates to the sensitivity of an instrument or portfolio value to a change in the level of broad stock market indices; and specific or idiosyncratic risk which refers to the portion of a stock's volatility that is determined by characteristics specific to the firm.

Commodities risk comes from potential movements in the value of commodity contracts, which include agricultural products, metals and energy products. It is complex to measure, as the markets are less liquid, prices are affected by seasonal patterns in supply and demand, and inventories play a critical role in the determination of the equilibrium price (Crouhy et al, 2001). Generally, commodities risk includes volatility risk, convenience yield risk, and delivery and liquidity risk.



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It has been realised that even a small change in any of these market variables can cause substantial changes in the income and economic values of banks. Therefore, measuring and managing market risk is significant to banks. Given the current inability to develop measures that capture institutions' overall portfolio risks, Stephanou (1996) claims that piecemeal regulatory capital requirements (such as the one for market risk) are necessary. Stephanou considers the internal models approach to be, for the time being, the most reliable, market-friendly, and effective method that can be eventually achieved for many banks.

Currently, managing market risk is primarily measured using VaR. It is designed to estimate, for a given trading portfolio, the maximum amount that a bank could lose over a specific time period with a given probability. But it still has some limitations. Details will be discussed in a later section.

### **2.1.2. Credit risk**

Credit risk is the risk of losses, because of the fact that counterparties may be unwilling or unable to fulfil their contractual obligations. Credit risk involves the possibility of non-payment, either on a future obligation or during a transaction. The drivers of credit risk, which are traditionally viewed as pre-settlement risk, are various. Credit risk measurement systems attempt to quantify the risk of losses due to counterparty default. The distribution of credit risk can be viewed as a compound process driven by default, credit exposure and loss given default.



The revolution in risk management is now spreading from the portfolio measurement of market risk to credit risk, and credit risk management methods have been developed with the endeavour of banks, whose awareness of credit risk has been impressive in recent decades. In the banks' context, credit risk can, in turn, cause cash flow problems, and affect the banks' liquidity. Despite innovations in the finance services sector, credit risk is still the major cause of bank failure. The reason is that more 80 percent of a bank's balance sheet generally relates to credit risk (Greuning, 2003). The 2001 proposal by the Basel Committee allows banks to use their own internal or external credit ratings, which provide clearer representations of credit risk. Table 1 summarizes the essential features of portfolio credit risk models in the financial institutions.

Table 1: Comparison of credit risk models

	<b>Credit Metrics</b>	<b>Credit Risk</b>	<b>KMV</b>	<b>Credit Pf. View</b>
Originator	J. P. Morgan	Credit Suisse	KMV	McKinsey
Model type	Bottom-up	Bottom-up	Bottom-up	Top-down
Risk definition	Market value (MTM)	Default losses (DM)	Default losses (MTM/DM)	Market value (MTM)
Risk drivers	Asset values	Default rates	Asset values	Macro factors
Credit event	Rating change/default	Default	Continuous default prob.	Rating change/default
Probability	Unconditional	Unconditional	Conditional	Conditional
Volatility	Constant	Variable	Variable	Variable
Correlation	From equalities (structural)	Default process (reduced-form)	From equalities (structural)	From macro factor
Recovery rates	Random	Constant within band	Random	Random
Solution	Simulation/ Analytic	Analytic	Analytic	Simulation



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### **2.1.3. Liquidity risk**

Heffernan (1996) defines liquidity risk as the “potential that an institution will be unable to meet its obligations as they due because of an inability to obtain adequate funding of liquidate assets. Liquidity risk arises from the cost of inconvenience of unwinding a position (Dowd, 1998). Philippe (2005) categorises liquidity risk into asset liquidity risk and funding liquidity risk. Asset liquidity risk arises when transactions cannot be conducted at quoted market prices due to the size of the required trade relative to normal trading lots. Funding liquidity risk arises when the institution cannot meet payment obligations.

Liquidity risk, which is usually viewed as a component of market risk, tends to compound other risks. Therefore, it is difficult or impossible to isolate liquidity risk. Liquidity risk should be managed because lack of liquidity can cause the failure of an institution, even when it is technically solvent. Moreover, liquidity risk still entails although market risk can be hedged to some extent.

However, in practice there is no perfect comprehensive metrics to really manage liquidity risk. Asset-liability management that is applied to assessing liquidity risk is a well-used technique by most banks.



## 2.1.4. Operation risk

According to Basel II (2004), operation risk is defined as the “risk of loss resulting from inadequate or failed internal processes, people and systems, or from external event.” The British Bankers’ Association provides further detail for this definition. Operation risk arises from the failure of internal systems or the people who operate in them (Dowd, 2002). Table 2 breaks down operational risk into categories of people risk, process risk, system risk and external risk.

Table 2: Operation risk classification

Internal risk			External risk	
People risk	Processes risk	System risk	External risk	Physical risk
<ul style="list-style-type: none"> <li>◆ Employee collusion/fraud</li> <li>◆ Employee error</li> <li>◆ Employee misdeed</li> <li>◆ Employer liability</li> <li>◆ Employment law</li> <li>◆ Health and safety</li> <li>◆ Industrial action</li> <li>◆ Lack of knowledge /skills</li> <li>◆ Loss of key personnel</li> </ul>	<ul style="list-style-type: none"> <li>◆ Accounting error</li> <li>◆ Capacity risk</li> <li>◆ Contract risk</li> <li>◆ Misselling /suitability</li> <li>◆ Product complexity</li> <li>◆ Project risk</li> <li>◆ Reporting error</li> <li>◆ Transaction error</li> <li>◆ Valuation error</li> </ul>	<ul style="list-style-type: none"> <li>◆ Data quality</li> <li>◆ Programming errors</li> <li>◆ Security breach</li> <li>◆ Strategic risks (platform /suppliers)</li> <li>◆ System capacity</li> <li>◆ System compatibility</li> <li>◆ System delivery</li> <li>◆ System failure</li> <li>◆ System suitability</li> </ul>	<ul style="list-style-type: none"> <li>◆ Legal money laundering</li> <li>◆ Outsourcing</li> <li>◆ Political regulatory</li> <li>◆ Supplier risk</li> <li>◆ Tax</li> </ul>	<ul style="list-style-type: none"> <li>◆ Fire</li> <li>◆ Natural disaster</li> <li>◆ Physical security</li> <li>◆ Terrorism</li> <li>◆ Theft</li> </ul>

Source: British Bankers’ Association survey

Although the any organisation suffers operation risk, but it is particular relevance to the bank regime where regulators are responsible for establishing safeguards to protect against systemic failure of banking system and the economy (Wikipedia,



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2006). One of bank functions is transaction, in which operation risk can systemically spread across payment, clearing and settlement systems. The consequence is significant, because operation risk problems may impede the control of, or even exacerbate, market risk, liquidity risk or credit risk in an unanticipated way, further, could pose a systemic risk and result in significant losses.

In response, Basel Committee has aligns with various supervisory bodies to prescribe various soundness standards and frameworks for enhancing corporate governance of bank's to manage operation risk. The proposed management technique by Basel Committee is a reduced target for capital charges for operational risk relative to total minimum capital requirements and greater specificity about how much capital charge might be implemented.

Although risk is categorised as above, however, any classification of bank risk is to some extent arbitrary, because all categories of risk interact with each other.

## **2.2. VaR**

VaR began as a methodology for measuring market risk and is extensively being embraced by banks. The revised Basel Accord (1998) allows banks to use VaR as a basis for determining how much additional capital must be set aside to cover market risk, beyond that required for credit risk. After its success with market risk, VaR has been extended to deal with other risks such as credit risk, liquidity risk, cash-flow risk and most recently, operational risk. With the development of risk management, the



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emphasis of VaR is already shifting towards to the new challenge posed by handling risk in an efficient and integrated way. The following sections will define VaR in literature and introduce its main estimation approaches by explaining their relevant advantages and disadvantages. In the end, by summarising the discussion, the advantages and limitations of VaR usage will be presented.

### **2.2.1. Definition**

VaR is defined as the maximum expected loss on a portfolio over some given period, at some given level of confidence. Accordingly, it is essentially determined by two parameters: the horizon period, and the confidence level. VaR measures the total portfolio risk, taking into account portfolio diversification and leverage. If  $N$  means the holding period,  $\alpha$  is the confidence level, the VaR is calculated on the basis that the probability distribution of changes in the portfolio value is over  $N$  days. Specifically, VaR is set equal to the loss in the portfolio at the  $(1-\alpha)*100$  percentile point of the distribution.

Dowd (1998) suggests VaR can mean different things depending on the particular context:

- A particular amount of money, the maximum amount we are likely to lose over some period, at some specific confidence level;
- An estimation procedure – a numerical, statistical or mathematical procedure to produce VaR figures;



- 
- A methodology or an approach – a procedure or a set of procedures that can be used to produce VaR figures;
  - An approach to risk management – how banks use VaR figures, how they restructure the organisation to produce them and how they deal with various associate risk management issues.

### **2.2.2. Estimation approaches**

The most common approaches in the literature for estimating VaR fall into two major categories – the parametric method, which is well known as a variance-covariance approach, and the non-parametric method, which is well known both as a historical simulation and a Monte Carol simulation.

#### **2.2.2.1. Parametric Normal Method**

The Parametric normal method has been adapted from well-known forecasting technologies to the problems of VaR prediction. Accordingly, it seeks to forecast the entire return distribution, from which only the tails are used for VaR inference (Joy et al, 1998). Variance-covariance is the best known parametric normal method, which is based on the estimation of the variance-covariance matrix of asset returns, by using historical times series of asset returns in order to calculate their standard deviations and correlations (Simons, 1996). The fundamental assumption is of normal return.

Chance (2001) asserts that the advantages and disadvantages of the parametric normal methods rely on its normal distribution. The obvious advantage is the tractability of



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normality, which makes VaR figures very informative. Briefly, normal distribution makes this approach intuitive and easy to capture, compute, and implement, and it can also accommodate large portfolios (Dowd, 1998, Frenkel et al, 2000). On the flip side, to the normal approach may fail to provide a wholly accurate and tractable estimation of the VaR, as in the real world, the distribution of asset returns cannot follow the certain normal return patterns precisely (Dowd, 1998). In addition, under the linearization assumption, this approach performs poorly with portfolios which include large positions in options or instruments with option-like payoffs (Beder, 1995, Ju & Pearson, 1998, Hendricks, 1996).

#### **2.2.2.2. Non-parametric method**

Some estimation methods are non-parametric based. Here is cited a historical simulation and a Monte Carlo simulation for illustration.

##### **Historical simulation method**

Historical simulation uses the historical distribution of returns to assets in portfolios in order to simulate the portfolio's VaR (Dowd, 1998). Historical simulation makes the assumption that change in market parameters from today to tomorrow will be the same as it was some time ago.

As suggested by Dowd (1998), historical simulation, apart from its simple feature in terms of implementation and data collection, also has other attractions. Firstly, there is



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no restricted assumption of normal returns of the portfolio and it easily accommodates fat tails and other non-normal features. Secondly, it accommodates correlations and volatilities implicitly, in so far as they are reflected in market-price data. Thirdly, it avoids model risk, and it applies to any market risk. Moreover, historical simulation also yields other useful statistics as by-products.

However, historical simulation suffers data problems. Its dependency on the particular historical data set leads to this approach's main disadvantage. The underlying assumption of this approach implicitly presumes that the risks we face in the future are similar to those we have faced in the past. The ignorance of some plausible events omitted in the data set, may not lead to some error in estimation. In addition, the estimation of period length may fall into a dilemma. Dowd stresses that if the length of the historical period is too short, it may not capture the full variety of events and relationships between the various assets and within each asset class, and if it is too long, may be too stale to predict the future.

### **Monte Carlo simulation method**

The basic idea behind Monte Carlo simulation method is that we assume we have some information about the joint distribution of market changes. By using this distribution we can repeatedly draw randomly a large number of scenarios, and price the portfolio for each scenario. Each simulation gives us a possible value for the portfolio at the end of the target horizon. In the end, a risk set of scenarios will give a



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good approximation for the distribution of the final value of the portfolio (Dowd, 1998, & Simon, 1998). This procedure is based on the assumption that the portfolio returns can be fairly easily estimated once the data input on the expected returns, standard deviations, and correlations for each financial instrument are derived (Chance, 2001).

Monte Carlo simulation is powerful and flexible for estimating VaR and can handle virtually any type of portfolio. It has many advantages over others approached by remedying their drawbacks. For example, Monte Carlo simulation can easily handle a wide range of risks, including non-linear risk, volatility risk and model risk. In addition, this approach also provides a picture of result accuracy, hence, we can construct confidence intervals or other indicators of the precision of the VaR estimates (Dowd, 1998).

Compared with other approaches, the Monte Carlo simulation is more complex and exotic. This approach tends to be intensive in terms of time consumption, cost consumption, and resource consumption. According to Dowd (2002), this approach is limited by the presence of model risk, because it relies on a specific stochastic process for the underlying risk factors as well as pricing models for securities, such as options or mortgages.



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### **2.2.3. Advantages of VaR**

Because of VaR's variety of advantages, in the recent decades, it has become the most popular measure of market risk advocated by financial institutions and supervisors.

Proponents of VaR point out that it aggregates different types of risks of the entire portfolio into a single framework, which is conceptually simple in terms of communication. VaR provides a common, consistent and integrated measure of risk across risk factors, instruments and asset classes, leading to greater transparency and a consistent treatment of risks across the organisation.

Another major attraction is that VaR is easy to understand. Benefiting from the representation of a statistical technique by a single monetary value from VaR calculation for different risks, all stakeholders are able to be well informed and acknowledged, no matter whether they are technical or not. The simplicity of VaR means it is well communicated across an organisation and its external sources. So the decision makers are able to position themselves at the right risk level. VaR has been proved to be a powerful management tool in practice.

Moreover, from an internal risk management perspective, Dowd et al. (2003) suggest that VaR marks a major step forward in the measurement and potential to manage market risk. This indicates that the process of adopting VaR provides a more reasonable assistant than other tools. Meanwhile, the organisation is able to apply self-governance during VaR examination. Jorison (2002) maintains this issue by



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stating that VaR disclosure also improves the governance of derivatives as it forces the firm to develop a systematic process of risk measurement.

#### **2.2.4. Limitations of VaR**

After all, there is no perfect method, and VaR also has its limitations.

One concern is that the limitations of each VaR estimation method is inherently transferred to VaR, which further influences risk management decisions. VaR can be problematic in dealing with some situations, such as large price movements. It is recognised that VaR does not address all types of risk well, especially when VaR is restricted with different assumptions.

Another challenge for VaR is that VaR fails to indicate potential losses due to its lack of fat-tail consideration. Most VaR methods are based on normality assumptions, however, the biggest problem we now have with the whole evaluation of risk is the fat-tailed problem, which is really creating very large conceptual difficulties (Greenspan, 1997). Extreme events generating large losses are rare, but they are vital for the organisation and stakeholders. The suggested solution for overcoming this drawback as suggested by Andreas (2003) is complementing VaR by stress testing in order to assist risk managers in including such events into their overall risk assessment.



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Moreover, much empirical evidence has questioned VaR's precision and accuracy. It is suggested that different VaRs can give vastly different VaR estimates and there is often no telling which is best. Consequently, errors in forecasting due to the implementation risk of the model make VaR inherently flawed.

Furthermore, Danielsson (2002) argues that there is an increasing body of evidence which suggests that inherent limitations in VaR technology, coupled with imperfect regulatory design, act more like a placebo rather than the scientifically proven preventer of crashes it is made out to be.

In response, these problems lead some institutions to rely on other approaches to remedy VaR's shortcomings.

### **2.2.5. Use of VaR in Banks**

There is no doubt that risk management in the bank context is becoming increasingly complex with the potential and emerging risks, therefore, risk management is becoming a more skilled activity. VaR is one the mostly widely used skills to measure market risk.

VaR traces its roots to the early 1990s financial crisis, including Orange County, Barings, Daiwa, etc. With the globalization of financial markets and technological advances, especially the regulators' pressure for better risk control; VaR impressively draws our attention to measuring risk. One highlight is that VaR system is advocated



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by many regulators and industrial groups. Bank regulators, such as the Basle Committee on Banking Supervision, the US Federal Reserve, and regulators in the European Union such as Britain's Financial Supervisory Authority has accepted VaR to measure market risk. The Securities and Exchange Commission has issued a new rule to enhance the disclosure of market risk. The rule requires publicly traded US corporations to disclose information about derivatives activity using a VaR measure as one of three possible methods.

Bankers, who take VaR's variety of attractions to assist their internal and external risk management procedures, are applying VaR into managing and controlling different types of risks. From the customer and client perspective, VaR takes its advantages to provide an easy way for them to understand banks' market risk, even though they are non-specialists.

## **2.3. Chinese banking industry**

### **2.3.1. Chinese banking industry review**

China's banking activity traces its roots to the West Zhou period (100-771 BC), but the Chinese banking industry emerged in the late 19<sup>th</sup> century. The turning point of Chinese banking development was the founding of the People's Republic of China in 1949. The country's banks received the highest priority and were the first sector to be completely socialized. The next milestone in Chinese banking was in 1978 when

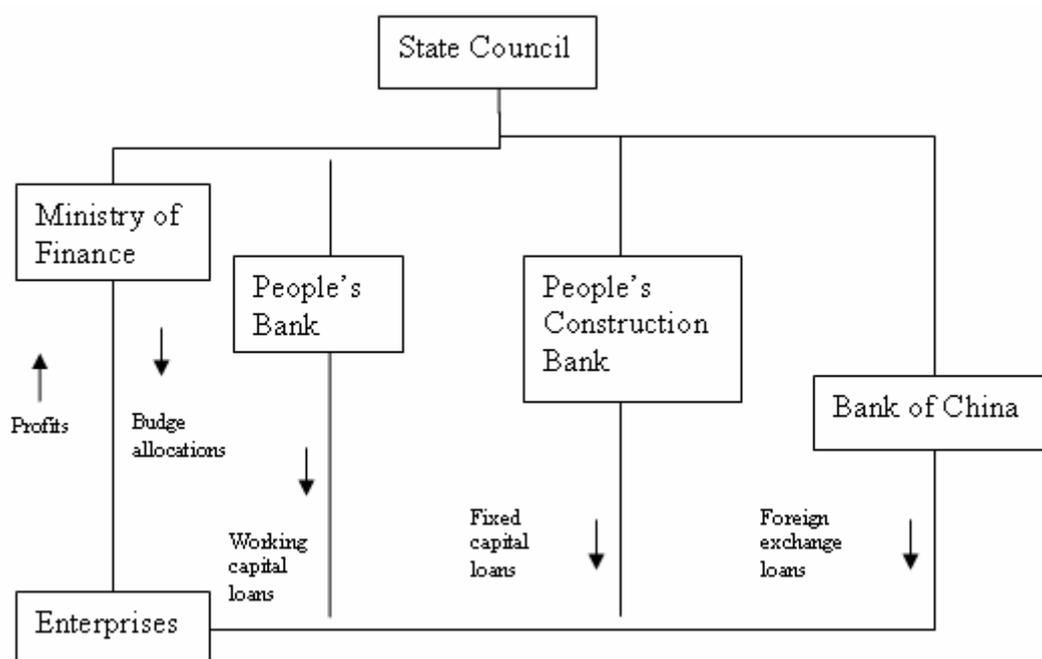


China launched market-oriented economic reforms. Thereafter, the Chinese banking industry has developed significantly and grown rapidly. In a word, the evolution of the Chinese banking industry closely evidenced China's overall economic development.

### **Banking in the Central Planning Era: 1949-1979**

From the early of 1950s, the big four banks, i.e. People's Bank of China, Agriculture Bank of China, the Bank of China, and Construction Bank of China dominated the whole banking industry. The Peoples' Bank of China (PBC) played the function of the central bank, which directly supervised all banks, although each entity existed separately, while playing many roles of a commercial bank. This period of China's financial framework is illustrated by figure 1 as Bowles & Gordon (1989) suggested.

Figure 1: China's financial framework, pre-1979 period





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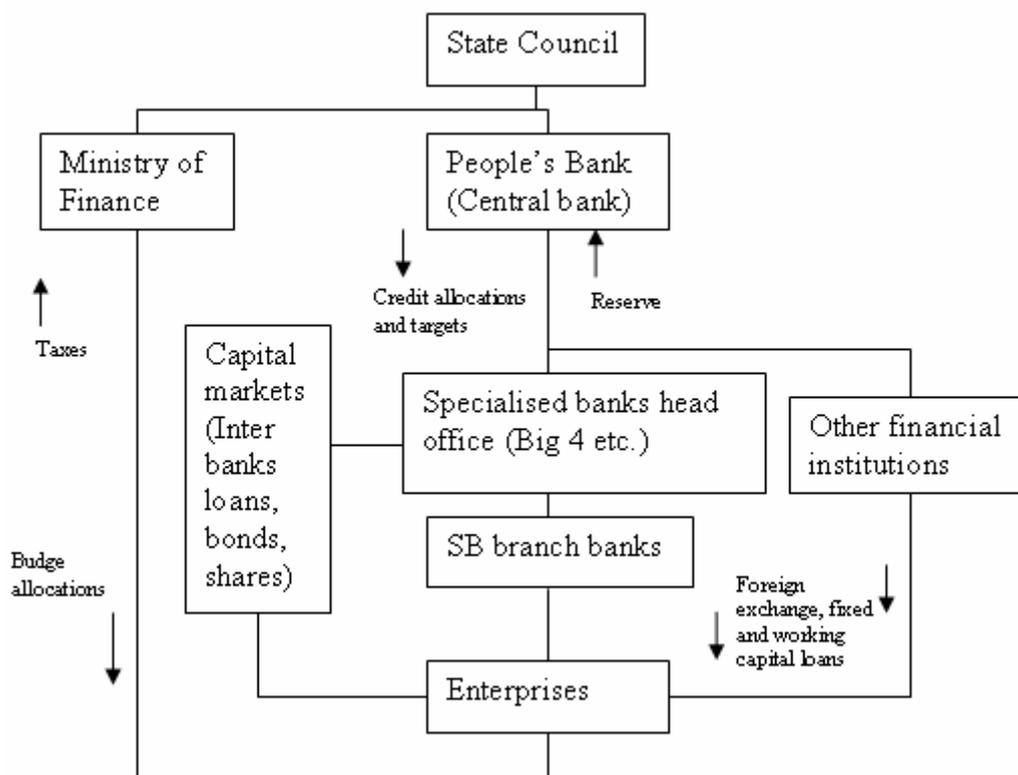
Due to the closed economy during this period, foreign trade, and other current account or cross-border financial transactions were minimal, and China had an inconvertible currency and a fixed exchange rate (Hu).

### **Reform Era: 1978 – Present**

Embarking on market-oriented economic reform in 1978-79, the Chinese banking industry was drastically redesigned and rebuilt. The main steps were to transform PBC into a modern central bank to implement monetary policies; to transform state-owned specialized banks into market-oriented banks; and to create a market environment in which all the financial institutions could compete with each other under the PBC's supervision.

In 1979, the Chinese government removed the PBC's monopolistic position by separating its rural banking business and its supervisory authority of a network of 60,000 Rural Credit Cooperatives to ABC. BOC was delegated to take over foreign currency transaction, while CCB focused on the construction sector. ICBC, which was established in 1984 to implement commercial banking operations, together with CCB, ABC, and BOC, shaped the rudimentary form of China's new banking system. Thanks to the state-owned advantaged status, the Big-4 grew dramatically. By 1995, total assets for Big-4 totaled US\$965 billion, compared with US\$326 billion in 1985. The new financial framework is demonstrated in Figure 2 as proposed by Bowles & Gordon (1989).

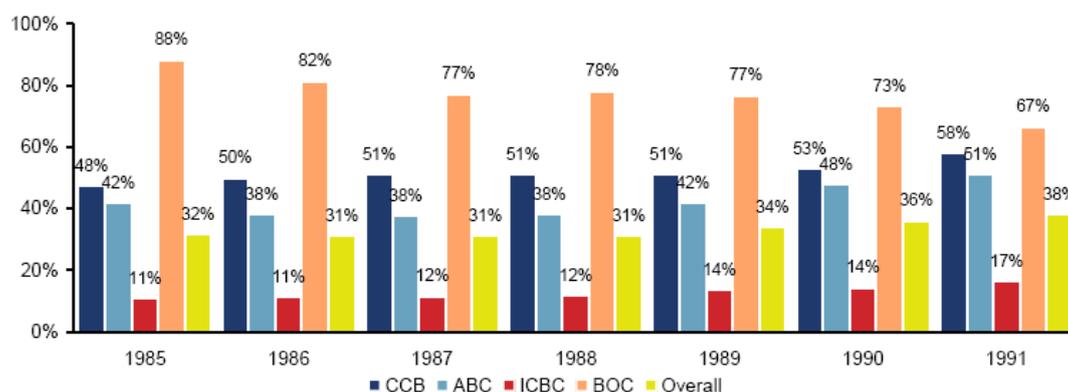
Figure 2: China's financial framework, post-1984



One big issue, which plagued the Chinese banks, was policy lending which was initially mandatory. Policy lending accounted for a staggering share of the Big-4's loan portfolio—58% for CCB, 51% for ABC, 67% for BOC, and 18% for ICBC (see figure 3). In order to solve the problem of the massive scale of policy lending, three policy banks, namely China Development Bank, China Export-Import Bank and China Agricultural Development Bank were founded to take over the policy lending functions from the state-owned specialized banks in 1993 (Hu).



Figure 3: Policy lending by the Big 4 state-owned banks (% share of total loan portfolio)



Source: Bankscope

In the 1990s, China initially strived hard to construct the institutional framework required for a modern banking system, and the achievement was significantly dramatic, as shown in Table 3. It attempted to create a healthy competitive market which was under control. A series of laws and regulations relating to banking and financial institutions were issued to meet different requirements. According to the Central Bank Law, PBC was appointed by the State Council to be the central bank to play the relative central bank functions. The Commercial Bank Law issued in 1995, listed thirteen kinds of business which could be carried out by commercial banks under the central bank's approval.



Table 3: State-owned banks' performance in the 1990s

<b>Year</b>	<b>Pre-tax profit (Billion RMB)</b>	<b>Capital (Billion RMB)</b>	<b>Assets (Billion RMB)</b>	<b>ROE (%)</b>	<b>ROA (%)</b>
<b>1990</b>	24.23	131.6	111683.8	18.4	1.44
<b>1991</b>	29.93	148.2	2061.4	20.2	1.45
<b>1992</b>	32.47	182.2	2426.9	17.8	1.34
<b>1993</b>	27.34	220.7	2987.2	10.5	0.91
<b>1994</b>	16.96	217.3	4084.1	7.8	0.42
<b>1995</b>	22.21	181.9	5138.2	12.2	0.43
<b>1996</b>	23.38	192.7	6324.7	12.1	0.37
<b>1997</b>	11.97	210.6	7783.2	5.7	0.15
<b>1998</b>	13.91	484.6	9086.6	2.9	0.15

Resource: Almanac of China's Finance and Banking

Although China escaped the worst outcomes of the Asian crisis in 1997, the Chinese paid attention on how to implement reform to offset financial vulnerability and to prevent financial crisis. During this period, as the Big 4, burdened by bad loans and struggling to improve risk management, were taking a more cautious approach towards business expansion.

In order to strengthen banking supervision, CBRC, China's primary banking regulatory authority was founded to take over PBC's banking regulatory function in 2003. The key goal of the agency was to supervise and govern Chinese banking rules on capital adequacy, loan classification systems, risk management and corporate governance standards to take them substantially more in line with international norms.

Along with China's cautious openness to international trade and investment, a large number of foreign banks were planning ways to enter the Chinese financial sector. In 1979, there were 32 representative offices for foreign financial institutions, while by



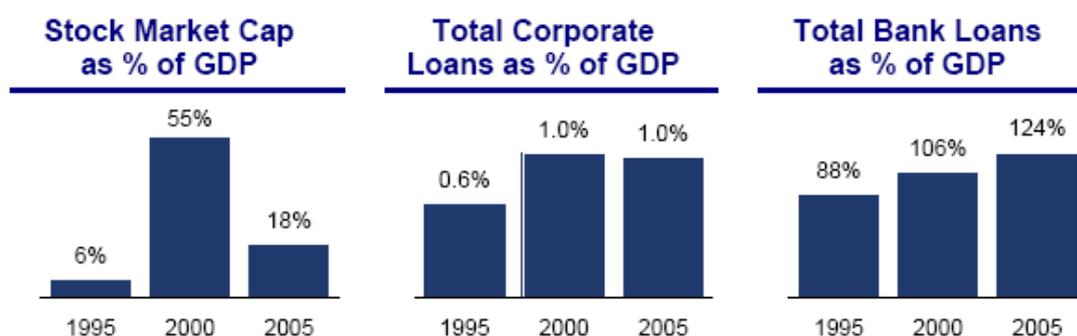
2000 there were 182 operating entities from 87 foreign financial institutions and 248 representative offices from 166 foreign banks in China. In 2000, branches of foreign banks had US\$31.8 billion –worth of assets in China, accounting for less than two percent of the total assets of financial institutions in the country. Foreign banks had lent 21.8 billion US dollars in China, accounting for about one-fifth of the country’s total foreign exchange loans (China Daily, 2000). In 2005 alone, US\$14 billion in foreign investments came into the Chinese banking sector. (Appendix 1 outlines the foreign investment in China banks from 2003 to 2005.) China has adopted a more flexible approach to seeking help from foreign banks for the rescue of weak banks. In turn, Chinese domestic banks faced foreign competitive pressure, which provided an incentive for them to improve management practices as well.

Presently, the Chinese banking industry is entering global integration. In the negotiations for China’s accession to WTO in 2001, the Chinese government agreed to open up the financial industry to foreign financial institutions (for details of agreements, please refer to Appendix 6.2.). In the light of fulfilling promises, China is gradually liberalizing its banking industry, releasing restrictions and opening its banking market to foreign competition. The fulfilment is anticipated to take place by the end of 2006. From this, China is reaping the benefits of Western financial expertise and experience, while Western banks in turn, enjoy access to China’s rapidly expanding financial services market.



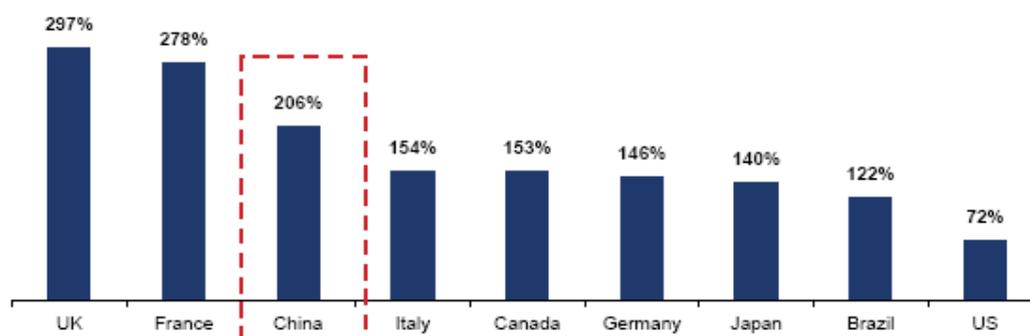
The Chinese banking system plays an important role in the Chinese economy as exhibited in Figure 4. According to statistics, the Chinese banking industry grew at an average annual rate of more than 19% in assets in the last two decades (Hu). Obviously, China is positioned as one the largest banking industries in the world, as shown in Figure 5.

Figure 4: Stock market, bond market and bank loan market



Source: China Statistics Year Book, PBC, Almanac of China's Finance and Banking

Figure 5: Banking asset as % of GDP by major countries

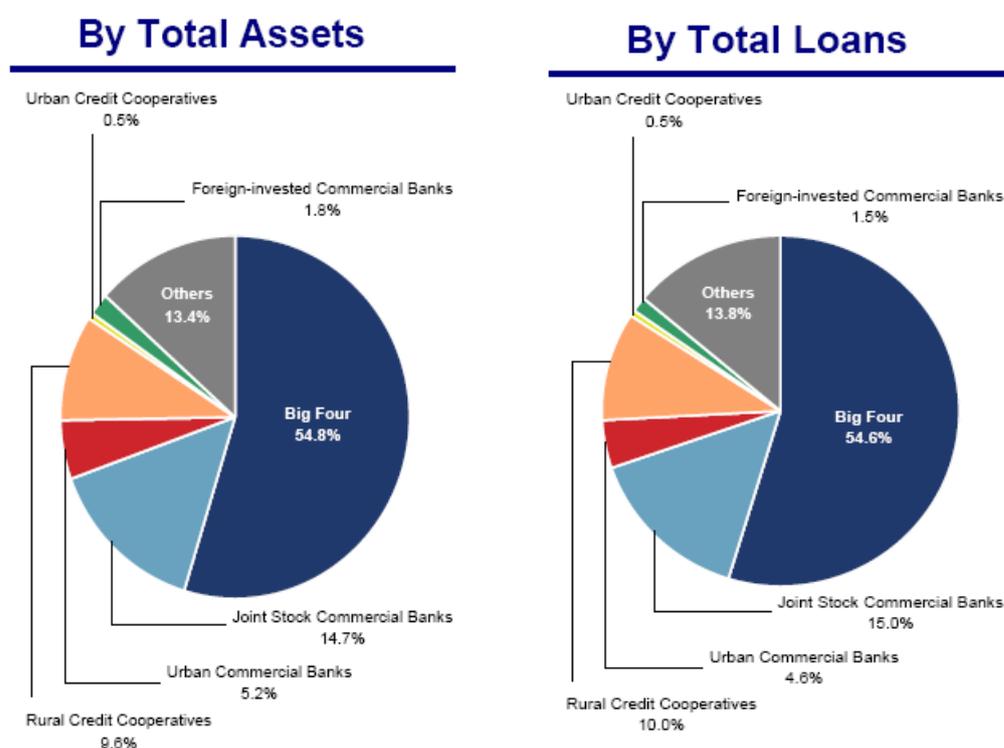


Source: China Statistics Year Book, PBC, Almanac of China's Finance and Banking



The Big Four banks dominate the whole industry, 3 policy banks provide policy lending on behalf of the government, 133 domestic banking institutions operate at national and regional level by offering deposits and loan products to retail and corporate customers, and 82 foreign banks have launched their branches and representative offices, the Chinese banking market is growing dramatically. The market share is presented in Figure 6.

Figure 6: Market share of banking institutions in China



Source: China Statistics Year Book, PBC, Almanac of China's Finance and Banking

As a whole, the Chinese banking industry is developing in a healthy manner, although it faces various difficulties, including government interference, weak internal control



and risk management, poor asset quality and inadequate corporate governance, as it progresses. Table 4 provides the key financial ratios for Chinese key banks.

Table 4: Key financial ratios for Chinese key banks

	<b>ICBC</b>	<b>BOC</b>	<b>CCB</b>	<b>ABC</b>	<b>BoCom</b>	<b>CMB</b>	<b>PDDB</b>
<b>ROA</b>	0.04%	0.61%	1.11%	0.05%	0.72%	1.13%	0.50%
<b>ROE</b>	1.4	10	21.6	1.9	13.7	15.6	17.3
<b>NIM</b>	2.14	2.11	2.78	1.54	2.64	2.54	2.55
<b>Cost/Income</b>	42	40	45.1	62.5	51.2	47.4	47.6
<b>Non-int. Income Ratio</b>	10.7	18.9	9.5	29.3	10.1	12.6	8.7
<b>NPL Ratio</b>	4.6	5.1	3.8	26.7	2.8	2.6	2
<b>NPL Coverage</b>	12.5	68	66.8	4.3	58.4	111	144.1

Source: Company filings and research reports. Date as of 2005 (ICBC, BOC and ABC as of 2004)

### **2.3.2. Risk Management in Chinese banks**

With the Chinese banking industry reform, interest rate liberalization, financial innovation and intensive foreign competition, Chinese commercial banks are increasingly more exposed to market risk than ever before. Chinese banks are engaging in more and more foreign exchange, securities, gold and derivative products. However, compared to the Western advanced risk management techniques, the Chinese banking risk management system is still immature and weak, although all parties are striving against risk. Therefore, the demand for constructing and completing a sound Risk Management system to deal with potential and emerging risks is necessary and imperative.

The Chinese government is promoting foreign strategic investment in the banking industry. The Chinese banking industry urgently needs foreign banks to bring in



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banking expertise and risk management technology as well as capital. Chinese financial institutions are encouraged to innovate financial products on the basis of effective risk control, so as to meet corporations' and individuals' diversified needs in foreign exchange-related risk management and investment (PBC news, 2006).

In practice, according to different banks' capacity, flexibility and features, they are taking different risk management reforms and introducing advanced risk management devices for better risk control and management of their pursuit of profit.

In terms of governing, there has been a lot of effort by the supervisory authority. One of CBRC's functions concerns Chinese banks' risk management, which aims to bring Chinese banks risk management standards substantially more to match BASEL accord. In the light of managing market risk, "The Guidelines on Market Risk Management of Commercial Banks" (hereinafter referred to as the Guidelines) promulgated by the CBRC in 2004, came into forces on 1<sup>st</sup> March, 2005. The Guidelines require Chinese commercial banks to enhance market risk management by fully identifying, accurately measuring, consistently monitoring and appropriately controlling the market risks arising from their business or non-business activities (CBRC). The Guidelines released the right of giving banks the option (subject to supervisory approval) of adopting their approaches to measure market risk in the light of their banks' own capability and flexibility in order to avoid herd-behaviour. In the explanation of the Guidelines, VaR is particularly highlighted.



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### **3. RESEARCH METHODOLOGY**

Given the objectives and theoretical foundation of the research in previous chapters, this chapter aims to describe the research methodology employed, explains the rationale for using the research approach, and introduces how the research was conducted. Firstly, it tackles the aim and research questions. The following part explains why ethnographic research is valuable for the research questions. The research is based on both qualitative and quantitative approaches that aim to explore the detailed information. In particular, the relevance of the multiple case study is analysed. Also, the background of the research sites, and reasons for the sites' selection are explained. The top three Chinese banks were chosen to locate the multiple case study design. Moreover, the following part involves data source and collection, and concentrates particularly on the questionnaire and interview method. Finally, the author presents a critical justification of the research methodology.

#### **3.1. Research questions**

The aims of the study are twofold. Achieving the research objectives effectively, and considering the advice by the supervisor to focus the research, which slightly changed from that stated in the research proposal. The research questions which underpin this study are as follows:



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***Q1. How do Chinese banks implement and operate VaR?***

- How do the banks implement VaR?
- What are the main objectives of VaR? How well does it work? Has it achieved the objective, and why?

***Q2. What does the Risk Management staff think of VaR?***

- How Risk Managers are different from executive level and officer level in terms of understanding VaR?
- How does Risk Management staff evaluate VaR?

## **3.2. Ethnographic research**

According to Hammersley and Atkinson (1983), ethnography (sometimes labelled “participant observation” or “applied anthropology”) ‘involves the ethnographer participating, overtly or covertly, in people’s daily lives for an extended period of time, watching what happens, listening to what is said, asking questions, collecting whatever data is available to throw light on the issues that are the focus of the research’ (1995: 1-2). An epistemology embodied in symbolic interactionism is social constructionism (Rosen, 1991), and symbolic interactionism is the philosophical stance-informing ethnography (Crotty, 1998). The social constructionism in epistemology is perfectly compatible with realism in ontology (ibid). It focuses on



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meaning and power because its epistemological position dictates that meaning and power are all that we really can claim to know about (DMU, 2005).

Risk officers' perceptions of VaR are obtained from interaction and communication amongst the people involved, and in order to conduct the research, meaningful, ethnographic observation is necessary in order to collect information from language, actions, and other symbols.

Unlike experimental research which takes subjects out of their actual social world, ethnography which focuses on the social context, is referred to as 'naturalism', because it studies the world in its natural state. From an ethnographic perspective, unique cultures are considered worthy of study, and are critical in understanding action, because whatever the research subject is, 'we are certain to uncover special languages, unique and peculiar problems, and distinct patterns of thought and action' (Van Maanen 1983). Therefore, the ethnographic observation is appropriate for the current research in terms of discovering the differential perceptions from, and actions by Risk Management Officers, which will be explained later. In order to discover the real attitudes of Risk Management Officers, the interviews are taken in two ways; on the one hand, by formal interviews, and on the other hand, by informal interviews, i.e. observation from natural social conversations during dinner.

Ethnography has played a critical role in the study of work, because ethnographic research methods provide a richness of detail, sensitivity to perceptions, and an opportunity to discover important new issues that cannot be achieved through a priori



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theorising (Friedman and McDaniel, 1998). It is suitable to ethnographically explore the research unit, given the objective of discovering the detail underlying problems in VaR implantation. Furthermore, the anticipated sensitive issues, such as the resistance of contradictory views expressed by some people, lead to the usefulness of participant observation. The observed conversations and interactions between the researcher and Risk Management staffs are crucial in understanding how they indoctrinate their perception and evaluation of VaR.

Although ethnography requires a 'long period of intimate study' and only 10 days within three organisations is somewhat short to obtain a full insight, nevertheless this disadvantage is reduced by the continuous social activities, especially the feasts that the researcher stood treat. The main sites of observation were the banks' office rooms, conference rooms, and restaurants in Beijing and Harbin.

During the observations, the researcher was issued with some restrictions from banks' offices, so the scope of the observations was limited, but communication at informal situations was not restricted, so the collected data was still sufficient. The observed actions included behaviour, business conversations, informal conversations, non-verbal signals, meetings, and other possible interaction amongst Risk Officers. The research was naturally valuable because of the background data and organisational familiarization. Everyone involved in the research was informed that the questioning was not on behalf of the bank, but was only used for academic



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research, and without any commercial purpose. Therefore, anybody seeing my observations was told that ‘she is working on a dissertation’.

Ethnography is uniquely suited to addressing research questions which require an understanding of culture and social interaction. In terms of applying ethnography, the researcher personally stood treat to the relevant Risk Officers, especially Risk Managers of the selected sites. In Chinese culture, standing treat with someone, is one of the most universally accepted social activities, and is viewed as one of the most efficient ways to achieve targets. During the feast, the conversation is more natural and unrestricted. Especially after some drinks, the relationship between researcher and interviewees gets closer, and interviewees are more willing to tell more than they did in the formal interviews. This method is also considered as one way to get the most honest answer to questions in China. This kind of ethnography enables the researcher to discover potential issues and helps them enter the ‘black box’ to get the real Risk Officers’ attitudes.

Field research offers the benefit of greater plausibility for the theories it produces, but it does so at the cost of theory validation. In addition, ethnography is suspect, due to the lack of a clear and exact method of translating observations into generalisable and parsimonious findings (Friedman and McDaniel, 1998). The risk is that findings may be influenced by the researcher’s own biases and expectations. There is a danger that the researcher only focuses on evidence which supports her own expectations, and interprets the data only in ways that support her arguments. In particular, the



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researcher's viewpoint may be largely influenced by the main informant's standpoint if, for instance, they are friends of one of the researcher's relatives. The researcher has made an effort to moderate this problem of research. The observation and interview provide the researcher with the opportunity to get methodology and data triangulation.

### **3.3. Research design: multiple case study**

Case study as 'an empirical inquiry which investigates a contemporary phenomenon within its real-life context, when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used' (Yin, 1989) has been selected for this research. Case studies can involve either single or multiple cases and numerous levels of analysis.

This study is based on a multiple case study, because this may show more general trends and non-idiosyncratic phenomenon about the research issues, and would help to provide a more completed and comprehensive perspective for researchers. In-depth investigation of each organization can achieve deep understating and rich theory construction. Additionally, the multiple case study seems appropriate, because in the research two main questions: 'how do the Chinese banks implement VaR' and 'how do the Risk Management Officers value VaR' were proposed, and case study was the preferred strategy, having the considerable ability to answer the questions 'how' and 'why' (Yin, 1994). Furthermore, this dissertation attempts both to observe the 'objective' facts in the procedure and the 'subjective' perceptions of Risk



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Management Officers. Therefore, the multiple case study makes possible the collection and interpretation of multi-sourced data.

### **3.4. Sample selection and description**

With the decision to undertake multiple case study, Industry and Commercial (ICBC), Agricultural Bank of China (ABC), China Construction Bank (CCB), were selected as the appropriate research sites.

#### **3.4.1. Reason for the sample selection**

There are a number of reasons for choosing such samples for this research.

Firstly, these three Chinese banks are the dominators that have occupied the leading positions in the Chinese banking industry for decades. They are typical Chinese market-oriented banks that have more power in accessing relevant resources. Also, they are pioneers in terms of introducing western advanced financial techniques. Therefore, VaR is more meaningful for these banks. And the research investigating them might be sufficient to explain the research issues more deeply, and could reveal the features of Chinese Risk Management.

Secondly, in the complex and turbulent economic environment, as the largest banks having a large number of qualified and skilled financial employees, these top three banks possibly possess the most informed employees and experts on Risk



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Management. After all, Risk Management is a new concept in China, consequently, not many people, even financial personnel have such knowledge. Therefore, in theory, the officers of these three banks would be more informed in terms of Risk Management and VaR, and again the researcher could get ample evidence to investigate the Risk Management practices.

In addition, the big three banks' financial and business related information would be easier to access. Financial figures and ratios would show evidence of the organization's Risk Management performance, and for this reason the available annual reports on their corresponding websites would assist the research's documentary data collection.

Finally, in general, academics in China do not have much bargaining power in negotiating research access with financial organizations. Gaining access at a meaningful level is not easy without 'guanxi' or a network of personal relationships. The researcher's relatives have a close relationship with the top managers in these three banks, which make the interviews possible. So high quality access, which is an essential requirement of the conduct of an in-depth case study (Streek, 1986), can be ensured, and it was helpful to collect sufficient and genuine information. The existence of personal relationships prior to the conduct of research also was advantageous to the researcher in providing an understanding of these banks.



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### **3.4.2. Sample description**

With regard to the objective and methodology, this research was carried out within the context of typical Chinese banks, as described below.

#### **3.4.2.1. Industrial and Commercial Bank of China (ICBC)**

ICBC was established in 1984, operates more than 21,000 domestic branches and over 100 branches and offices worldwide, and is the largest commercial bank in China. It provides financial services by offering both RMB and foreign exchange for more than 8 million corporate clients and over 100 million individual clients. In late 2005, ICBC was listed on the Hong Kong Stock Exchange for US\$12 billion.

The researched site of ICBC was ICBC Hei Longjiang Branch, which governs the entire Hei Longjiang province with 656 branches and 18,000 employees. In June 2006, ICBC Hei Longjiang Branch reported a capital worth totalling to RMB16.18 billion.

#### **3.4.2.2. Agricultural Bank of China (ABC)**

ABC was founded in 1951, with headquarters in Beijing, and is mainly involved in rural financing and providing services to agricultural, industrial, commercial, and transportation enterprises in rural areas. It manages 31,000 branches throughout China, Hong Kong, Singapore, Japan, UK and USA, with 300,000 employees. By the end of



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2005 ABC had become the second largest bank in China, with total assets of US\$605 billion.

ABC Beijing Branch is the Head Office of ABC, and directs all Beijing branches to implement the headquarter's strategies, policies and relative stipulations.

### **3.4.2.3. China Construction Bank (CCB)**

CCB, which was formed in 1954 against the background of the first five year national economic plan implementation, ranked 315<sup>th</sup> in the 2005 Fortune Global 500. CCB started its role for managing investment funds for domestic construction projects, but has now expanded its services, including standard deposit products, credit cards, auto loans, medium and long term loans to domestic corporations, multinationals and consumers on an international basis. CCB eclipsed other Asian banks with a net interest income of US\$14.22 billion and a net profit of US\$5.75 billion (Asiaweek).

CCB Hei Longjiang Branch was chosen as the observation site. It controls 215 branches in the province, which report total assets of up to RMB16.18 billion in 2005.

## **3.5. Data source and collection**

Yin (2003) suggests that the evidence for case study should come from six sources: documents, archival records, interviews, direct observation, participant-observation, and physical artifacts. Adopting multi-methods for case study helps the researcher to



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cross-check the research results and secure the conclusions. In this research, interviews, questionnaires and documentary sources were conducted to collect data. So both the qualitative and quantitative approaches were taken.

However, each approach has its unique strengths and weaknesses. There is an inevitable relationship between the research methods employed and the research results. ‘Triangulation’ gives the opportunity to exploit the advantages of different methods, and increases the reliability and validity of the findings. Also, it enables the researcher to address a broader range of attitudinal and contextual issues, and enhance the interpretation of research material. So ‘Triangulation’ was applied in the research through a combined use of documentary sources, interviews and questionnaires.

### **3.5.1. Primary data**

In terms of achieving primary data, ‘questionnaire’ and ‘interview’ are the key methods. The following section will demonstrate how interviews and questionnaires are designed and implemented in this research, and the reasons why they are appropriate.

#### **3.5.1.1. Interview**

The qualitative interview is adopted as a suitable method in the research, because Grix (2004) claimed that interview is flexible and sensitive to the social context. It enables the researcher to get closer to the interviewees’ perspective, and allows an in-depth



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exploration, development of original interpretations, and a meaningful understanding of issues and processes which impact on the subject of investigation (Whipp, 1998). So the qualitative techniques are conducted to achieve the comprehensive and deeper understanding of the Risk Management Officers' attitudes towards VaR in their context.

Observation and interviewing is intertwined and mutually supportive (Gerson and Horowitz, 2002; Fontana and Frey, 1998). As Taylor and Bogdan (1984: 79) comment, 'no other method can provide the detailed understanding that comes from directly observing people and listening to what they have to say at the scene'. Whilst participant observation is more likely to proceed inductively, in-depth interviewing requires a more deductive approach (Gerson and Horowitz, 2002).

#### **3.5.1.1.1. Design**

Interview methodology assumes that it is possible to investigate elements of the social by asking people to talk, and to gather or construct knowledge by listening to and interpreting what they say and how they say it (May, 1997). Therefore, interview methodology also stands on an epistemology of social constructionism. And in this respect, interview method is conforms to ethnography, proving that these two methods are mutually enhancive.

Let us consider the research question, and how the semi-structured interview is conducted.



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The researcher prefers the semi-structured interview for a number of reasons. Firstly, the study issues and research questions are identified before the start of the research. The semi-structured interview allows questions to be predetermined, and the interviewer to use discretion in omitting or adding questions and following up interesting and important responses (Robson, 2002). Secondly, due to the types of the research questions, the semi-structured interview develops discussions not only to reveal and understand the ‘what’ and the ‘how’, but also to place emphasis on exploring the ‘why’. Thirdly, VaR is a relatively new topic in China, and few people have such knowledge, therefore, the responses are expected to be heterogeneous. The semi-structured interview, with a certain degree of flexibility and ability to pursue unexpected lines of enquiry (Grix, 2004), allows the probing of views and opinions where it is desirable for respondents to expand on their answers, and grasps the diversity of interviewees’ relevant experiences and attitudes.

In order to use semi-structured interviews effectively, the researcher developed the interview questions after a detailed review of the relevant literature, and re-checked these questions to make sure they were fundamental and correlative to the research aims. Moreover, the researcher did her best to reduce and avoid the possible weaknesses of the interview; e.g. she had been aware of the problem of biases as interviewer, and maintained constant self-control to reduce the possible bias and influence of the interviewer. As a result, the research gained in-depth data related to answering the proposed research questions, and considered issues which were not originally considered as part of the interview, but helped towards meeting the research



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objectives.

The interview can consist of two formats. One is the formal semi-structured interview, and the other is the informal format.

The formal semi-structured interview is designed for the purpose of obtaining formal responses from the interviewees to the researched questions. This is the base of the research. For the formal interview question schedule refer to Appendix 6.4.

The informal interview aims to explore the interviewees' true underlying responses, rather than the official responses which have been obtained from the formal interview.

For the formal interview, most responses were convincing. However, some parts were elaborated, because Chinese people like flaunting and magnifying their performances and achievements, due to various reasons, including displaying national esteem, over-showing outstanding achievement, avoiding responsibility and so on. Obscure responses are another case. When risk managers are uncertain of, or have less knowledge about the topic, they feel ashamed, and unwilling to display ignorance or tell the truth, so they would slide over or digress by obscure responses or irrelevances.

Niminy-piminy shyness makes frankness almost impossible. Hence, to overcome this, the adoption of the informal interview was preferred. The reason for constructing the informal interview is that it is much closer to the detective work of field research, with all the excitement of the detective story, and all the hard graft of checking reams of evidence. For the informal interview schedule refer to Appendix 6.5. In fact, the informal interview questions are similar to the formal interview questions, because



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they are designed to overcome the formal interview drawbacks, fill in the items missing from the formal interview, and enhance the formal interview's reliability to meet the research objectives.

The main limitation of the informal interview comes from its validity. Interviewees are not guarded about their answers during the treat. Especially after some drinks, their talk may be barbaric. Consequently, the interviewees' informal answers may contradict their formal answers. In order to remedy this shortcoming, the researcher tried her best to make an objective and fair judgement on answers and conflictions to avoid falling into a dilemma. During the review process, the author coordinated both formal and informal answers in analysing the findings. In the next chapter, the formal interview answers are printed in black, while the informal ones are presented in blue.

#### **3.5.1.1.2. Interviewee selection**

The selection of interviewees is based on the principle that their views can typically reflect the perspectives in a specific area. It is also based on the interviewee's availability and willingness. Thanks to the relationship between the researcher's relatives and the targeted Chinese banks, the researcher is able to keep in touch with the interviewees via telephone and email for any enquiry and ongoing research purposes.



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Interviewees include:

- Risk Manager of observation sites. They attend both formal semi-structured interview and informal interview.
- Risk Management supervisor of observation sites. They attend informal interview, but some of them are randomly selected to attend the formal interview as well.

For the full list of the interviewees refer to Appendix 6.6.

### **3.5.1.1.3. Implementation**

The interviews are implemented by seeking the Risk Management Officers' attitudes and subjective understandings that are critical in answering the second set of research questions: what are the Risk Management Officers' understanding, perception, and values of VaR? How their beliefs and viewpoints could influence the implementation of the model?

#### **Formal semi-structured interview implementation**

The research employs formal semi-structured interviews, individually and face-to-face, to gather valid and reliable data within banks during working hours.

During the investigation process, due to the limitation of research time and the heavy workloads of staff, three interviews were carried out in offices in each bank, to ensure that interviewees felt confident and at ease, and the duration of each interview was



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between 45 minutes and 1 hour.

The interviews were divided into two stages.

In the first stage, the Risk Manager in the branch was interviewed, because the Risk Manager of each bank is supposed to be the most qualified Risk Management expert, who assists the bank management team in making decisions by providing relevant Risk Management support.

In the second stage, three Risk Management Officers were selected according to their available time and willingness. These people were interviewed, because, on behalf of Risk Management on the front line, they were the Risk Management planners and implementers. Therefore, gathering information about their experience, perceptions and knowledge of VaR and Risk Management, reform would be meaningful and significant. The Risk Managers in the observation sites provided full support to the research, so at the beginning, they appointed some of the most informed Risk Officers to attend the research interviews. However, in order to ensure that the interview results would be valid and reliable, the researcher asked to choose the Risk Management Officers randomly. This was mainly because the researcher considered that if the only interviewees were the most knowledgeable Risk Management Officers, the results would be biased because the interviewees were less representative.

It is rare to have such kind of interviews in the Chinese context. Therefore, with the expectation of getting the truth with regard to Risk Managers' and the Risk Management Officers' attitudes on the Risk Management reform and VaR, the



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researcher tried to establish the interviewees' trust throughout, explaining the research and introducing the fact that the research was conducted on behalf of academic research, and assured them that their responses would be treated as confidential.

### **Informal semi-structured interview implementation**

The research employs informal semi-structured interviews in a social way, namely, the research invites the Risk Manager and Risk Management supervisor to have dinner after work.

There are several reasons to invite only the Risk Manager and the Risk Management supervisors. Firstly, the researcher's relative has a close "guanxi" relationship with them, therefore, the research can be implemented. In addition, they provided full support in assisting the research to carry on. In return, under the Chinese relationship culture, the researcher behaves to invite them for a feast in appreciation and thanks. Secondly, the Chinese bank management structure is very hierarchical, so it is not appropriate to invite Risk Management Officers together with Risk Managers. In addition, considering the research's financial budget, it is not practicable to stand treat for all Risk Management Officers. Finally, Risk Managers and Risk Management supervisors are managerial staff, who are expected to be the most authoritative to make the Risk Management decision, so their responses are more constructive towards the research question.



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During the conversation at the treat, the researcher deliberately and purposely raises questions that are similar to the formal interviews, but in a natural conversational way. Actually, the questions are pre-determined by the researcher. They are just asked or mentioned while the researcher manipulates the conversation, which, all the while sounds spontaneous. The interviewees in this informal setting are not informed in advance.

The interaction during the treat is harmonized by daily conversation with the help of the researcher's relative's. These informal interviews are interacted by some talks on the researcher's international study experience, those Risk Managers' European trips, contrast between western banks and Chinese banks, some toasts and so on. The toasts that are proposed by the researcher are productive, because drinking dismisses the bureaucratic attitude. With the influence of all these efforts, the relationship between the researcher and the interviewees becomes closer. Consequently, the interviewees' responses collected from this scene are unselfconscious and unaffected. Therefore, these responses are treated as reliable to supplement the drawbacks of the formal interview responses.

### **3.5.1.2. Questionnaire**

A quantitative approach in the form of a questionnaire was conducted to gain more understanding of the research site context, and to collect objective data related to the Risk Management Officers' attitude towards VaR. The adoption of quantitative



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research can abstract from particular instances in order to seek general descriptions, avoid biases and lead to greater confidence being placed in the study's conclusion.

The questionnaire, as one of the most widely used data collection techniques in contemporary research (Saunders et al, 2003) is developed to examine how VaR is implemented in Chinese banks and to collect evidence to answer how Risk Management Officers know and think of VaR in real practices. The questionnaire is suitable in this research, because it provides an efficient way of collecting responses from a reasonable sample and enabled the researcher, in a limited time, to collect plenty of essential information.

#### **3.5.1.2.1 Design**

The questionnaire, which consisted of three sections (see appendix 6.7.) is designed originally in the English language, and then is translated into Chinese in order to be convenient for the respondents to complete.

The first section focused on the respondent's personal information.

The second section was design to obtain the evidence of the employees' understanding of VaR.

The third section was designed to investigate respondents' evaluation on VaR.

Three main forms of question formats were adopted to make the questionnaire style and content more flexible and comprehensive.



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➤ ***Closed question***

The researcher chose multiple-choice questions, which provided respondents with a choice of potential responses to a question. This kind of question is adopted in the first and second section. The first section questions focused on investigating the Risk Management Officers' age and educational background, as much literature suggests that age and level of knowledge have a positive relationship with professional work (Yin, 2004).

Then the respondents are asked to self-estimate their knowledge level of VaR by itemizing a scale. Thereafter three multiple-choice questions are set up to test their knowledge of VaR. The reason why this test is set is that the researcher wants to prove the Risk Management Officers' real knowledge level, rather than their own subjective judgements. Three questions are limited to tell the true and fair view, however, due to time and space limitations, three questions were sufficient enough to provide evidence to some extent. Questions were fundamental, but the difficulty was designed gradually and carefully. The first question related to the definition of VaR. The second question involved the estimation method. The last question concerned the implementation in the real world.

➤ ***Scaling questions***

It refers to procedures for the assignment of numerical measures to subjective concepts such as understanding, attitudes, and opinions. The researcher adopted the Likert scale, in which respondents are asked to indicate their responses to each



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statement on a five-item Likert scale from 1 to 5 (1=highly disagree, 5= highly agree). As a result, the scale can capture the respondents' extent of agreement or disagreement with the relevant statement. It was also possible to include items whose manifest context was not obviously related to the attitude in question, thus enabling subtler and deeper ramification of attitudes to be explored (Oppenheim, 1992).

➤ ***Open-ended question***

Enlarging information could enrich the questionnaire and provide more evidence for analysis. So an open-ended question is set to allow the respondents to reply in their own words. This kind of question is optional and assists the researcher in obtaining more information that would not normally be available for a predetermined list of questions.

In terms of word selection, the researcher keeps the wording and phrasing simple and straightforward to avoid ambiguous and leading questions.

Of course, using questionnaires had its drawbacks; for instance they may have difficulty in understanding and/or answering a question; lowering the response rate, and so on. However, during the research, attempts were made to generalise these weaknesses wherever possible. Firstly, the researcher designed the questionnaire carefully with a clear presentation to make sure that the questions were clear and easy to understand. Secondly, in order to increase the response quality, the purposes of the study were emphasized, namely that the research was not conducted on behalf of bank, and this information was given to the respondents, and confidentiality was assured by



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providing envelopes for the finished questionnaires. Furthermore, the length of the questionnaire was kept to minimum (2 pages) to avoid the respondents feeling bored.

#### **3.5.1.2.2. Implementation**

The survey questionnaires were distributed to 35 Risk Management Officers who worked in the observation sites. With the aid of Risk Managers, 34 responses were received. One officer was not available because of a business trip. The significantly high response rate, i.e. 97%, was mainly thanks to the “Guanxi” between the Risk Managers and the researcher’s relative. The Risk Managers provided full support to the researcher and they ordered their staff to complete the questionnaires. The Chinese banks’ management system is based on hierarchy, which is highly bureaucratic, consequently, the line staff was eager to implement what the manager requested. From this sense, the researcher was able to achieve high quality responses. In addition, the staff number in a Chinese bank Risk Management Department is limited, because, Risk Management is still a new concept in the China context. Considering the nature of this research, 34 respondents are sufficient.

During the distribution process, the researcher delivered questionnaires by hand to each respondent. This allowed the queries about the study to be dealt with immediately, and distribution to occur. Questionnaires were required to finish before 4:30 pm on that day, and the researcher collected the completed questionnaires.



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### **3.5.2. Secondary data**

Apart from primary data used in the research, secondary data is considered as another important source of obtaining information. In general, the secondary data of this research is mainly achieved from previous studies, academic journals, and articles, official statistics, public websites, bank almanacs, bankscope and other available sources. Obviously, banks' annual reports and statistics from bankscope and the Chinese Banking Regulatory Commission (CBRC) are considered as the benchmark to exhibit the Chinese banking industry and specific banks' performance and position.

In addition, documentary sources are particularly significant in management research in terms of the organisational context of management (Thomas, 2004). Risk Management is also a management term rather than only a financial term; therefore, this research also uses bank's documents to provide longitudinal context to the research, such as the information, regulation and system of their Risk Management reform, and so on. In detail, the bank's annual reports (2001-2005), banks internal profiles are collected to understand the company background and Risk Management system.

Moreover, secondary data quoted from academic journal and articles takes advantage of supplementation and enhancement in order to convince the researcher that it is capable enough to display a fair view of the question. The secondary data employed enables the researcher to overcome the problems of the researcher's limitation and possible personal bias.



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### **3.6. Data management and analysis**

The data collected from the outlined methods included qualitative and quantitative data.

Qualitative data from documents, interview transcripts and questionnaires (open-ended questions) were analysed, based on the grounded theory ‘discovered, developed and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon’ (Strauss and Corbin, 1989) e.g. the notes that were taken during the interviews were transcribed, summarised and then categorised in order that they could be analysed within the case study context. Relating to the three open-ended questions in the questionnaire, 59% answered ‘If you think Risk Management is important in Chinese banking could you explain your reasons?’, 44% answered the question ‘If you think VaR is important in Chinese banks and could you explain your reasons?’, but nobody responded to the question ‘other comments or notes?’. Detail analysis will be presented in the “Research finding and analysis” Chapter.

On the other hand, according to Saunders, et al (2003) the quantitative data was analysed as follows: preparing data for analysis; exploring and presenting data; describe data; and interpreting the tables, diagrams and statistics. The quantitative data gained from the banks’ documents, annual reports, bankscope, and relevant financial reports containing the Risk Management system, rules, and related financial figures are simply analyzed to understand the facts of Risk Management. The



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quantitative data generated via the questionnaires was analysed using Excel, because it enabled the performing of complex data manipulation and the automatic generation of data.

### **3.7. Critical justification**

Obviously, any research technique has some shortcomings. Although, the researcher has endeavoured to minimise the possible negative effects on research results, it is still necessary to clarify the critical justification.

The qualitative approach of this investigation is problematic to some extent.

Firstly, there is the issue of reliability, referring to the degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions (Hammersley, 1992; Silverman, 2001). For example, different Bank Risk Managers' perceptions of VaR, are based on their own bank's Risk Management strategy and system, therefore, it is difficult to integrate the results by analysis in order to answer the unique research question. Also this research adopted two kinds of interviews, as explained. Because of Chinese people's reluctance to assume responsibility, during the formal interview, the responses were more bureaucratic and political, especially as the researcher is doing a dissertation for a British university. However, the responses collected from informal interviews, especially during the feasts, when the interviewees were more willing to tell their true



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thoughts, were more revealing. Therefore, the results obtained from different occasions may conflict.

A second critique of qualitative research relates to the problem of anecdotalism. This was revealed in the extent to which research reports, not only examples of some apparent phenomenon, but also attempts to analyse less clear data (Silverman, 2001). Most of the concerns come from the informal observations during the feasts. This complaint questions the validity of qualitative research.

The criticisms of ethnographic research concentrate on validity, generalisability and reliability. A counter-argument may be that theory validation is simply not a task that can or should be accomplished by ethnography (see Friedman and McDaniel, 1998). Silverman (2001; 1997) suggests that people in their actions and interactions with others create the world socially and subjectively. Another risk is the researcher's own biases and expectations. A personal relationship may make the researcher tend to evaluate the system subjectively. The problem of reliability is diminished as much as possible by my own endeavours to interpret the data reflexively (Miller, 1997), and by combining insights with systematic fieldwork (Silverman, 2001).

Postmodernist ethnographers' are concerned with some of the assumptions and moral problems present in interviewing, and also with the controlling role of the interviewer. These have led to increasing attention to the voices and feelings of the respondents and the interviewer-respondent relationship (Fontana and Frey, 1998). The 10 days



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observation will provide an opportunity for the author to establish trust and rapport with interviewees and to frame questions.

Except for the danger of interviewer effects, some other criticisms of interviews are that the data produced may be social constructs, created by the self-representation of the respondent, and the interviewees may have self-serving bias (Dingwall, 1997; Gomm, 2004). Nevertheless, with regard to the research objectives and questions, self-representation and self-serving are not obstacles to the production of relevant information; rather, they themselves are where the research interest locates. Therefore, they will not contradict the reliability and validity. After all, the task of the interviewer is not to avoid these ‘biases’, but to discover, refine and analyse them.



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## 4. RESEARCH FINDING AND ANALYSIS

This chapter will look at the data and evidence which form the multi-methods, and report findings from the empirical research. In the light of the research questions, the analysis will be divided into parts to explore the results from interviews and questionnaires in order to achieve different aims. The first aim is to examine how VaR is implemented in Chinese banks. This part consists of the objective, implementation process, and outcome. The second aim is to discuss the Risk Management staffs' understanding, beliefs and values of VaR. The findings related to how their viewpoint influences the implementation of VaR are revealed.

### 4.1. Result from interviews

The following section concentrates on concluding and analysing the responses from relative interviewees for the research questions. The black paragraphs are summarised from formal interviews while the blue highlights are from informal interviews.

➤ **What are the main objectives from the introduction of VaR?**

The responses indicate that the original objective of introducing VaR is to enhance Chinese banking industries risk management and internal control. In light of managing market risk, Chinese banks have realized that VaR is a well-developed expertise adopted by many international leading banks. Studying the western advanced techniques is one efficient way to prevent the gap widening between



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Chinese banking risk management and the Westerner's approach. This also suggests that the Chinese banks hold ambitions to play a more important role in the international financial market.

*Establishing market risk management system needs a lot of infrastructures, time and efforts. Concerned about our limited abilities in risk management in terms of preparing for intensive international competition, our ABC realizes that the earlier we learn advanced risk management expertise, the better our business future will be. Hence ABC is endeavouring to take the most advanced and experienced skills to improve our risk management and internal control in order to meet international standards. We hope we can make full use of VaR to compete with our rivals both domestically and internationally. (ABC Risk manager)*

*CCB aims to construct highly qualified risk management teams, and comprehensively improve risk management standards by introducing advanced technologies. We believe VaR is a skill that would assist CCB to effectively meet the commercial banks risk management needs, and strengthen our internal control. (CCB Risk manager)*

Another reason for introducing VaR is that banks are passively driven by the pressure from CBRC. CBRC's Guidelines send the signal that VaR is powerful in the market risk management context. The Chinese banking industry is highly hierarchical. Banks take CBRC's suggestions as to direction



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because they have to conjecture the underlying indications of CBRC's decisions for future possible changes.

*CBRC suggests VaR is a good measure. Many international banking regulators suggest this as well. Today VaR is a suggestion, and it is very possible that it will become a stipulation someday. The headquarters carries through the spirit of the supervision department, and distributes missions to branches. What our branches need to do is to obey the headquarters' arrangement.* (ICBC Risk manager)

➤ **How the bank implements VaR?**

In order to meet the commercial banks risk management needs, most banks are taking risk management reform in different formats. Actually, implementing VaR is one process of risk management reform in most Chinese banks. The basic VaR implementation procedure is that the Head Office of the bank stipulates the relative rule, which is enacted at the province level branches. Based on software and database, Risk Management Officers operate VaR estimation and report on generation work. Risk Managers make decisions and adjust relevant risk issues by communication between the local branches and Head Office. The top management team and the Board take the supervising and governing responsibility.

*ICBC reformed the organizational structure in June, and newly established the Risk Management Department under the Board's governance, which is in charge of the entire bank's comprehensive risk management issues; the Credit*



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*Loan Management Department is in charge of all credit risk management, credit loan supervision, control and analysis. (ICBC Risk manager)*

*In order to comprehensively push our Risk Management reform, the CCB appoints a Chief Risk Manager, a first-layer branch Risk Director, to form a vertical Risk Management framework, thus making the risk management operation more efficient. (CCB Risk manager)*

*ABC constitutes the ABC Risk Manager Conduct Method, in which the Risk Manager's duties, qualifications and conditions are depicted. We introduce software for VaR calculations. Our Risk Management Officers are trained to operate software and interpret results. The branch Risk Manager is responsible for regularly reporting relevant issues to the Head Office, which has the final right to adjust ABC's risk policy. (ABC Risk manager)*

The Chinese banking industry is entering global integration. The entry of foreign strategic investors is an unavoidable trend as they turn to joint stock banks and head for public listings for Chinese commercial banks. Chinese banks make use of their foreign partners' technology and expertise to help them to operate more efficiently, and to build up risk management, credit culture, a modern banking system, and a prosperous future. This also applies to VaR implementation.

*CCB has introduced two strategic investors, the Bank of America and the Singaporean Temasek successfully. Apart from introducing funds, we also ascertain that there is another standard which they must provide with their*



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*expertise and leading advantages, whilst being willing to transfer their technologies and management experiences to CCB. This promise is already bearing results. Our CCB is benefiting from their assistance on different aspects, including Risk Management skills. The Bank of America's risk experts have provided much training for our Risk Managers and Directors. The VaR implementation is also being fully supported by their advice. (CCB Risk manager)*

Building up comprehensive database is a key process for VaR implementation and risk management. All the three observation banks have in succession chosen Cisco, the world IT Giant, as their consultancy for upgrading their data centers in Beijing and Shanghai.

*We realize that an advanced database is essential for risk management in ICBC unified regional networks, by selecting Cisco Solutions for the upgrading of ICBC's data centre. We believe that Cisco's high reputation for technological advancement and its consistency in product development assists us to form a highly centralized national centre capable of delivering accurate and timely data for better risk management practice. (ICBC Risk manager)*

However, it is only the beginning stage of using VaR in Chinese banks, so VaR implementation is still not systemic or scientific, as the implementation is mostly limited to specific extents. VaR does not apply throughout all instruments, but mainly focuses on interest rate risk and exchange rate risk. Also, due to the limited resources



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and abilities, VaR is applied within the higher levels rather than the regional branches, all of which suggests that Chinese banks have not yet completely managed to make full use of VaR skills.

*VaR is mainly used for our interest risk management and foreign exchange risk management. They are the first tasks for our commercial banks to settle in the market risk management. (CCB Risk manager)*

*There are so many kinds of risks, but our abilities are limited. We cannot look after everything. So we only can take care of the important ones. (ICBC Risk manager)*

*Just one interest risk has already given us a headache. For our provincial branches, VaR is already too complex to implement. If you go our city branches, you will find nobody knows it. (ICBC Risk Supervisor)*

➤ **Has VaR achieved the objective and why?**

Risk Managers cautiously affirm VaR's ability at achieving objectives. They agree that theoretically, the systematic process of introducing VaR neatly matches the concept of the objective, but their responses also suggest that the actual practice might be different to some extent. It is still distant from meeting the objectives. Mostly, this is the result of the Chinese banking risk management limitations and shortcomings, including timing, costing, technologies, human resources etc.

*Obviously, VaR provides an easy way to understand our market risk position*



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*for our management team. And our risk management system is improving.*

*However, it is just the beginning. Therefore it is hard to exactly tell how good it is. I think we are going see more of its benefits in the future. (CCB Risk manager)*

*The reason why we are away from our objective is that our banking system is still undeveloped. Our risk management reform still needs more time and more efforts. (ICBC Risk manager)*

➤ **What is the problem relating to the VaR implementation?**

Apparently, Chinese banking people are aware of their shortcomings in the context of Risk Management. All these shortcomings are fully reflected by the related problems of VaR implementation. The Chinese banking industry's risk management is mainly weighed down by immature systems, limited resources and undeveloped technologies.

*The main problem relating to VaR implementation is the complexity of the implementation throughout the entire bank, and its related high cost. (ICBC Risk manager)*

*We are still short of risk management specialists. Although we have provided different kinds of training courses for our staff, the specialists we are looking for are people who can train us rather than those we can train. (CCB Risk manager)*



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*Our database is still weak, although we have put a lot of effort into it. Our Risk Managers need to be informed by the most complete, comprehensive, and latest information in order to make risk decisions. (ABC Risk manager)*

In addition, the Chinese banking industry is influenced by many factors. Market risk is not independent, so bankers have to concern themselves with more issues; for example the potential risk posed by the national policy, which influences interest rates and foreign exchange rates more than market forces in China. So, Chinese risk managers are relatively unadventurous in making any risk management decisions.

*The western stuff is good but mostly it only works in the West. If you bring it to China, it may do not work as expected. Everything will be changed if you put in a premise of “socialism feature”. So we have to think of much more than just figures. (CCB Risk Manager)*

➤ **How well do Risk Managers understand VaR?**

The promotion scheme in Chinese banks is based more on experience and longevity than on other considerations, although the Chinese banking industry is becoming increasingly knowledgeable. Therefore, selected Risk Managers may not really be the most qualified risk people. For this reason, the Risk Managers’ knowledge of risk management techniques may not be sufficient enough. However, the Chinese people are highly self-esteemed, particularly when they are positioned at high levels, and they feel ashamed to admit their weaknesses or show their ignorance. Therefore, they



normally overstate their knowledge level in the formal situations. However, their informal responses reveal that they know their knowledge is weak and limited.

*Our ABC Risk Manager Conduct Method specifies the ABC's Risk Manager's duties, qualifications and conditions. Our Risk Managers are selected and assigned, so they are basically qualified for relevant risk management skills.*

(ABC Risk Manager)

*Our Risk Managers are selected based on strict criteria. So our Risk Managers abilities are outstanding. Our Risk Managers' knowledge of VaR is reliable to some extent.* (ICBC Risk Manager)

*The reason why so many training courses are arranged for our staff, is because we need them to implement risk management. We are managers, so do not need to do fieldwork. We make decisions based on their reports and provide interpretations. If you ask me to tell you about VaR, to be honest, I cannot tell more than ten sentences. I am fifty-seven now, I cannot go to study and I really do not have the energy.* (CCB Risk Manager)

*Compared with you, who is studying on an overseas university masters of Risk Management course, my knowledge of VaR is little. If you ask me one VaR question, I would be bewildered.* (ICBC Risk Supervisor)

➤ **How do Risk Managers evaluate VaR?**



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Chinese Risk Managers generally appraise VaR as an advanced and completed skill, which is able to help Chinese banks build up a more efficient Risk Management system.

*VaR has been proved as a complete tool for risk management by the western developed financial institutions, so it must have its inherent advantages. These advantages provide beneficial and valuable help to us, to build a completed Market Risk Management system. (CCB Risk Manager)*

*I am afraid that our Chinese commercial banks still have less knowledge and sense of Risk Management. We are short of risk identifier, measurer, monitor, and controlling methods. Therefore, it is of paramount importance to strengthen Risk Management in all aspects. Absolutely, VaR provides us with an efficient method to respond to risk. (ICBC Risk Manager)*

However, it is wise and valuable for some Risk Manager to evaluate VaR in a critical way by recognising the importance of human factors. The ABC Risk Manager is Beijing based, therefore he is more qualified than many Risk Managers in first layer branches and other low level branches. However, the embarrassing part is that not all Chinese banking risk management people have such an insight. Some people have no judgements of VaR, but are passively pushed by the pressure of regulations and rival competition. In terms of evaluating VaR, some Risk Management people follow everyone else like sheep, particularly because VaR is highly affirmed and promoted by the western banking world.



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*It is necessary to understand Risk Management and meet the regulatory requirements for risk measurement. However, it is a serious error to think that solely meeting regulatory requirements is enough. It cannot say which criteria is the most important or the best in order to establish a sound, scientific risk management system, even VaR. No approach can be valid everywhere. The key point is people. People are central. Rules are dead, but people are alive. You cannot rely on just one measurement to do everything regardless. So what I am going to say is, risk managers and officers should take reliable risk measures to direct capital to activities with the best potential results. (ABC Risk Manager)*

*We must fully carry through the regulatory authority's requirements and top office's stipulation. If they say it is good, we take it as good. In addition, so many developed giant global banks say it is good, cannot it be bad? (CCB Risk Manager)*

*We are the stipulation implementers, there is no sense of how do we think about VaR, we just do it. (CCB Risk Supervisor)*

*The other three big banks introduced VaR on different levels, and our bank cannot drop behind. (ICBC Risk Manager)*



➤ **What do Risk Managers think of the future of VaR implementation in the Chinese bank context?**

Chinese Risk Managers have a positive perspective of VaR's future in the Chinese banking industry. But it is emphasized that they believe applying VaR in the Chinese bank context still needs modest and cautious consideration, according to the situation of the country and the Chinese economy. Furthermore, it is pointed out that Chinese banks still need time to fully conduct the modern Risk Management system.

*I believe VaR will be used more widely and more deeply in our Chinese banks in the future. VaR is only one tool amongst all of our strategies. And I have the confidence that our Chinese commercial banks are able to grasp each opportunity by mastering advanced risk management skills to catch up with the west. (ICBC Risk Manager)*

*I believe that there is the potential for VaR to be applied into a wider field, not only market risk, but also credit risk and so on. If it is good, there is no doubt that we will make full use of it. But it is just a time thing. (CCB Risk Manager)*

*There is no doubt that VaR is going to be used in more fields. It will help the Chinese banks' risk management performance to become more efficient and more effective to meet the international standard requirements. After all, adopting VaR is still an exploring and ongoing procedure for us. We are wading across the stream by feeling the way (crossing a river by touching*



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*stones). So we also must use VaR gradually and cautiously to accompany us with our country's economic construction step. (ABC Risk Manager)*

*Catching up with the developed western countries is neither a one day or two days task, nor a one skill or two skills job. Currently, VaR is within the big banks, we are already struggling, so in the short term, it is hard to apply it to small banks. In the future it will be possible, but I am afraid it will not be for quite a long time. (CCB Risk Manager)*

## **4.2. Results from questionnaire**

The following section deliberates on the responses to the questionnaires amongst the samples received.

There were 34 responses out of the 35 questionnaires issued. The main reason for such a high response rate, i.e. 97%, was because the Risk Manager in each observation site provided full support to the research. They used their authority to order Risk Management Officers to fill in the questionnaire. With regard to the responses, the following paragraphs will present and analyse the results of each question. The questionnaire was divided into three sections; the first section focuses on the respondent's personal information. The second section aimed at obtaining the evidence of employees' understanding of VaR. The third section endeavoured to investigate respondents' evaluation of VaR.

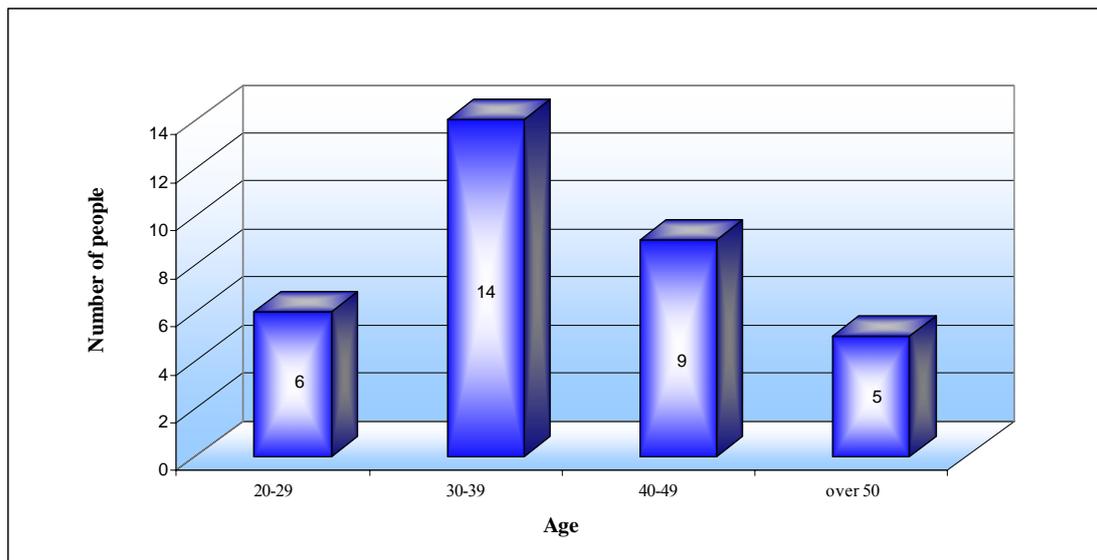


Question 1 aimed to explore the Risk Management Officers' age. Taking the mean as the representative age of each age range, i.e. 25, 35, 45 and 55, within the 34 respondents, the average age was 38 years old (see Figure 7), which indicated that the Risk Management team in Chinese banks is middle-aged. CCB personnel profile figure revealed that its average staff age was 37 years (2005). This is mainly because there are a large number of line-staff working at counters, who mostly are young and new graduates. However, by the Chinese financial industry's managerial standards, 38 years old suggests a young level, because a professional career normally requires a longer training period for personnel qualifications. In terms of a management team, which requires more professional skills, a 38-year old in a Risk Management department suggests a trend towards youth in Chinese banks. One possible reason for such a young team is that Risk Management is a new concept in Chinese banks. Young people can more easily accept and understand new terms, and can be fast learners. In addition, young people are a group which has received a more modern education; hence, their knowledge in the financial field will be more advanced than the people who took academic studies 30 years ago. Therefore, under an experienced supervisors' management, a young Risk Management team will hopefully work more efficiently and effectively. Also it was found that the supervisors are older than the line officers. Three supervisors in the observation sites were all aged over 50. This is because in Chinese human resource management, promotion is often based on experience. Less people (e.g. 6) fell into the age range between 20 and 29, because



young people who are the most recent graduates will not be entitled or qualified to be involved in a management team.

Figure 7: Risk Management Officers' age

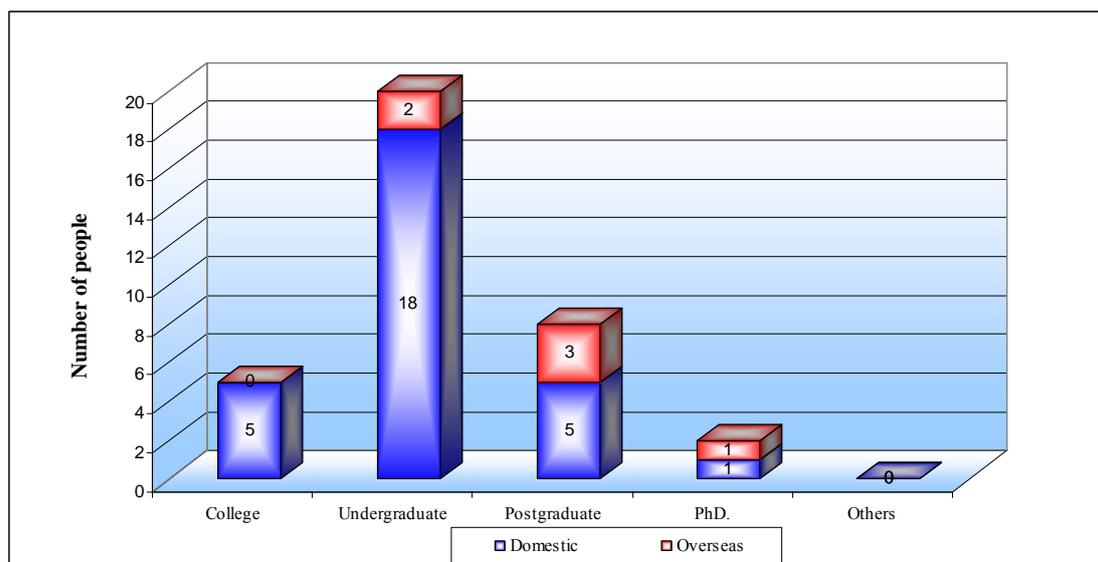


Question 2 is concerned with the Risk Management Officers' educational status. This investigation tried to find out how staffs' education level would influence the understanding of VaR. Literature indicates that there is a positive relationship between education level and knowledge. Consequently, the hypothesis is that the higher the education level, the higher the level of understanding is of VaR. Figure 8 shows that all the Risk Management Officers have received at least a college education. 14% (5 out of 34) graduated from college; 58% (20 out of 34) were undergraduates; 23% (8 out of 34) were postgraduates; 5% (2 out of 34) pursued a PhD degree. Amongst these academics, 6 people (i.e. 17%) achieved their degrees from overseas. Because in the last decade, it has become very popular for overseas students, especially those who are highly educated, to return to China where they are



greatly welcomed. The bank industry is obviously one of the most attractive industries to recruit overseas financial experts. This applies to the Risk Management team as well. 10% of the undergraduate officers are from overseas, while 37% of the postgraduate officers are from overseas. In addition, one out of two PhD officers achieved his degree from overseas. According to the high educational background of the Risk Management Officers, their understanding of VaR is expected to be of a sound standard.

Figure 8: Risk Management Officers' education



In order to deepen the understanding of the Risk Management Officers' financial knowledge especially VaR knowledge, Question 3 highlights the Risk Management Officers' professional qualifications. It is believed that professional qualifications positively increase people's perceptions of professional knowledge. Consequently, the more professional qualifications taken, the more knowledge should be obtained.

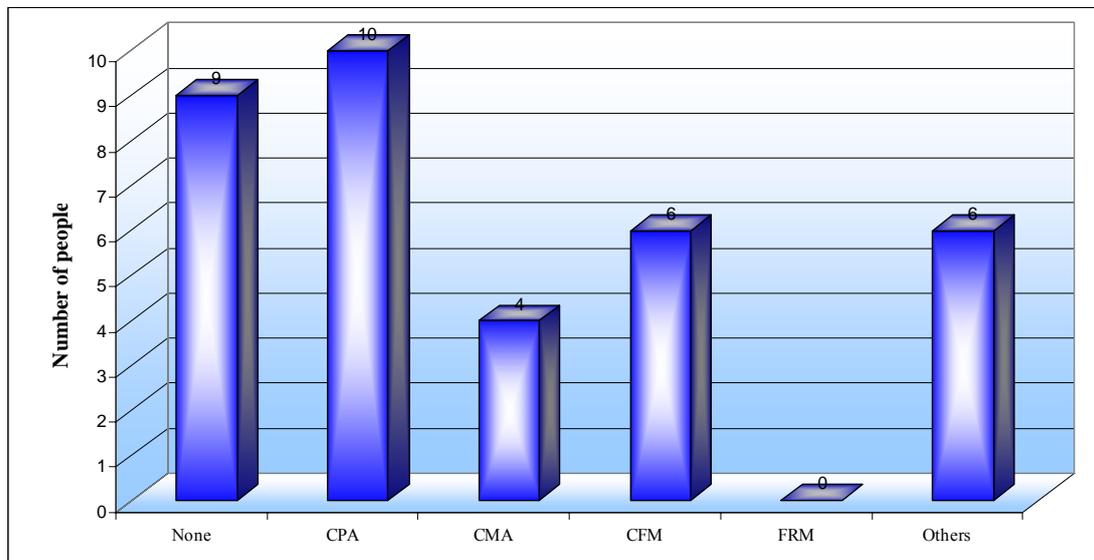


The research result (see Figure 9) reveals that 74% of officers have undertaken professional qualifications, but 26% have not. This indicates that Risk Management Officers are highly qualified. Certified Public Accountant (CPA), Certified Management Accountant (CMA) and Certified Financial Manager (CFM) are the most popular qualifications in the Chinese financial sector, and it is evidenced by the Risk Management Officers as well. One officer states that he has achieved dual qualifications, both CPA and CFM. The reason why the Risk Management Officers' professional qualifications mostly tend towards accountancy is because the accountancy qualifications, especially CPA, are more widespread in the Chinese financial industry. The CPA has become the largest professionally qualified group, holding over 69,000 CPAs throughout Chinese financial institutions, and relative fields since China resumed the CPA exam at the beginning of their economic reform. Currently, up to the 2005 year-end, the total of the examinees who have passed and completed the CPA exam has risen to 125,258 (The Chinese Institute of Certified Public Accountants, 2006).

In contrast, no one has achieved the Financial Risk Manager (FRM) qualification, because the FRM qualification has not gained ground widely enough in China. But there is one officer who has graduated from the University of Nottingham currently taking the FRM course in Beijing. 3 people who took the other options state that they are trainees taking the Association of Certified Chartered Accountants (ACCA) course. One respondent is taking the Certified Actuarial training course and another one is taking the Certified Auditor qualification.

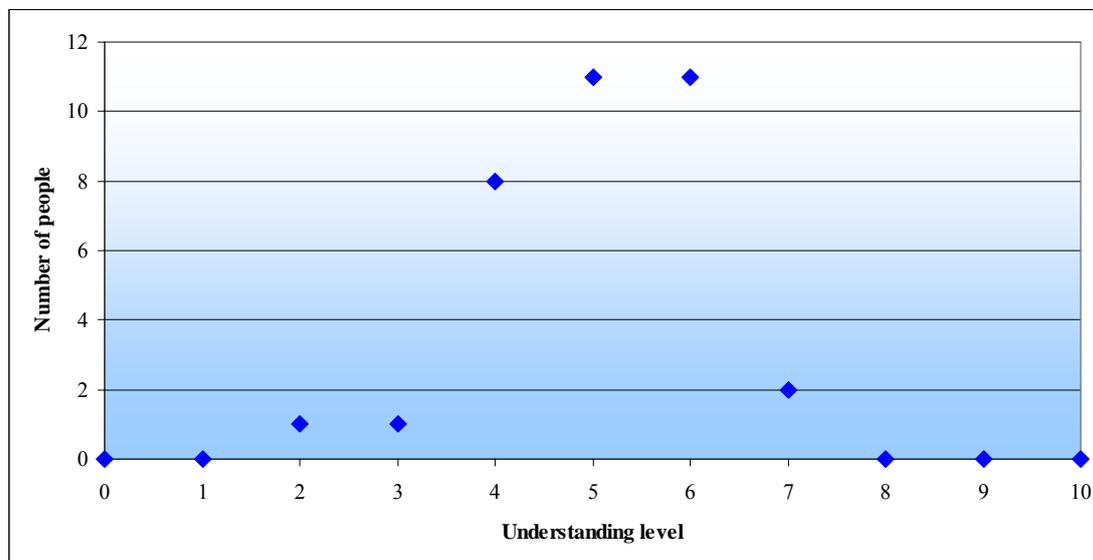


Figure 9: Risk Management Officers' profession



Question 4 gives the Risk Management Officers the right to mark their VaR knowledge levels by informing them that 0 means no knowledge while 10 means that they are expert. The results reflected from Figure 10 reveal that the mean mark of self-evaluation is 5.06. The concentration at the middle position is because Chinese people tend to believe in the golden mean. No one marks themselves at 0, but 1 person gives himself 1, and two people mark at 2 and 3. Chinese people are unwilling to show that they are laymen, mostly because they have a strong sense of self-esteem and a reluctance to lose face. However, no respondent rates himself at 8, 9 or 10, suggesting that Chinese people are unwilling to tell other people that he/she is an expert. Chinese people avoid vaunting or self-praising, because the temperate principle occupies the dominant position in traditional Chinese culture.

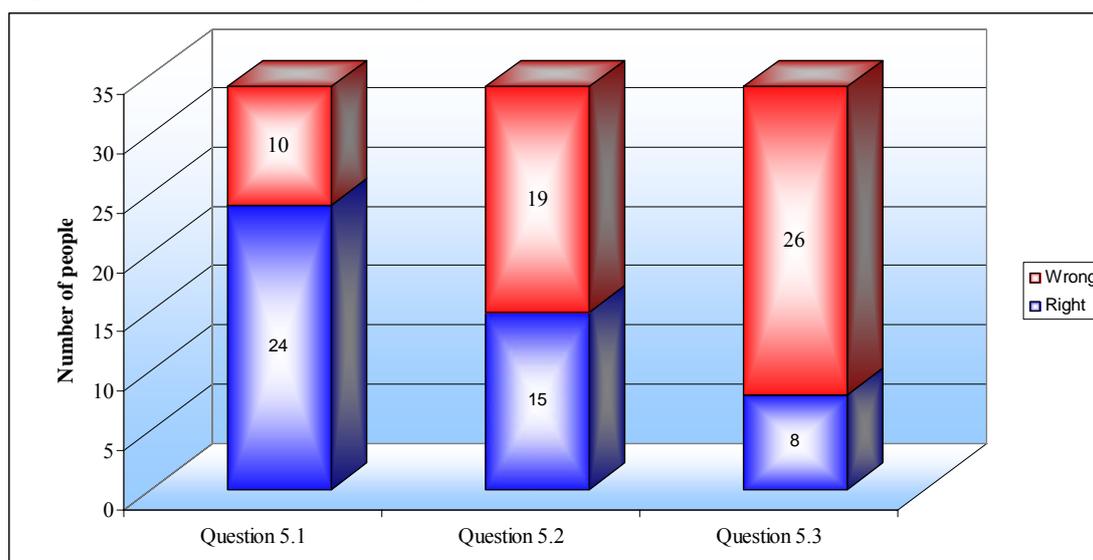
Figure 10: Risk Management Officers' self-evaluation of VaR



The result of Question 4 is the objective self-appraisal of Risk Management Officers'. Are their estimations appropriate or accurate enough? Therefore, three testing questions are designed in Question 5 to validate this. The first question concerns VaR knowledge; the second question relates to the estimation method, and the last one is about VaR practice knowledge. The difficulty gradually increases. The accuracy rate of responses decreases dramatically from 71% (Question 5.1) to 44% (Question 5.2), and eventually to 24% (Question 5.3), as shown in Figure 11. The average accuracy rate is approximately 46%. The real test result of Question 5 suggests that Risk Management Officers over-estimate their knowledge of VaR, which averages at 5.06, as worked out in Question 4. This indicates that Chinese Risk Management Officers are over-confident about their VaR knowledge level. On the other hand, it is also evident that Chinese banks are short of Risk Management experts. However, this conclusion is reached under the assumption that the respondents are being honest.



Figure 11: Question 5 result of questionnaire

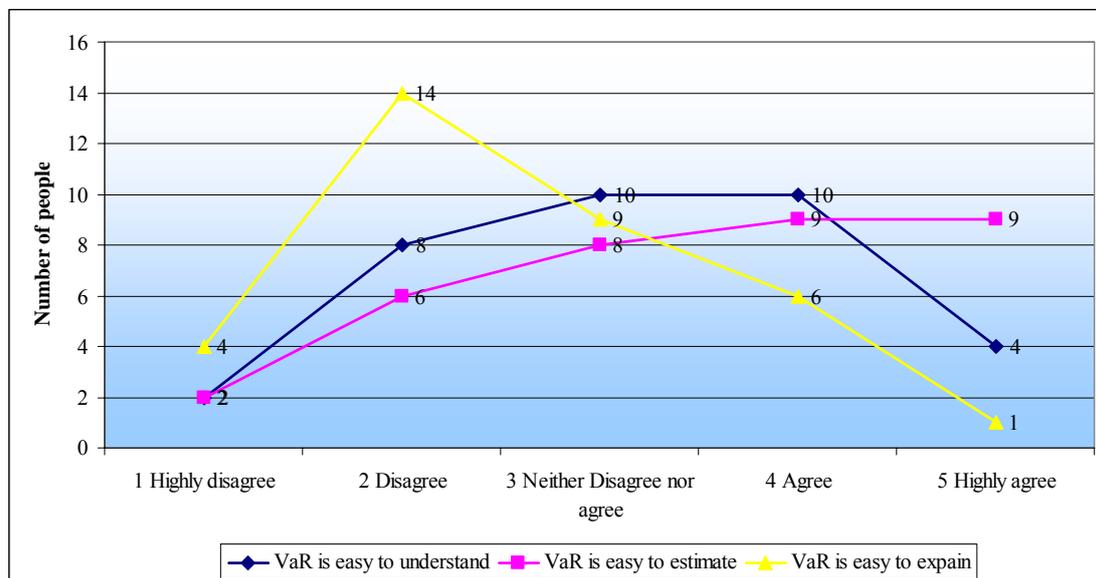


Further, Question 6 is designed to explore Risk Management Officers' perceptions and evaluation of VaR during the VaR implementation in their host banks (for result, please refer to Figure 12).

Firstly, the research evidence shows that 41% of respondents tend to agree that VaR is easy to understand, and 52% agree that VaR is easy to estimate. Simplicity is one of the most visible advantages of VaR, therefore, this approach is more widespread. At the same time, some of the VaR estimation approaches, such as the parametric normal method and historical method are straightforward and easy to use and explain. This universal agreement is evident to Chinese Risk Management Officers as well. ICBC Risk Manager states: *"In practice, we have software and systems which give out VaR according to our requirements. If there is no confusion or mistakes, we basically rely on the VaR produced by the system. Our staff's task is more transactional. The difficult part is to generate reports for the management team, and answering any possible enquiries."* Risk Management Officers normally have no problems with

applying VaR, because most calculations are done by the system. Nevertheless, 53% of them reflect that VaR is hard to explain to others. As Question 4 reveals Chinese banks Risk Management Officers' knowledge of VaR is not sufficient enough to be convincing. Responses on this issue suggest that Risk Management Officers' VaR knowledge is only at an inferior standard. They know that they would find it hard to explain what VaR is all about.

Figure 12: Risk Management Officers' evaluation of VaR in terms of perception



Secondly, the research result indicates that Risk Management Officers have relatively positive attitudes towards VaR, as shown in Figure 13. In terms of VaR practice, Risk Management Officers have a high appraisal of VaR's implementation and usefulness. 67% of respondents tend to agree that VaR is easy to implement, and 88% evaluate VaR as a useful approach in measuring market risk.

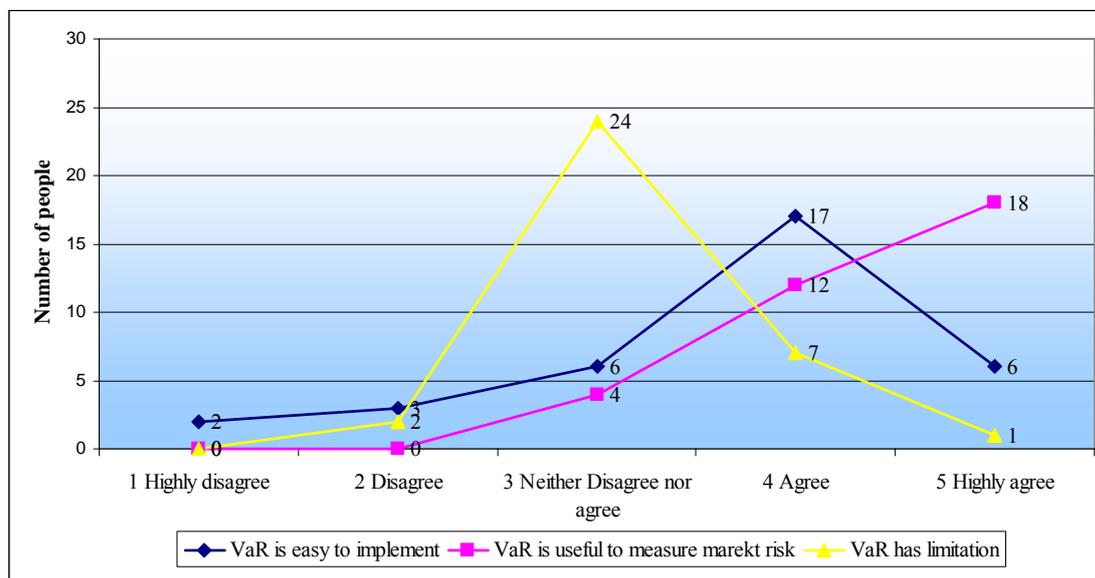
*“We believe that VaR has been taken as an acceptable method for measuring risk by many western developed countries, so it must have its redeeming features and*



*advantages. We believe its attractions could serve Chinese banks as well. After all, it has been universally considered as an advanced technique.” (CCB Risk)*

Most respondents have no view of VaR’s limitation. Firstly, Chinese people inherently trust the validity of western advanced financial techniques, and the same with VaR. Consequently, as soon as the management team decides to adopt VaR, the operation staff seldom object to or question its limitations. If they do so, it seems they doubt the management team’s decision. Secondly, as decision implementers, Risk Management Officers are not as critical, and are less concerned about the limitations than decision makers. Moreover, it is possible that Risk Management Officers’ VaR knowledge is not sufficient enough to identify its limitations.

Figure 13: Risk Management Officers’ evaluation of VaR in terms of practice



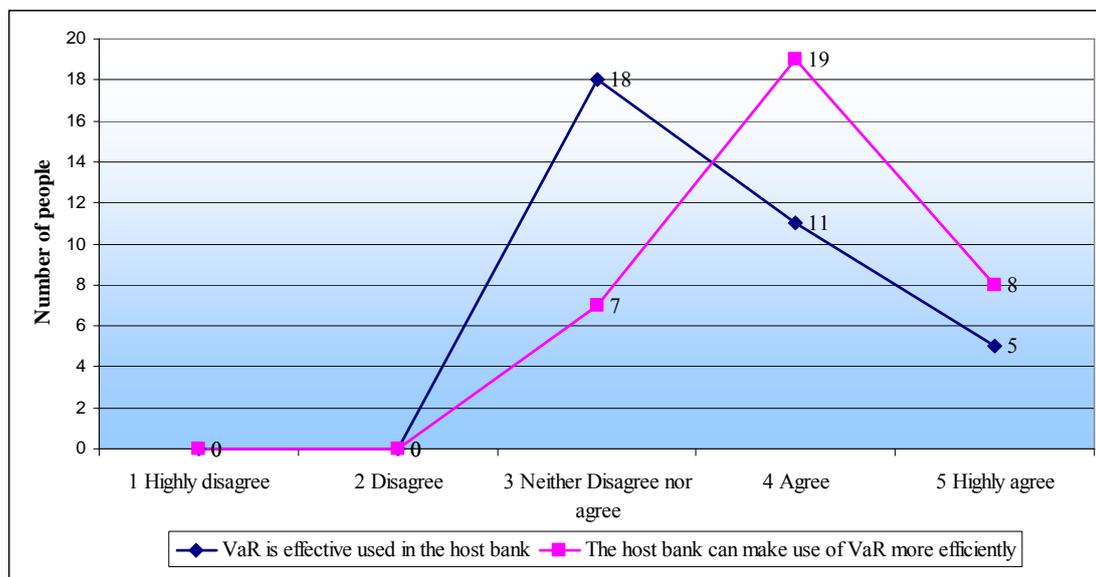
Thirdly, with relation to the evaluation of the host banks’ current performance of VaR implementation, respondents show only a mild opinion, i.e. 53% make no distinct opinions, while nobody chooses to totally disagree (See Figure 14). That there were



no unfavourable responses implies that Risk Management Officers are not dissatisfied with their host banks' performance of VaR implementation. However, on the other hand, that 53%, who gave no opinion either way, hints that Risk Management Officers do not believe that VaR is totally effectively either.

For the future perspective, respondents show an optimistic attitude. 78% agree Risk Management Officers have the confidence of the Chinese banks' ability and potential to achieve a better performance by making use of VaR more efficiently. *"We believe that we are able to do better by understanding risk and relative terms better. With the healthy economy growth, favourable investment environment, and more and more cooperation and communication between China and Western countries, our Chinese banks will know how to manage risk in our way."* (ICBC Risk Manager)

Figure 14: Risk Management Officers' evaluation of VaR in banks

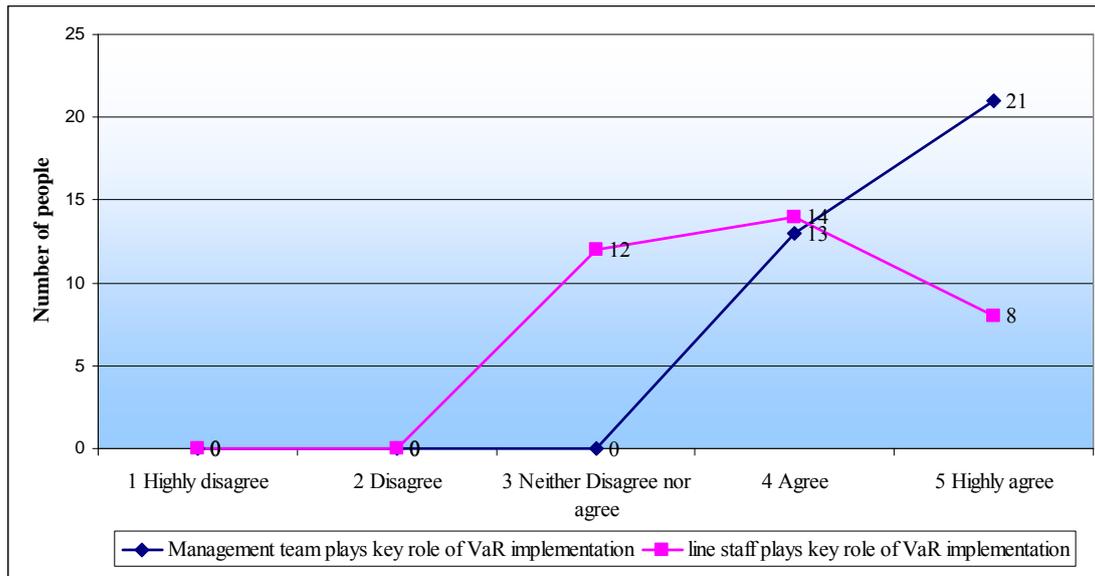


The final phase is about who plays the key role of VaR implementation. All Risk Management Officers significantly agree that the Risk Manager takes higher



responsibility, while 64% think that line staff play the key role of VaR implementation (See Figure 15). This may be attributed, in part, to the high level of emphasis on responsibility avoidance by the Chinese cultural heritage.

Figure 15: Risk Management Officers' view of the responsibility of VaR implementation



It is important to point out that a large number of respondents choose the neutral option for each question, i.e. 26% on average for all of these questions. This is because some respondents' work was not involved with VaR issues. Another possible reason is that Chinese people do not like to express strong views either way, and would rather choose the neutral option because of their golden mean notion. Additionally, when people are uncertain, they often confuse uncertainty with indifference to their objective judgement. Furthermore, misleading responses are unavoidable due to the limitations of the questionnaire. Consequently, the results in the above analysis have to take this into account.



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Relating to the three optional open-ended questions at the end, 59% answered the question ‘Do you think the Risk Management is important in Chinese banking, and could you explain your reasons’. All respondents agreed that Risk Management is important for Chinese banks for a variety of reasons. The concentrated reasons are: *Risk Management helps Chinese banks to solve risk relative problems effectively; Risk Management facilitates Chinese banks to catch up with the international banking industry development; Risk Management enables Chinese banks to develop in a much faster and healthier manner by avoiding or reducing risks, etc.*

44% answered the question ‘Do you think the VaR is important in Chinese banking, and could you explain your reasons?’ All the responses agreed VaR is important. The most popular reason was that they thought that VaR would assist Chinese banks to meet international requirements, and therefore, to be able to compete at international level.

In a word, Risk Management Officers have an affirmative attitude towards Risk Management and VaR’s effect on the Chinese bank context.

However, nobody responded to the question “any other comments or notes”. The reason for the lack of response was possibly because, when the question is not compulsory, Chinese people are unwilling to provide further information if it is not for their own benefit. Additionally, research questionnaires are not very popular in China, thus the unfamiliarity about the questionnaire survey may have lead to a form of resistance, resulting in no answer.



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## **5. CONCLUSION AND LIMITATION**

This chapter will provide a holistic review of the whole research, and the researcher's findings will also be concluded. Meanwhile, limitation related to this research will be proposed in order to meet the logical philosophy. Finally, some ideas for future study will be recommended.

### **5.1. Conclusion**

In conclusion, this research provided an original insight into investigating VaR implementation practices and Risk Management Officers' understanding and value of VaR in the Chinese banking industry. Fundamentally, the work met the original objective of the research.

It began with a discussion of the researcher's objective and motivation to carry out this research. The second chapter then reviewed the relevant literature about bank risk, VaR, and the Chinese banking industry. In order to explore the research question, the methodology in the following chapter displayed how the multi-case study was conducted by the semi-structured interview and questionnaire method, with relevant reasons. The next chapter then analysed the rich data and information obtained during the research.



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This research displayed a holistic study of VaR implementation in Chinese banking, by analysing the results from the survey from which a number of conclusions can be drawn:

Firstly, the previous research claimed that Risk Management implementation in Chinese banks was undervalued and limited, but this study revealed that the big Chinese banks invested heavily in improving their risk management infrastructures, including VaR. The expectation of introducing VaR is to assist Chinese banks to build up a scientific and systemic market risk management system, and further, to strengthen risk management as a whole.

However, during the implementation procedure, some related problems were subjected to a Chinese banking system lacking a modern Risk Management system and relevant technologies, although different stakeholders were endeavouring to improve this unhealthy situation. In particular, it was evident that the shortage of Risk Management experts was a problem within Chinese banks. On the other hand, the lack of supporting systems and infrastructures, such as completed databases, developed software, and organised training programmes, made VaR practice and performance just a ‘castle in the air’ to some extent.

Secondly, at the current stage, the feasibility of VaR in the Chinese banking mostly applies to the large banks depending on their scale and capacity. In the short term, the validity of VaR implementation within these large banks is sound, but still needs to be developed step by step. With the pressure and help from CBRC and foreign investors,



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Chinese banks are on their way to completing and improving VaR practices. In the long run, it is hoped that VaR will be feasible to apply to the small-scale banks. However, it is claimed that VaR needs to be implemented gradually and cautiously.

Finally, Risk Management Officers in Chinese banks both at executive and operational levels, evaluate VaR as a helpful and advanced technology for measuring market risk, although their VaR knowledge was slightly disappointing. Moreover, given the data obtained and the analysis completed, it is clear that Risk Management Officers' understanding and value of VaR evidently influenced its implementation. Their affirmative valuation of VaR helps the further and deeper development of VaR within Chinese banks, but their limited knowledge of VaR weighs down the implementation to some extent.

## **5.2. Limitation**

This study partly approached the research questions, but, as with most exploratory research, this study suffers from some limitations.

One possible objection is that although it concentrated on the multiple case study, the evidence of three Chinese banks still inevitably limits the scope for generalization to some degree (Yin, 1994). The findings are true and presentable in these banks, but they are not really applicable in other Chinese banks, especially in some of the smaller banks. In addition, the research is on a very small-scale, involving only three formal interviews. The ten days taken may not have been enough to explore the



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research questions completely. The available access constricted the researcher from a more comprehensive questioning of the Risk Management Officers. All of this purely qualitative approach restricted the generalisation of the research findings. The generalization derived from the study concerns a probabilistic truth, rather than absolute truth. But, seeking to generalize research in social sciences is problematical, and the purpose of the research is not to produce a theory which is generally applicable to the entire population.

The other limitation is that a common bias may be present since the researcher has carried a number of conscious or unconscious preconceptions into the field. The research was biased by what she had read, and she also had her own preconceptions of how to work. The researcher's personality also influenced the data collection and interpretation, as the interviews which involved interpersonal interaction connected with the context (Fontana and Frey, 2000), was a major research method in the study. However, the awareness of these limitations prior to entering the organization and the adoption of the quantitative method helped the researcher to limit her influence on the research.

### **5.3. Recommendations for future work**

In spite of the above limitations, the research opens new doors for future research. The present research was constrained by time and resources. Given further time and resources, future research in this area could include a large-scale survey, yielding data



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suitable for inferential statistical analysis, and/or replicate this study in a longitudinal design to track the dynamics of the inquiry of western Risk Management technologies implication. It could investigate the rigorous reasoning and consolidate evidence to critically introduce western Risk Management technologies in the Chinese banking system. An analysis of the gap between the implementation of VaR and/or other western Risk Management technologies, between the Chinese and western systems may be worth discussing. Secondly, a future thesis could focus on all officers within the bank context to investigate more deeply, rather than only concentrating on the Risk Management department. Moreover, studying in a different financial institution and/or ownership structure may assist with the generalization of the results.

**Word Count: 18,222 (Including tables and brackets)**



## 6. APPENDIX

### 6.1. List of foreign investments in China banks (2003-2005)

Company	Strategic Investor	Date Announced	Deal Size (US\$ mm)	Investment as % of Company	Post-money P/B (IAS /PRC GAAP)
Guandong Development Bank	Citigroup-led consortium's bid	Dec-2005	3,200	85.0%	2.43x / NA
Tianjin City Commercial Bank	ANZ Banking Group Ltd	Nov-2005	120	19.9%	NA
Nanjing City Commercial Bank	BNP Paribas	Oct-2005	87	19.2%	2.44x / NA
Shenzhen Development Bank	GE Consumer Finance	Oct-2005	100	7%	2.26x / 2.10x (Discount to A-share price <sup>2</sup> : 6.5%)
Huaxia Bank	Deutsche Bank /Sal.Oppenheim jr. & Cie. KgaA Pangaea Capital Mangement <sup>7</sup>	Oct-2005	328	14.0%	2.05x / 1.97x (Premium to A-share price <sup>3</sup> : 7.4%)
		Sep-2005	125	6.9%	1.59x / 1.53x (Discount to A-share price <sup>3</sup> : 19.0%)
BOC	RBS China	Aug-2005	3,048	10.0%	1.08x / 1.06x
	Temasek	Aug-2005	1,524	5.0%	
	UBS	Aug-2005	492	1.6%	
	ADB	Oct-2005	74	0.2%	
Hefei City Bank	Investor group <sup>5</sup>	Aug-2005	NA	NA	NA
Nanchong Commercial Bank	Investor group <sup>6</sup>	July-2005	4	20.0%	NA
United Rural Cooperative Bank of Hangzhou	Babobank / IFC	Jul-2005	15	24.9%	NA
CCB*	Bank of America	Jun-2005	2,500	9.0%	1.15x / 1.15x
	Temasek	Jun-2005	1,466	5.1%	
Chendu Commercial Bank	JP Morgan	May-2005	NA	20.0%	NA
Hangzhou City Commercial	CBA	April-2005	77	19.9%	NA
Harbin City Commercial Bank	IFC	April-2005	NA	NA	NA
Bank of Beijing*	ING	Mar-2005	215	19.9%	0.89x / 1.00x
	IFC	Mar-2005	51	5.0%	
China Mercantile Bank	ICBC (Asia)	Dec-2004	97	100%	1.10x / NA
Tianjin Bohai Bank	Standard Chartered	Nov-2004	NA	20.0%	NA
Shanghai Rural Commercial Bank	ANZ Banking Group Ltd	Oct-2004	NA	NA	NA



Company	Strategic Investor	Date Announced	Deal Size (US\$ mm)	Investment as % of Company	Post-money P/B (IAS /PRC GAAP)
Minsheng	Temasek	Oct-2004	106	4.6%	1.98x / 2.00x (Discount to A-share price <sup>7</sup> :14.9%)
Ji'nan City Commercial Bank	CBA	Sep-2004	NA (est. 14.5-29)	11.0%	NA
BoCom	HSBC	Aug-2004	1,747	19.9% <sup>8</sup>	1.41x / 1.32x
Shenzhen Development Bank	Newbridge	May-2004	149	17.9%	1.58x/ 1.74x (Discount to A-share price <sup>7</sup> :61.6%)
Industrial Bank	Hang Seng Bank	Dec-2003	208	16.0%	1.50x / 1.19x
	IFC	Dec-2003	52	4.0%	
	GIC	Dec-2003	65	5.0%	

Source: Public information, company filings and research reports



## 6.2. WTO agreement regarding China's banking industry

Contents of liberalization	Timing	Restriction
<b>General rights</b>		
Foreign banks will have the same rights (national treatment) as Chinese banks	At the accession	
<b>Geographic and customer restrictions</b>		
None for foreign currency business	At the accession	
Foreign banks will be able to conduct local currency business with non-Chinese enterprises in designated area	At the accession	- Limited in following 16 cities (Dec.2004). Shenzhen, Dalian, Tianjin, Guangzhou, Zhuhai, Qingdao, Nanjing, Wuhan, Jinan, Fuzhou, Chengdu, Chongqing, Kunming, Beijing and Xiamen
Foreign banks will be able to conduct local currency business with Chinese enterprises in designated area.	Dec. 11, 2003	- Limited in following 16 cities (Dec.2004). Shenzhen, Dalian, Tianjin, Guangzhou, Zhuhai, Qingdao, Nanjing, Wuhan, Jinan, Fuzhou, Chengdu, Chongqing, Kunming, Beijing and Xiamen
Foreign banks will be able to conduct local currency business with Chinese individuals.	Dec. 11, 2006	
Both geographic and customer restrictions will be removed in five years.	Dec. 11, 2006	
<b>Cross-border supply of services</b>		
The provision and transfer of financial information, financial data processing, and related software by suppliers of other financial services, as well as advisory, intermediation, and other auxiliary financial services are allowed.	At the accession	Other cross-border supply of foreign financial services including motor vehicle financing by non-bank foreign financial institutions are restricted.

Source: <http://calasia.org/wtoAgreement.htm>



## 6.3. List of Chinese Financial institutions under CBRC regulations

### Policy Banks (3)

China Exim Bank	Agricultural Development Bank of China
China Development Bank	

### Big 4 (4)

Industrial and Commercial Bank of China	China Construction Bank
Bank of China	Agricultural Bank of China

### Joint Stock Commercial Bank (11)

China Citic Bank	Bank of Communications
Evergrowing Bank	Minsheng Bank
Guangdong Development Bank	Huaxia Bank
Shenzhen Development Bank	Shanghai Pudong Development Bank
China Everbright Bank	China Zheshang Bank
Industrial Bank	

### City Commercial Banks (118)

Beijing Bank	Dongguan City Commercial Bank	Hefei City Commercial Bank
Shanghai Bank	Zhanjiang City Commercial Bank	Anqin City Commercial Bank
Tianjin City Commercial Bank	Zhuhai City Commercial Bank	Bengbu City Commercial Bank
Chongqin City Commercial Bank	Nanning City Commercial Bank	Huaibei City Commercial Bank
Shenyang City Commercial Bank	Guilin City Commercial Bank	Maanshan City Commercial Bank
Jinan City Commercial Bank	Liuzhou City Commercial Bank	Wuhu City Commercial Bank
Nanjing City Commercial Bank	Zhengzhou City Commercial Bank	Fuzhou City Commercial Bank
Guangzhou City Commercial Bank	Jiaozuo City Commercial Bank	Quanzhou City Commercial Bank
Shenzhen City Commercial Bank	Kaifeng City Commercial Bank	Xiamen City Commercial Bank
Wuhan City Commercial Bank	Luoyang City Commercial Bank	Changzhou City Commercial Bank
Chengdu City Commercial Bank	Nanyang City Commercial Bank	Huaian City Commercial Bank
Xi'an City Commercial Bank	Xinxiang City Commercial Bank	Lianyungang City Commercial Bank
City Commercial Bank Cash Settlement Center	Huangsi City Commercial Bank	Nantong City Commercial Bank
Harbin Commercial Bank	Jingzhou City Commercial Bank	Suzhou City Commercial Bank
Daqin City Commercial Bank	Xiaogan City Commercial Bank	Wuxi City Commercial Bank
Qiqihar City Commercial Bank	Yichang City Commercial Bank	Xuzhou City Commercial Bank
Changchun City Commercial Bank	Changsha City Commercial Bank	Yancheng City Commercial Bank
Jilin City Commercial Bank	Hengyang City Commercial Bank	Yangzhou City Commercial Bank
Anshan City Commercial Bank	Xiangtan City Commercial Bank	Zhenjiang City Commercial Bank
Dalian City Commercial Bank	Yueyang City Commercial Bank	Nanchang City Commercial Bank
Dandong City Commercial Bank	Zhuzhou City Commercial Bank	Ganzhou City Commercial Bank
Fushun City Commercial Bank	Wanzhou City Commercial Bank	Jiujiang City Commercial Bank
Fuxin City Commercial Bank	Guiyang City Commercial Bank	Linyi City Commercial Bank
Huludao City Commercial Bank	Zunyi City Commercial Bank	Qingdao City Commercial Bank
Jinzhou City Commercial Bank	Deyang City Commercial Bank	Rizhao City Commercial Bank
Liaoyang City Commercial Bank	Leshan City Commercial Bank	Weifang City Commercial Bank
Yingkou City Commercial Bank	Luzhou City Commercial Bank	Weihai City Commercial Bank
Panjin City Commercial Bank	Mianyang City Commercial Bank	Yantai City Commercial Bank
Shijiazhuang City Commercial Bank	Nanchong City Commercial Bank	Zibo City Commercial Bank
Changzhou City Commercial Bank	Panzhuhua City Commercial Bank	Dezhou City Commercial Bank
Langfang City Commercial Bank	Zigong City Commercial Bank	Dongying City Commercial Bank
Qinhuangdao City Commercial Bank	Kunming City Commercial Bank	Laiwu City Commercial Bank
Tangshan City Commercial Bank	Lanzhou City Commercial Bank	Hangzhou City Commercial Bank
Zhangjiakou City Commercial Bank	Xining City Commercial Bank	Huzhou City Commercial Bank



### City Commercial Banks (118)

Huhehaote City Commercial Bank	Baoji City Commercial Bank	Jiaxing City Commercial Bank
Baotou City Commercial Bank	Xianyang City Commercial Bank	Jinhua City Commercial Bank
Yinchuan City Commercial Bank	Wulumuqi City Commercial Bank	Ningbo City Commercial Bank
Taiyuan City Commercial Bank	Qijing City Commercial Bank	Shaoxing City Commercial Bank
Datong City Commercial Bank	Yuxi City Commercial Bank	Taizhou City Commercial Bank
Wenzhou City Commercial Bank		

### Foreign Banks (82)

West Deutsche Bank	Chia Tai International Finance Co.,LTD	Maybank
Krung Thai Bank	KBC Bank	Nanyang Commercial Bank
Woori Bank	Pingan Bank	KBC Bank
Banca Intesa	Korea Development Bank	Concord Group
Dresdner Bank Aktiengesellschaft	Woori Bank	Australia and New Zealand Banking Group
Metropolitan Bank & Trust Co	Bank of America	RBS
Chiyu Banking	Xiamen International Bank	Allied Commercial Bank
Mizuho Corporate Bank	Wachovia Bank	Bangkok Bank
RABO Bank	Bank of The Orient	Societe Generale
Yamaguchi Bank	JP Morgan Chase bank	Hang Seng Bank
AMRO Bank	Mitsui Trust	GE Capital Finance (China) Co. Ltd
Fortis Bank	The Yamaguchi Bank	Chinese Mercantile Bank
Korea Exchange Bank	Citic Ka Wan Bank	Bank International Ningbo
SFSL	Toyota Motor Finance (China) Co.,Ltd.	Allied Commercial Bank
Liu Chong Hing Bank	SMBC	BOC Hong Kong
Bank of Rome	Deutsche Bank	First Sino Bank
SMBC	ABN AMRO Bank	Business Development Bank
CSFB	Bangue de L'Indo-Chine	Bayerische Landesbank
Chohung Bank	Hana Bank	DBS
Hana Bank	Wing Hang Bank	HSBC
Shinhan Bank	Citibank	Bank of East Asia
Raiffeisen Zentralbank Osterreich Ag	UOB	Dahsing Bank
Commerzbank	Volkswagen Finance (China) Co. Ltd	The Bank of Nova Scotia
ING Bank	GMAC	Norddeutsche Landesbank Girozentrale
UFJ Bank	OCBC Group	Wing Lung Bank Ltd
UBS		

### Other Financial Institutions

Rural Credit Cooperative (61)
Financial Company (74)
Auto Financial Service Company (4)
Trust Company (59)
Leasing Company (12)

Source: CBRC



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## **6.4. Formal interview schedule for Risk Manager**

### **1. Could you explain the main objectives of VaR introducing?**

[PROBE - VaR is introduced to be consistent with Chinese banks Risk Management reform and to establish a new conception that emphasise risk management and internal control. Are there any other anticipated or realised effects?].

### **2. Could you describe how your bank implements VaR?**

[PROBE - How do your bank introduce VaR? How VaR is operated? How do Risk Management Officers get knowledge of VaR? Any particular effort has been done to implement VaR?]

### **3. Has VaR achieved the objective? Why?**

[PROBE –Has VaR changed the situation in any way since its introduction? If so, how has the situation been changed? If not, why not?]

### **4. What is the problem related to the VaR implementation?**

[PROBE –Are there any related problems during VaR implementation? If so, were these anticipated? What are the causes? Likewise, what main successes have been so far? Anticipated or not?]

### **5. How does Risk Manager in your bank know about VaR?**

[PROBE -how do you know about VaR? How do you get VaR knowledge?]

### **6. How do you evaluate VaR?**

[PROBE – Are you satisfied with VaR performance? What do you anticipate VaR?]

### **7. What do you think of VaR's future in the Chinese bank context?**

[PROBE – What do you think VaR's future in your banks? Do you have any suggestion for the future VaR implementation?]



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## **6.5. Informal interview schedule for Risk Manager and Risk Management supervisor**

### **1. Could you describe the situation before Risk Management Department?**

[PROBE – Before Risk Management reform, there is no Risk Management Department at all, how does your bank manage risk?]

### **2. What were your main tasks before Risk Management reform?**

[PROBE – What about now? To what extent have your work changed?]

### **3. Could you describe the market risk situation before VaR introducing?**

### **4. Could you describe the market risk situation after VaR introducing?**

### **5. Did you attend the relative Risk Management training course and VaR training course?**

[PROBE – Did you attend all of them? Did you understand the conception introduced by the consultants? Do you think they are helpful and necessary?]

### **6. Do you think Risk Management reform is successful? Why?**

### **7. What are Risk Management Officers' opinions of VaR?**

[PROBE – what do you think are the reasons for these comments?]

### **8. Do you have any suggestion for Chinese banks Risk Management reform?**



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## 6.6. Interviewee list

ABC Beijing Branch Risk Manager: Chunmei Wang

CCB Hei Longjiang Branch Risk Manager: Yimei Zhou

CCB Hei Longjiang Branch Risk Supervisor: Zhaoying Jiao

CCB Hei Longjiang Branch Risk Supervisor: Xinjie Li

ICBC Hei Longjiang Branch Risk Manager: Xiaochuan Tong

ICBC Hei Longjiang Branch Risk Supervisor: Menjia Cao



## 6.7. Questionnaire

**This survey is adopted and implemented only for the purpose of the researcher's master dissertation. It is not on behalf of any organizational standpoint.**

1. How old are you?

20-29                                      30-39                                      40-49                                      Over 50

2. What is your education? Please tick the latest qualification according to your education background.

College (Domestic/Overseas)                                      Undergraduate (Domestic/Overseas)

Postgraduate (Domestic/Overseas)                                      PhD (Domestic/Overseas)

Others, please specify \_\_\_\_\_

3. What is your professional qualification? Please tick the option which is the most appropriate to you.

None    CPA    CMA    CFM    FRM    Others, please specify \_\_\_\_\_

4. If you rate your knowledge of Value-at-Risk (VaR thereafter), please choose a number from 1 to 10 to indicate your knowledge level. 1 means no knowledge, 10 means expert.

No knowledge.....Expert

0      1      2      3      4      5      6      7      8      9      10

5. Please choose the right answer for the following questions?

5.1. VaR \_\_\_\_\_

- A. need not to consider about fat-tail effect
- B. can be 1million that the bank is likely to lose over 12 day at 99% confidence level
- C. can be absolute accurate to measure market risk, but maybe problematic to measure credit risk
- D. is a fixed standard that is enacted by CBRC

5.2. VaR can be estimated by the method of \_\_\_\_\_

- A. CreditMetrics
- B. Monte Carlo simulation
- C. Moody's KMV
- D. Mueller metrics

5.3. Which of the following statement is wrong?

- A. Delta normal approach is not suitable for measuring options portfolio risk.



- B. VaR can be extended from a shorter holding period to a longer holding period by multiplication by square root of time.
- C. VAR can be complemented by Stress testing to reduce extraordinary losses.
- D. The shorter the horizon and the higher confidence level, the greater the VaR measure.

6. Please tick your agreement or disagreement level of the following statement. (1=highly disagree, 5= highly agree).

	1= highly disagree	2=disagree	3=neither disagree nor agree	4=agree	5=highly agree
VaR is easy to understand					
VaR is easy to estimate					
VaR is easy to explain to others					
VaR is easy to implement					
VaR is useful to measure market risk					
VaR has limitations for implementation					
VaR is effectively used in Chinese xxx Bank					
Chinese xxx Bank is capable to make use of VaR more efficiently					
Management team plays key role of VaR implementation					
Line staff plays key role of VaR implementation					

7. If you think the Risk Management reform is important in Chinese bank? Could you explain your reasons? (This question is optional)

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8. If you think the VaR is important in Chinese bank? Could you explain your reasons? (This question is optional)

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9. Please provide any other comments or notes? (This question is optional)

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**Thanks for your cooperation. !!!**



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