

Charles University in Prague

Faculty of Social Science

Institute of Economic Studies

MASTER THESIS

2010

Chuluunbaatar Tumenjargal

Charles University in Prague

Faculty of Social Science

Institute of Economic Studies

MASTER THESIS

BANK PROFITABILITY IN MONGOLIA

Author: Tumenjargal Chuluunbaatar

Supervisor: Mgr. Magda Pečená Ph.D.

Academic year: 2009/2010

Acknowledgement

I would like to extend my gratitude to the government of the Czech Republic for enabling many students from developing countries, including myself to study in this country. I believe this opportunity has changed lives of many of us. I kindly thank my supervisor Mgr. Magda Pečená for her time, willingness and advices given when writing the thesis. Lastly, I would like to express gratefulness to my family family and my parents especially for their unlimit support and love and throughout the study.

Abstract

One should judge the performance of banks in developing countries on a different background that is uniformly applied for developed countries. Methods of evaluating bank performances such as Economies Value Added or Method of Comparables are of small help as they heavily rely on the stock price of banks on exchange market which is often unavailable for most banks. And when it is available it is hard to assure the “fair market value” given the underdeveloped capital market. The concept of “economic profit” is not the indicator bank managers strive for. Therefore traditional accounting measurements for bank profitability, namely Return on Asset and Return on Equity are natural candidates and are used for assessing the performance of Mongolian banks. Based on the respective analysis, a hypothesis that a bank size is an important factor for higher profitability is tested for a sample of banks which subsequently leads to a conclusion that bank size effect on profitability is rather unambiguous and insignificant.

Declaration

I declare that I worked individually and used only the sources and literatures that are presented.

In Prague 30.06.2010

Tumenjargal Chuluunbaatar

Table of Contents

1	BANK PROFIT AND VALUATION APPROACHES	3
1.1	METHODS OF COMPARIBLES.....	4
1.2	RESIDUAL INCOME APPROACHES	6
1.3	TRADITIONAL ACCOUNTING PROFITABILITY MEASUREMENTS.....	10
1.3.1	RETURN ON EQUITY.....	10
1.3.2	RETURN ON ASSET	14
2	DEVELOPMENT OF MONGOLIAN BANKING SECTOR AS COMPARED TO THE CZECH REPUBLIC.....	19
2.1	COUNTRY PROFILES AND MACROECONOMIC BACKGROUND	19
2.2	EARLY DEVELOPMENT OF BANKING SECTOR IN 1990-2000.....	23
2.2.1	MONGOLIAN EXPERIENCE	25
2.2.2	THE CZECH EXPERIENCE	29
2.3	THE RECENT DEVELOPMENT 2000-2008.....	33
2.3.1	CZECH EXPERIENCE	38
2.4	CHAPTER SUMMARY	40
3	STATUS QOU OF THE MONGOLIAN BANKING SECTOR.....	42
3.1	OWNERSHIP OF BANKS.....	42

3.2	TOTAL ASSET.....	43
3.3	TOTAL LOAN	44
3.4	TOTAL DEPOSITS	46
4	MONGOLIAN BANKS PROFITABILITY	49
4.1	COMPARISON WITH CZECH BANKS AND TRANSITIONAL ECONOMIES.....	50
4.2	COMPARISON WITHIN THE COUNTRY.....	51
4.3	PROFITABILITY AND SIZE: DOES SIZE OF A BANK MATTER?.....	55
5	DETERMINANTS OF BANK PROFITABILITY IN MONGOLIA.....	68
5.1	DATA AND METHODOLOGY.....	68
5.1.1	DATA DESCRIPTION	69
5.1.2	METHODOLOGY.....	72
5.2	REGRESSION RESULT.....	75
5.3	CONCLUSION.....	76
6	Bibliography.....	77

List of Figures

Figure 1: A simple balance sheet	12
Figure 2: Modified DuPont decomposition of ROA	15

Figure 3: Loan growth in Mongolian Banks (in MNT mil)	36
Figure 4: Non performing loans development as a fraction of total outstanding loans.....	37
Figure 5: Market share in total asset in 2008 and 2009.....	43
Figure 6: Market share in total loan in 2008 and 2009.....	44
Figure 7: Market share in total deposit in 2008 and 2009	47
Figure 8: Time series of the banking system's ROAA (after tax)	49
Figure 9: Times series of ROAA of three largest banks of Mongolia, in (%).....	52
Figure 10: Time series of NIM of the largest three banks.....	53
Figure 11: Time series of ROAA of the smaller two banks	54
Figure 12: DuPont Demposition of selected banks	57
Figure 13: Comparison of sample banks in terms of bank size and interest profit margin	60
Figure 14: Share of Loan Portfolio of XAC bank by location	63

List of Tables

Table 3 Development of Real GDP in transition countries, 1989=100.....	22
Table 4: Real Growth (in %) in lending of 4 large banks in the CR	33
Table 5: Financial soundness of banking sector, selected indicators (in %)	38
Table 6: Summary of large banks privatization	39
Table 7: Selected Prudential indicators (in %) for the banking sector	39
Table 8: The ownership structure of banks, in selected year.....	42
Table 9: Selected performance ratios (in %), 2008	50
Table 10: A comparison of ROAA of the largest two commercial banks	56
Table 11: DuPont decomposition for selected banks, in (%)	59

Table 12: Loans and securities held by subsample banks as a percentage of total assets	61
Table 13: Pooled OLS estimates (robust) of the Model 1	72
Table 14: Fixed-effects estimates (robust) for the Model 1	74

Introduction

In developing countries like Mongolia where non-banking financial institutions are immature banks have an overwhelmingly dominant position on the financial market in mobilizing saving and allocating resources. They are the main source of finance for the majority of enterprises and are the extremely important driver for economic growth. On the other hand, it is a challenge for banks to operate efficiently in an environment which is characterized by poor institutional quality, not standardized accounting/regulatory rules and depicts in records of business units.

The Mongolian banking sector is unique in the sense that it is influenced by features not only of developing countries but also of transition economies. During the transition the banking sector went through subsequent crises caused by illiquidity and poor asset quality. With large share of non-performing loans in most banks balance sheet including the largest banks were threatened by bankruptcy if not for the state intervention. The reform was continued in privatization of large state banks, currently banks with majority foreign ownership controlling the extensive percentage of total bank assets. Moreover, loan and deposit markets are much concentrated with few dominant players especially in the rural area which significantly affects their interest rate setting power, hence profitability. Healthy and sustainable profitability is very important in maintaining the stability of banking sector and must reflect the bank clients' prosperity as well.

It was noticed that while in general banks with the largest share of the markets are more profitable than the smaller banks the in terms of profitability situation varies greatly among the individual banks, regardless of the market share in total loan, deposit and asset as well.

The theme of the thesis is therefore the profitability of Mongolian banks in respect to their asset size in the post-transition period. Sample banks are analyzed on the ground of ROA decomposition analysis for a three subsequent years 2005, 2006 and 2007 and the econometric analysis covers the period of 2000-2007 and serves as a supportive empirical study for the banks size effect on profitability. But before getting into it, the thesis also goes back to history and discusses the banking sector development during the transition and compares it with the same process of the Czech banking sector.

Accordingly, the first chapter of the thesis reviews the theoretical background of profitability measured by return on asset and return on equity. Bank financial statements are introduced in simplified forms and looks at the possible impact of asset and liability structure on profitability. DuPont decomposition is presented as well since it was the main tool for tracing down the components and origin of the divergences in bank profitability.

The second chapter is devoted discussion of development of Mongolian banking sector since the breakout of market economy reform with a short introduction of the banking sector in the central planning economy. It closely looks at the steps taken by the authorities in the framework of the sector reform and their consequences for the banks. Czech banking sector reform is then described rather briefly for the comparison.

The third chapter is about the current situation of banking sector related to bank ownership and market shares of banks and highlights the relevant banks.

The fourth and the fifth charter are devoted for the analysis of bank profitability in general and as related to bank size as well. The extended Dupont decomposition and the linear econometric model is estimated for the sample banks which is followed by the concluding remarks.

Chapter 1

1 BANK PROFIT AND VALUATION APPROACHES

When it comes to valuing a bank professionals are cautious about the definitions of “values”. For example, accountants understand value as “book value” as is summarized on the balance sheet, value managers considering to takeover of another bank may take value as “business value” or “fair market value”, the amount a bank is worth upon a sale. The accepted definition of fair market value is “the amount at which an exchange would occur between a willing buyer and seller.”¹

Bank profit can be determined as the earning that is left after all the debts have been paid and necessary working capital, fixed investments have been made within the appropriate period. If value of a bank is determined as the net present value of its future incomes (cash flows) then shareholders value is equal to the bank value less the future claims. There are at three or four to five essential approaches to valuing a bank and measuring the bank performance. The following three approaches will be covered in this part and the next one:

- **Methods of comparable** such as the price/earnings ratio (P/E) or the Market Book Value (MVB) ratio
- **Residual income models** as represented by Economic Value Added and Market Value Added
- **Traditional accounting measurements of performance** or financial ratios produced from financial statements: Return on Equity, Return on Asset.

¹ See an article Liebich Kim, “How to Value a bank”, 1995.

There are other compatible valuation methods such as discounted cash flow approaches (Gordon model, free cash flow to equity and free cash flow to firm), or a model that was developed especially for valuing banks, Baltensperger's model. As the purpose of the thesis is not to value a bank but the analysis of bank performance therefore the approaches will not be discussed in depth. When profitability and performance are questioned, valuation comes in hand-in-hand, as it also represents the performance of banks.

1.1 METHODS OF COMPARIBLES

Market multiples are the simplest approaches to value a bank. The most common multiples, P/E-price to earnings and MBV- market to book value are discussed here.

P/E is found by taking the most recent trading price of a stock of a comparable bank as listed on the exchange market and dividing it by the earning per share for each (EPS). Then the average of P/E of all comparable banks is taken. EPS, calculated as net income divided of number of outstanding shares, can have two forms either the last published earning per share figure, producing *historical P/E* or an average of the forecasted/expected future earnings per share, hence *forward P/E*. What needed next is to forecast the bank's earnings per share which can be gauged based on the previous years' performance or on the available information about the expected future earnings.

The value of stock of the bank at stake is calculated as the product of P/E ratio of comparable banks and the forecasted EPS of the bank.

This method is extensively applied on non-financial companies; implying it on a bank valuation has its drawbacks. As banks have to set aside significant provisions for bad loans and if a particular's years income can be exceptionally low, P/E ratio will be very high because the market considers the loss will not be

recognized in large and it will turn into normal in the next period. For this and similar reasons P/E can be relatively volatile due to credit losses.²

An alternative multiple which is much more stable is the Market to book value ratio or MBV. It is determined as the ratio of market value of stocks to book value of equity. The valuation process is analogous to that of P/E; taking the average of MBV of comparable banks after taking each comparable banks last market value of stocks and dividing it by the book value of equity. Furthermore, the value of the bank equity is found by multiplying the MBV of comparable banks by the book value of the bank's equity. It is worth mentioning that it is assumed that the market values the equity (earning of the bank in case of P/E) in the same fashion it values the comparable banks.

To see why MVB could be a better valuation method than P/E, below is presented the mathematical relationship between the two:³

Equation 1

$$MVB = \frac{\text{Market value of equity}}{\text{Book value of equity}} = \frac{P*n}{BVS*n} = \frac{P*EPS}{BVS*EPS} = \frac{P}{EPS} * \frac{EPS}{BVS} = \left(\frac{P}{E}\right) * ROE;$$

where n is number of shares, P -price of a share, EPS -earning per share, BVS -book value per share=equity over number of shares. ROE -return on equity.⁴

It is clear that MVB is a function of P/E ratio and ROE. When *leading or the forward* P/E is considered it brings no information about the current level of return. But the current level of return is incorporated in MVB as indicated by ROE, thus making MBV a better indicator of value creation.

² In OECD countries, the P/E ratio for the banking sector was around 11 in early 2007 and it went down by 50% during the U.S. subprime credit crisis.

³ For more, see Jean Dermine, 2009.

⁴ ROE will be discussed later in depth.

Despite their popularity market multiples are said to be “*inferior valuation methods*” and suffer from several drawbacks. First of all it is difficult to find similar banks as they might always differ in risk taking behavior or in asset structure size. Secondly, they focus on accounting figures such as earning or book value of equity that are easily manipulative by accounting practices, rather than future cash flows generated by the bank. Moreover, they ignore important factors such as time value of money, and cost of capital. The third problem is that it implicitly rules out the possibility that the market might be undervaluing/overvaluing the comparable banks shares; it automatically assumes that the market values the stock with no error which can be true only in efficient market. Lastly it can also be argued that even though MVB is a better indicator than P/E it also ignores the bank size of the level of equity invested in meaning that a bank with a very low level of equity the value creation will not be revealed by MBV. There are better indicators of value creation that takes the bank size into account: Market Value Added and Economic Value Added.⁵

1.2 RESIDUAL INCOME APPROACHES

In this approach, the goal of maximization of shareholders wealth is realized by maximizing the differences between the market value of a bank’s stock and the amount of equity capital invested in by shareholders.

Equation 2

$$\begin{aligned} MVA &= \text{Market Value of Stock} - \text{Equity capital supplied by shareholders} = \\ &= (\text{Outstanding shares}) * \text{Stock Price} - \text{Total common equity}; \end{aligned}$$

⁵ The concepts of EVA and MVA were developed by Joel Stern and Benneti Stewart, cofounders of the consulting firm Stern Stewart & Company. As *EVATM* is trademark of the company, it is usually substituted by other terms such as economic profit or residual income.

The total value of a bank is the sum of market values of common stock, preferred stock and equity. The market value of equity is available, as expressed by the stock price, but determining the market value of debt is difficult as most debts bank have are not traded and transferred. The total amount of invested capital is the sum of equity, debt and preferred stock and is readily recorded on the financial statements of banks. Stewart (1993) claims that the MVA is the best final measure of a company's performance and is a cumulative measure of performance which represents the stock market's assessment from a particular time onward if the net present value of all a company's past and projected capital projects.

While MVA quantifies the reflection of managerial result since a certain period in time (or from the very initiation of a bank), EVA measures value added to the shareholders' wealth by the management in a given year. Stewart (1991) "appraises" EVA as "A company's EVA is the fuel that fires up its MVA." Theoretically, the link between EVA and MVA is, MVA is equal to the present value of all future EVA to be generated by the bank.

Equation 3

$$EVA = \{(Return\ on\ Invested\ Capital\ (ROIC) - Cost\ of\ Capital(WACC)\} * Capital\ Invested;$$

EVA estimates the true economic profit that combines spread and size of a bank into a dollar amount and for a given year. It sharply differs from accounting profit because it accounts for cost of *all* capital including the cost of equity capital which is not imposed as a charge in the accounting profit calculation. The cost of equity is basically the *opportunity cost* of the capital (expressed as the WACC times capital invested) that could have been earned if the shareholders invested elsewhere. A positive EVA signifies that the management of a bank created excess value over and above the value of the capital that was invested and a negative EVA means the management has destroyed value.

For the approximation of “return on capital” and “cost of equity capital” the following formula was developed:

Equation 4

$$EVA = NOPAT - (Total\ Capital\ Invested * WACC);$$

WACC is the rate that a bank is expected to pay on average to all its security holders to fund its assets.

NOPAT (net operating profit after tax) is the operating economic flows of a bank and to calculate NOPAT one has to make numerous adjustments⁶ on the net income. Net income is recorded in accordance with Generally Accepted Accounting Principles (GAAP) which usually disregards the current economic realities of a bank. The decision on which adjustments to be made rely on: 1) the materiality of the adjustments, 2) the effect they will leave on management’s behavior, 3) how easily they are understood and 4) the degree to which they will impact the company’s value. In calculation EVA with related to a bank, the adjustments are made especially in the provisions for loss loans, tax provisions and nonrecurring items and unrealized capital losses and gains associated with trading securities (Popa & Mihailescu, 2009).

Another important difference that arises when calculating EVA for banks and non-financial companies is a bank’s financial leverage, the debt. The main idea behind NOPAT is to capture the operating profit of the core business of a company, therefore for non-financial firms’ interest income and expenses are excluded from NOPAT to attain non-leveraged return.⁷This adjustment is necessary because for

⁶ Stern Stewart & Co identified at least 120 possible adjustments that should be made on net income.

⁷ NOPAT=EBIT(1-tax rate). EBIT is the earnings a company has before paying for debt obligations and tax. Since NOPAT is amount of profit a company would generate if it had no debt and had no financial assests, interest payment is excluded.

non-banking firms debt is an integral part of financing operation. But for a bank its core business already involves the debt financing as it is the input banks use to “produce” income generating assets, or in other words its debt fund of a bank can be understood as the cost of goods sold in non-banking companies. Therefore, interest income, interest expenses are included in the calculation of EVA.

The second term used when calculating EVA is the cost of equity capital, expressed as the total capital invested multiplied by the percentage return required. As far as a bank capital concerned, EVA would be the sum of Tier 1 and Tier 2 capital, or its own total capital. And the percentage return required can be found using Capital Asset Pricing Theory (CAPM) where required rate of return is equal to risk free rate plus market premium multiplied by beta coefficient.⁸ EVA can be increased by increasing NOPAT, decreasing WACC or decreasing the invested capital. This again calls for the management’s effort to take on a more capital which however can be prevented by a central bank by setting the capital adequacy level.

EVA is thought to be superior to other traditional accounting measures such as net income, operating profit, earning before taxes (EBIT) or EPS which can be easily manipulated. It accounts for the cost of equity, or the shareholder’s opportunity cost and is conceptually easier than them and it can be implemented into day-to day operation. Moreover, EVA can be determined for the branches, divisions within a firm and as well as for the company as a whole. In theory, EVA is considered to be the main factor influencing market value of a company which is the sum of book value of equity and the present value of future EVAs. Currently, more and more companies use EVA as to evaluate the managerial performance and try to determine the compensation in accordance with EVA’s development. In banking industry the usage of EVA is also extending, especially when competing on the capital market by reaching lower cost of capital (Popa & Mihailescu, 2009).

⁸ More on CAPM, refer to text books of any portfolio management, financial management.

1.3 TRADITIONAL ACCOUNTING PROFITABILITY MEASUREMENTS

Taking accounting figures to measure a bank performance is credited mostly on the grounds that they are the best available data, at the same time it is criticized on the basis that they are subject to various measurement errors caused by different accounting practices. Holding on to a belief that these problems merely reduce but do not completely distort the usefulness of accounting data, the current part discusses bank profitability measurements as related to bank financial statements.

Following measures will be discussed considering their availability as well as their broad usage for judging and comparing profitability of business organizations:

- ROE or ROAE: Return on equity or Return on Average Equity
- ROA or ROAA : Return on Asset or Return on Average Asset

1.3.1 RETURN ON EQUITY

ROE gauges the profitability from the shareholders perspective and measures bank accounting profits per unit of dollar of book equity capital (F. Sinkey, 1998). In other words, it is the reflection of how effectively a bank management utilizes invested fund by shareholders. Hence, if a bank management aims to maximize Economic profit (EP) ROE is the foremost important driver of value, therefore banks focus on ROE especially when presenting to shareholders since it is subject to their interest. To see this it is good to determine the EP first:

Equation 1 ⁹:

⁹ See Jean Dermine, 2009

$$\begin{aligned} \text{Economic Profit} &= \text{profit after tax} - (\text{Equity} * \text{Cost of Equity}) \\ &= \text{profit after tax} - (\text{equity} * R) \end{aligned}$$

$$\begin{aligned} \text{Market value of equity}_0 &= \text{equity}_0 + \sum_{t=1} \text{profit}_t - \text{cost of equity}_t \\ &= \text{equity}_t + \sum_{t=1} (\text{ROE}_t \text{equity}_t - \text{equity}_t R_s) \end{aligned}$$

where R_s is the return available to shareholder on the stock market.

In this formula there are two variables that drive value: ROE and equity growth (when it exceeds the opportunity cost).

Accounting ROE is defined as: ¹⁰

Equation 2

$$\text{ROE} = \frac{\text{net income}}{(\text{equity}_t + \text{equity}_{t+1})/2} * 100\% \quad (3)$$

In valuation analysis, average equity rather than the beginning or the end period equity is used as to reflect the normal or more realistic equity level that yielded the return in the next period. For example, if the beginning equity_t is used then the return earned in the next period can be influenced by the changes in the equity that occurred during the period. The same logic holds for ROAA.

ROE is a single criterion and it can be either high or low, meaning that the high ROE does not always reflect a favorable financial position of a bank. The drivers that created a certain level of ROE is important for evaluating purposes. The breakdown of ROE was developed back in the 1920s by an American firm DuPont which today is extensively used in a modified version. The basic idea is that it reveals the hierarchical arrangement of indicators that serve for identifying and isolation of trends in the development of ROE.

¹⁰ Accounting is emphasized here as not to be confused with investment profitability (or return) as measured by the dividends and stock price appreciation. See F. Sinkey, 1998. Moreover, ROE and ROAA will be used interchangeably throughout the thesis, as is same for ROA and ROAA.

For the break down, consider a simple balance sheet funded by deposits (D) and equity (E)¹¹ :

Figure 1: A simple balance sheet

Asset A (EOA)	Deposit D (CD) Equity
---------------	--------------------------

EOA is defined as the average return on assets and is the sum of interest income+(non-interest income)-provision for a credit risk, as a percentage of total assets. The average cost of debt (deposits and other liabilities), CD, is the ratio of interest expenses to total debts. The operating expense ratio, OE is the ratio of operating expenses to total assets. Finally, the average effective tax rate is denoted by t (taxes as a percentage of earnings before tax).

A primary break down is following:

Equation 3

$$ROE = \frac{\text{net income}}{\text{assets}} * \frac{\text{assets}}{\text{equity}} = ROA * EM$$

EM is equity multiplier or the leverage factor and it provides the level of bank leverage (debt -to-asset ratio) or the dollar amount of asset built on the bank's own capital. ROA is defined as the ratio of net income to assets; it will be discussed later in length later. This tells us that ROE is the product of after tax return on assets and leverage factor.

More transparent extensions are:

¹¹ The breakdown illustration can be found in Jean Dermine, 2009.

Equation 4

$$ROE = \frac{\text{net income}}{\text{sales}} * \frac{\text{sales}}{\text{asset}} * \frac{\text{assets}}{\text{equity}}$$

Equation 5

$$ROE = (EOA - OE) * (1 - t) + (EOA - CD - OE) * \frac{D}{E} * (1 - t)$$

In Equation 8, ROE is a product of net profit margin (measuring the earnings per revenue dollar) asset turnover (gauging per dollar investment in assets) and leverage as produced by the equity multiplier. The Equation 5 uncovers that the ROE is sum of two terms, earning on asset less of operating expenses on after tax basis (this term is usually very small) and the second term which is a product of three indicators: a margin (EOA-CD) less than operating expenses, a leverage ratio (D/E) and a tax factor. The second term explicitly shoes that the leverage is beneficial for a bank as long as margin is larger than operating expenses ratio.

Here it is clear that ROE can increase as a consequence of high level of debt high (or the bank has inadequate equity capital) and bank management can take on a significant level of debt which may jeopardize the bank solvency. However banks are required to hold a certain level of capital, in accordance with the capital adequacy regulation. This regulation is known as the Basel II Capital Accord that was implemented in 2007 on a worldwide basis.

Overall, in the ROE decomposition there are four accounting information are needed, namely, net income (income statement item), total operating revenue or sales (income statement), average asset and average equity (both are balance sheet stocks). And there are five factors behind ROE, as seen from Equation 9: Earning on asset, the margin (EOA-CD), Operating expenses, corporate tax rate and leverage

ratio. The breakdown of ROE thus, is a powerful tool for isolating the problematic area and explaining the drivers of ROE.

1.3.2 RETURN ON ASSET

A better indicator of bank profitability is provided by ROA and measures the profitability from the point of view of the overall efficiency of a bank's utilization of total asset. ROA is often accepted as the most comprehensive accounting measure of a bank's overall operating performance.¹² The Equation 6 defines the accounting ROA.

Equation 6

$$ROA = \frac{\text{net income}}{(\text{Asset}_t + \text{Asset}_{t+1})/2} * 100\% ;$$

ROA gives information about how much profits are generated on average by each unit of asset. Analysts use ROA to assess managerial performance, or asset and liability management skill as it their efficiency in creating values. An extended or modified decomposition of ROA also exists and can be used to address a certain industry. In general, ROA is a product of two ratios items, profit margin and asset turnover:

Equation 7

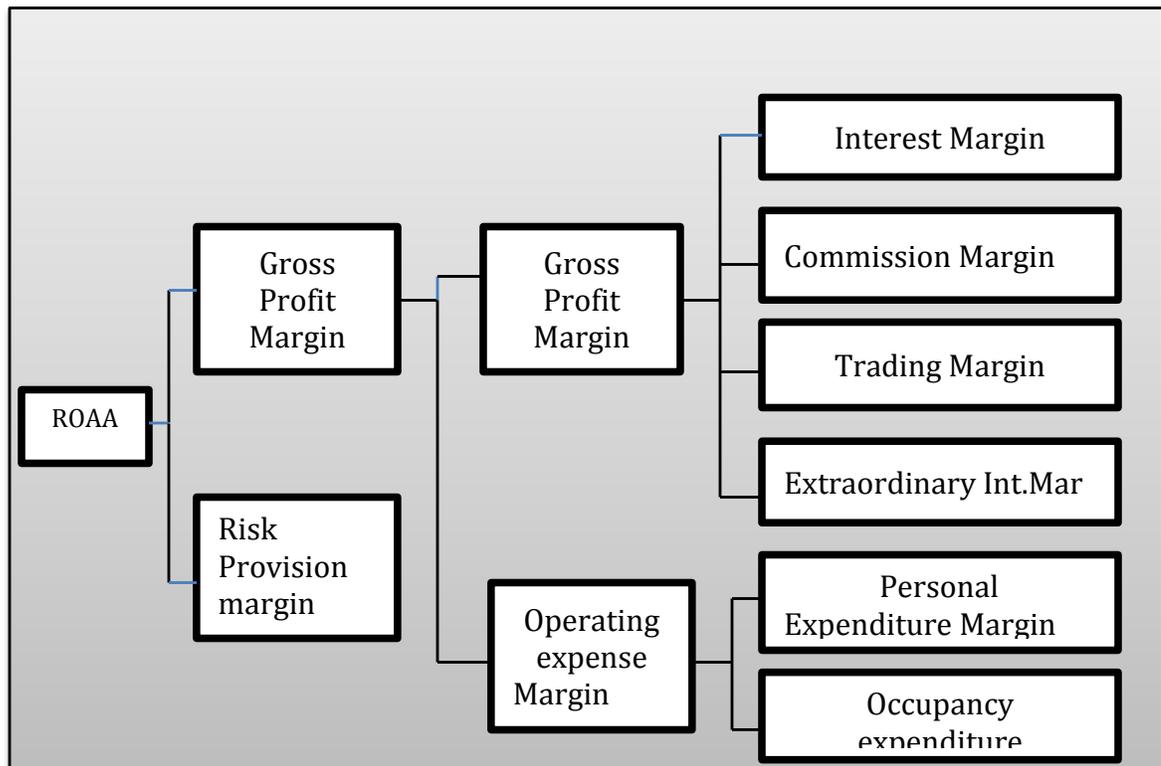
$$ROA = \frac{\text{Net income}}{\text{Sales}} * \frac{\text{Sales}}{\text{Assets}} ;$$

In banking terms, sales are equivalent to interest incomes, as they are generated by the assets in a bank's disposal. The Figure 2 displays the ROA (keeping in mind that ROE is a function of ROA and EM) DuPont scheme. It provides a good

¹² See, for example (F. Sinkey, 1998).

insight into profitability structure especially for banks without a sophisticated management control systems which is often the case of banks in less developed countries.

Figure 2: Modified DuPont decomposition of ROA



- The items in the scheme (Figure 2) are described below as followed:
- Interest Margin: $IM = \text{Net interest income} / \text{Average assets}$
- Commission and fee margin: $CFM = \text{Net Commission Income} / \text{Average assets}$
- Trading Margin: $TM = \text{Net trading income} / \text{Average Assets}$
- Extraordinary and other income margin : $EXOIM = \text{Net extraordinary and other income} / \text{Average assets}$
- These income sources added up together to get the Gross Income Margin: $GIM = IM + CFM + TM + EXOIM$;

- Operating Expenditure Margin: $OEM = \text{Operating expenditure} / \text{Average assets}$

If OEM is deducted from GIM the outcome is Gross Profit margin.

- Gross profit margin: $GMP = \text{Gross profit} / \text{Total average assets}$

Furthermore, from the GMP risk provision margin is subtracted to arrive at Return on Assets.

- Risk Provision Margin: $RPM = \text{Risk Provision} / \text{Average assets}$
- $ROA = GMP - RPM = \text{Net income} / \text{Average assets}$.

The schedule recognizes four main types of income as suggested by Schierenback (2003)¹³: 1. Net interest income, 2. Fee commission income, 3. Trading income and 4. Other income. These four incomes are expressed on net terms, for example net interest income is found by deducting interest expenses from interest expenses. Interest expenses are those that are paid on deposits and loans from others. The changes in net interest income is closely monitored by bank management as a part of interest rate risk policies as well as credit risk policies. Total operating expenses, also known as non-interest expenses (overhead costs) are costs such as personal, office rent, data processing supplies, utilities and insurances which can be grouped into personal and occupancy expenses. Provision for loss loan is set aside to absorb the estimated losses arising from bad loans in the loan portfolio to reflect the credit risk bank undertakes when granting loans. It deserves special attention it is difficult to set the provision as it should reflect the fair value of loans on which information is not readily available.

¹³ The actual banks' income statement may differ from what is to be introduced according to the various accounting rules and practises.

ROA has a direct relationship to ROE (via total assets) as was seen in DuPont decomposition of ROE. This link suggests that an insignificant change in ROA may lead to a larger change in ROE. For example, ROA should not be taken as seriously in case of very high own capital. The effect of financial leverage on ROA is either positive or negative, depending on its cost. Therefore it is for the best to monitor ROE and ROA indicators.

Except for income channels, asset and liability structures influence ROA and ROE as well. In assessing asset quality loan portfolio, sector and exposure distribution should receive special attention. While government bonds are considered to relatively safe loan however with low rate of return, corporate and consumer loans deliver higher return but have higher probability to turn into loss loan, thus driving down the profitability. Classification and definition of non-performing loans is also important for overall asset quality and are usually defined by the major rating agencies, central banks and in some cases, by banks themselves. Bank assets are divided into two main categories: fixed, and revenue generating assets. Revenue generating assets are those that earn interest income such as loans, interbank assets investment operations and revenue generation ability of these assets influence on commercial bank profitability. However, when transferring funds into revenue generating assets and allocating them, risk related to the type of assets must be considered. Profitability is also dependent on a bank's ability to manage and eliminate risks in asset activities.

Banks liability structure is not less important than that of asset. It indicates how bank manages its fund to finance the loan portfolio. When assessing the liability structure the level of bank capital, especially the size of its own capital or equity receives special attention as it directly influences profitability. There is a consensus that the higher the net income, the smaller is the share of own capital, and vice versa. Furthermore, the greater is the non-interest bearing own capital, the smaller

is the gross interest margin. Banks face a dilemma between prudent indicators and the profitability indicators when expressed in own capital terms.

Bank managements should optimize structure of asset and liabilities with regard to a bank's business lines that generate profits and risks a bank is willing to accept.

Chapter 2

2 DEVELOPMENT OF MONGOLIAN BANKING SECTOR AS COMPARED TO THE CZECH REPUBLIC

At first sight, Mongolia and the Czech Republic seem to have very little in common. Differences in two countries emerge from historical and cultural background, civilizational and institutional structure, geo-political background and relation to the outside world. Yet, if one looks carefully, there are comparable sides along with the contrasting ones. Therefore the third part of the thesis is devoted to comparing the two countries in respect with their banking sector development. It is divided into two time horizon, the earlier development in 1990-2000 and the recent development of 2000 and since.

2.1 COUNTRY PROFILES AND MACROECONOMIC BACKGROUND

Mongolia is located at the center of Asia between two giant nations, The People's Republic of China and The Russian Federation. Its 2.8 million populations is scattered through territories that is 20 times as large as the Czech Republic, with 1 million people residing in the capital city of Ulaanbaatar. The economy base is narrow, livestock herding and mining are the back stones of national income and industrial output. Mongolia is a home to world class copper, gold and coal deposits. Mining ensures the country's foreign exchange earnings and accounts for around 80% of export revenues. The country's economy is greatly shaped by activities with its 2 neighbors. Whereas 95% of petroleum consumption and electronic powers are

imported from Russia, 75% of country's export is directed to China (MSO, 2008)¹⁴. For last 5 years, the GDP growth has grown as high as 9% per year on average, reporting budget surplus in some recent years.

As compared, the Czech Republic is one of the most industrialized countries and is considered to be the leading economy of the Post-Communist states of Central and Eastern Europe (CEE). The core industries are heavy machine, iron steel production, chemical and electronics and the traditional glass, china and ceramics. The Czech Republic has strategically important location in the center of Europe thanks to which the country enjoys low cost structure and is an attractive destination of foreign direct investment. Often referred as small, open and an export-driven, Czech economy grew on average 6% annually during the recent years prior to crisis and 2.3% in 2008 (Czech Statistical Office, CSO). It has large numbers of trading partners and a member of important regional and international organizations such as NATO, WTO and EU.

Both countries once belonged to the Soviet Union's Communist bloc and are currently considered as transition to-post transition economies. Mongolia was a centrally-planned economy for 70 decades before it embarked on a transition process in the early 1990s. Even though it is an Asian country it chose the "European approach" (sometimes referred to as shock therapy) to a transition which differs from the "Asian Approach" by prioritizing the macroeconomic acts (fiscal, monetary and foreign trade) before the microeconomic measurements (industrial, agricultural, enterprise, legal framework).¹⁵ Interestingly, while the most of Eastern European countries followed the "gradualism" path to transition,

¹⁴ MSO: Mongolian Statistical Office

¹⁵ Rana (1993) distinguished between Asian and European transition approach. Asian approach, also known as "bottom-up" is best presented by Chinese and Vietnamese transition whereas Soviet Union is the classic example of European approach, or "shock therapy"

the Czech Republic opted for “shock therapy”. It involved rapid price liberalization, massive privatization, welcoming foreign competition and establishment of market institutions.

At the beginning of the transition period, Mongolia’s GDP turned into negative, -2.52% in 1990, -9.25 in 1991 and -9.5% in 1992 and inflation was as high as 325% in 1992 and slightly lower 268.15% in 1993 which was mostly caused by liberalization prices and periodic devaluation of national currency (Shagdar, 2007).

The Czech Republic also experienced similar declines but it recovered relatively faster. Its GDP dropped by -11.6% in 1991 and by only -0.52% in 1992. Indeed, it performed better than many other transitional economies.

Mongolia’s transition is different from other transition economies (including the Czech Republic), for number of reasons. Firstly, Mongolia didn’t experience a large foreign capital inflow which is often seen in other Central and East European (CEE) transition countries. Secondly, Mongolia was adversely affected by Asian Financial Crisis of 1997-1998 and Russian Crisis in 1998 whose direct/indirect effects were insignificant to CEE (Coricelli, 1998). Lastly, as related to the Czech economy, there were also differences in initial conditions at the breakout of transition and the various internal/external factors were incomparable between the two countries.

Despite these obstacles, Mongolia’s transition has performed sufficiently well. According to a report from the United Nation, as measured real GDP in 1998 relative to what it was in 1989, Mongolia performed better than Commonwealth of Independent States (CIS)¹⁶ and Baltic States¹⁷, for example (See Table 3).

¹⁶ A regional organization of former Soviet republics, formed during the breakup of the Soviet Union. Member countries include: Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

Table 1 Development of Real GDP in transition countries, 1989=100

Transition countries	1989	1998
Eastern Europe	100	93.4
CIS	100	54.0
Baltic	100	71.4
Total Above	100	64.5
MONGOLIA	100	93.1

Source: UN, Economic Survey for Europe, 1992. Data for Mongolia is obtained from IMF database.

In this respect, Mongolia and the Czech Republic have performed equally well; however one should acknowledge that this simple comparison does not account for important factors such as, starting point of the economy, institutional quality and role of policies in the related countries.

Mongolia and the Czech Republic share unique bounds with each other regardless of their geographic distance or cultural diversity. Thanks to the communist tie, the diplomatic relationship is considered to be one of the earliest relations between the two countries. It was established on 25th April 1950, and by 1980 the Czech Republic was Mongolia's second-largest trading partner behind Russia. Contemporarily, the active relation between the two includes export/import of construction materials, various infrastructure/technical assistances to Mongolia from the Czech Republic, and supply of contractual cheap labor force to the Czech.¹⁸ Many of today's Mongolian elites/leaders obtained high education in the Czech Republic and Czech government still continues to grant scholarships to Mongolian

¹⁷ Baltic States are Estonia, Latvia and Lithuania.

¹⁸ Workers from Mongolia comprised 3.6% of the foreign workforce in 2008, making them the third-largest-Non-European Union group behind Ukrainians, Vietnamese and the fifth largest group overall. (source: www.wikipedia.com: Mongolians in the Czech Republic)

students.¹⁹ Decades of Czech-Mongolian scientific expedition crew exploring particularly the Gobi desert is also an important connection.

2.2 EARLY DEVELOPMENT OF BANKING SECTOR IN 1990-2000

In most former communist states, there was typically a single bank comprising roles of both a central bank and commercial banks. Although the mono-bank was the central bank it did not possess the functions of a central bank in a market economy; the monetary policy was managed along direct rather than indirect lines, with plan directives rather than interest rates (discount rates), open market operation (OMO) and reserve requirements being the primary instruments (S. Robbins, 2000). The central plan determined the allocation of resources. Enterprises were granted financial resources either as loans from the central bank or directly from the state budget. Loans granted by the mono-bank reflected administrative decision rather than economic and were a part of the state plan. Customer evaluation, repayment status were not taken into account, however other factors such as connection, reputation and lobbying ability had a great influence on lending decision. State enterprises never face hard budget constraint; whenever they faced deficits there was the State bank that would finance them on regular and rolled-over basis. Repayment by the enterprises was highly questionable considering their unprofitability and inefficiency. It all resulted in a huge amount of non-performing loans in the state banks balance sheet at the breakout of the reform.

As Calvo and Kumar (1993) put it:

¹⁹ Roughly 20 students arrive to the CR each year on government scholarship program.

“...It is widely acknowledged that the success of stabilization policies and the structural reforms depends in an important way on the development of efficient financial intermediaries and of credit and capital markets more generally...”

There was an inevitable need to reform the financial market should they wished to build a market-based system of resource allocation and a natural step was to split up the mono-bank into a central bank and numbers of competitive commercial banks. Commercial banks not only provide a payment mechanism but also play an important role in allocation of resources among economic agents. While deciding competitively with each other on what terms to offer for collecting deposits and asking for making loans to finance investments, banks affect the quality and quantity of the investment in the economy. However, the quantity of the money in the economy should be controlled and the commercial banks should be subject to prudent regulation, both being roles of the central bank. Consequently, in CEE transition countries and in Mongolia the authorities prioritized establishing an effective banking system and the period of 1990-2000 is fully characterized by the establishment of banking regulatory/supervisory institutions and commercial banks out of a centralized state-owned banking system.

Upon the establishment of new central banks and commercial banks, all transition economies faced a question: whether non-performing loans should be inherited by the new banks or the state should take care of the bad debts made by its banks and give the commercial banks a chance to start on a clean balance sheet. How it is solved further reflects the bank capital needs.

Theoretically, commercial banks require long-term shareholders' funds to provide proper physical infrastructure for the bank activities and also to serve as a cushion against incurring losses. The more the banks inherit irrecoverable loans and non-performing assets from the central bank, the less they hold and are in greater need of capital injection. But capital is scarce in transition economies. In order to gain capital, banks need to be profitable by setting high real interest rates and which,

according classic economic theory, discourages investment leading to decrease in the aggregate output. Since building up capital in this way is rarely successful, and the state has three ways out: injection of capital, take over bad debt or do the both (Tserenpil, Harrington, & Molomjamts, 2000). The two countries experience regarding this very issue and others put ups an interesting picture of development.

2.2.1 MONGOLIAN EXPERIENCE

The Soviet-style mono-banking system was represented by the State Bank of Mongolia (SBM, 1924 to 1991). With the enforcement of Law on Banking, the state mono-bank was dissolved in 1991 and several new commercial banks and the central bank, Bank of Mongolia (BOM), were created. But the very first commercial banks, Trade and Development Bank (TDB) and Investment Technological Bank (ITI) were established at the end of 1989, before the Banking Law came in effect.

BOM kept liabilities to domestic/foreign governments, liabilities to the multilateral organizations such as Asian Development Bank (ADB), International Monetary Bank (IMF) and the World Bank (WB). Six new commercial banks were established and they inherited liabilities/outstanding loans to enterprises/individuals and non-performing assets. Even with the high volume of non-performing assets, banks kept their characters of the previous practice in lending; loans were still extended based on noneconomic assessments such as applicants' social influence, connections and bribing capability. Borrowers' ability to pay back, measured and predicted cash flow, income inflows were irrelevant to the decision making process. Collaterals for the loans were not properly valued and were not worth of the loans resulting in bad quality loans.

Uncontrollably issued outstanding loans reached 46% of gross money²⁰ in 1990, 30% in 1991 and 47% in 1992 (BOM, 2002). It was mostly due to the missing

²⁰ Gross money is the same as monetary aggregate M2, according to BOM.

legislation and bank personals inadequate experience/management in a new market oriented environment.

As was mentioned earlier, the economy started to slip through so-called “transition crisis” at the beginning of 1990s. With rapid removal price controls, a shift to floating exchange rate, and interest rate liberalization, inflation exceeded 300% and GDP growth turned into negative. Goods and supply shortage was faced in every sector. These negative developments are also associated with demise of the former Soviet-Union. As the union ceased financial assistance to member countries was also cut off. According to Amarjargal (2002), the financial flow from the Soviet Union was equal to the 35% of country’s GDP on average during the communist period.

Financing loans became costly with the soaring inflation and NPLs, banks interest income no longer covered the expenses. In the following 3 years banks assets deteriorated so fast that the smaller banks were inevitably faced with bankruptcy and the bigger banks had to rely on the central bank’s bailout. With public confidence in the banks eroded, total deposits fell by 35% and the share of NPLs in total outstanding loan grew 12 times greater in 1995 as compared to 1992, amounting up to 20% of total loan (BOM, 2002). The legal framework did not ensure the recovery of the credits and didn’t force the borrowers to honor their payment obligation.

Central Bank responded to the situation in the following fashions. It started to limit bank lending activities by imposing simple monetary instruments such as minimum reserve requirement and minimum interest rates for saving. Clearing loan made by the BOM to the commercial banks in case they face capital shortage, was to be ceased gradually and be completely stopped by 1996. Prior to 1995, when the New Civil Code was enacted, the legislative framework for regulating loan dealing was merely regulated by guidelines and decisions issued by either BOM or the commercial bank themselves (BOM, 1997) and need of strong regulatory and

supervisory body with well determined rules and policies became an necessary for the further proper development of banking system.

In 1996 “The Law on the Central Bank” was passed by the State Great Hural,²¹ and defined for the first time the central bank’s responsibilities and roles as related not only to setting the monetary policy of the country, but also the supervision of banking sector. As stated in the law, the BOM should “promote balanced and sustained development of the national economy through maintaining the stability of money, financial markets and the banking system.” Separate laws on banking sector regulation was enacted in compliance with the New Civil Code, namely “ The Banking Law”, “ The Law on Saving” and “Settlements and Bank Operations (BOM, 2002). The Banking Law defined the requirement of commercial bank establishment, minimum capital requirement, scope of operations and responsibility of equity holders. The legislative also reduced government intervention in central banks and commercial banking activities.²²

In the same year, in Dec 1996, the banking sector underwent a major restructuring process financially and technically supported by ADB, IMF and WB. The program aimed to eliminate the insolvency of the banking sector as a result of the subsequent crises, reinforce the public confidence in banking sector by addressing NPLs, management inadequacy and weak supervision. Two new banks, Saving Banks and the Reconstruction banks, were established upon the closing of two largest insolvent banks whose assets together accounted for around 50% of banking sector asset of number of banks. Personal deposits of failed banks were transformed to Savings banks who then could make limited loans backed by the

²¹ Parliament of Mongolia.

²² Until 1995, the government was effectively involved in bank loan process.

deposits it had been transferred to. The Reconstruction bank took over the performing loans and impersonal deposits and was allowed to evolve into a complete lending institution offering wide range of universal banking services. Another institution, Mongolian Asset Recovery Agency (MARA), an entity that legally enhanced the BOM's power to reclaim assets, was established to take over the NPLs of failed banks and its main goal was to recover the loans as much as possible. This restructuring procedure was funded with Financial Sector Program Loan (FSPL) from the above multilateral institutions and the cost of restructuring rose to around 8% of GDP in 1996 alone (BOM, 1999). The cost was measured by the issue of government reconstruction bonds and exceptional liquidity support of about MNT 5.0 billion provided by the BOM to the three troubled banks (the Reconstruction Bank, the Agricultural Bank and ITI Bank), and two of them (RB and AB) became insolvent again in 1998 crisis (Shagdar, 2007). They kept around 24% of total banking asset and both were liquidated by BOM in 1999 (BOM, 1999). All remaining banks became subject to bank rehabilitation program: The program was a revolutionary in a sense that the concept of "risk-weighted assets" was first appeared and used in the capital adequacy computation and capital of 2% of risk weighted assets to be reached by the end of 1998 (BOM, 1998).

Illiquidity in the banks was solved in a relatively new method: government issued bonds which were further marketed by the BOM to the commercial banks. Attractiveness of this instrument was high among liquidity-inadequate banks as much that by 1997 more than 10% of banks asset consisted of this liquid and safe (Tserenpil, Harrington, & Molomjamts, 2000).

Credit Information Bureau (CIB) was created by the BOM to reduce the information asymmetry problem of lending organizations. It collects information about borrowers of banks and non-bank financial institutions on the basis of a specific agreement, to permit sharing of this information; and the CIB prepares specific monthly reports on borrowers which "owe" non-performing loans and have

more than one credit from different banks. Information on 4,408 borrowers of insolvent banks, with outstanding credit amounting to MNT 25.9 billion later transferred to MARA, has been included in the CIS information database (BOM 2000). Information on new loans, repayments, changes in names and addresses are updated daily and rescheduled loans monthly, and information about loans at MARA are updated quarterly.

Mongolian banking sector went through three subsequent crises in 1994, 1996 and 1999. Through 1990-2000 over all 30 commercial banks were established and half of them survived the consequent crises. Out of 14 banks bankruptcies, 8 failures were caused by credit risk with high NPL at core. Others were caused by low equity capital ending up in insolvency and operational risk, especially bank staffs' irresponsibility as bank managers were involved in insider lending and fraud. The main reasons of crises are directly connected to NPLs which were accumulated main two ways: Firstly, Ineffectiveness, unprofitability of state owned enterprises were directly mirrored into NPLs of banks' balance sheets and substantial part of bank non-performing assets were initiated elsewhere in the mono banking system. Secondly, poor credit control, policy and management, lack of expedite and discipline continued in the transition period added up to the NPLs accumulation as a result of weak regulatory and supervisory framework. Other causes of the banking crises in Mongolia include "transition crisis" or the sharp drop in the aggregate demand and output in the beginning of the transition. With the collapse of Soviet Union also discontinued flow of financial assistance from it. Mongolia also lost its trading partners of Council of Mutual Economic Assistance.

2.2.2 THE CZECH EXPERIENCE

In this session, the transition process of Czech banking sector will be covered as contracted and compared to the Mongolian experience. It is also worthwhile to

mention that the detailed description of the Czech banking transition is beyond the content of the thesis.

Czech banking reform is considered to be one of the most successful among transition countries, however it still reflected past characters of its own earlier stage well through the 1990s.

In the Czech Republic the State Bank of Czechoslovakia (SBCS, before 1989) was the mono-bank performing the combined roles. It is central banking and commercial banking activities were separated and two-tier banking system was adopted in 1990, a year before Mongolia. Loan portfolio of the state bank was transferred to Komerční Banka (KB, a result from the split-up of the state mono-bank) in the Czech Republic and Všeobecná Úvěrová Banka in the Slovakia Republic. Once the Czechoslovakia was separated in 1993 each country had established their own central banks. The Czech National Bank (CNB) in the Czech Republic takes over the central banking supervision and regulatory function over financial market of the country. Three commercial banks were emerged and they also inherited a stock of loans granted by the state bank to mainly former state enterprises. On the top of that, banks were undercapitalized, held unbalanced funds and lacked proper technology and modern techniques of risk management, decision-making processes were only at the beginning stage (Mejstřík, Cultivation of the Financial Market in the Czech Republic, 2004).

In order to deal with the initial difficulties of banks and moreover, ensure financial stability and to avoid possible systemic risk, a Consolidation Program 1 was initiated by the government. In the framework of the program, a Consolidation Bank (CoB) was set up in 1991 as a repository of many doubtful loans and it proceeded to buy the bad assets from banks. The operations implemented with dominant, state owned banks, namely Československá Obchodní Banka (ČSOB), Česká Spořitelna (ČS, remaining represent of former state banks) and Investiční Banka (IB), included the transfer of assets to CoB, the write off loss loans from

National Property Funds, capital increase in equities of the banks, and transfer of credit/credit from ČSOB to Česká Inkasní (ČI). The cost related to the first restructuring program was estimated around CZK 100 billion (Mejstřík, Cultivation of the Financial Market in the Czech Republic, 2004), or around 7% of 1995 GDP.

At the beginning of the reform, CNB engaged in extensive license granting to small/ medium banks with purpose to increase the competition with state banks. Several state banks hold two-third of total assets of banking sector and obtained nearly three-quarter of total credit and deposits of the country.²³ The number of licensed banks (those, who are truly private and foreign bank branches) was already 13 in 1990, another 13 in 1991 and 17 in 1992, 10 in 1993 and 4 in 1994 and it was 55 in mid 1990s (Vít & Singer, 2005).²⁴ These banks operated in an environment with inexperienced supervisory body and prudent thresholds were often ignored because their main goal was to increase market shares. Their loan portfolio was characterized by high yield deposits and very risky loans as a result of insufficient analyzed and monitored loans. Most of the banks were substantially undercapitalized. Moreover, they had a restricted access to help from government and limited opportunity on international interbank market which further pushed them to the more vulnerable situation. By the second half of the 1990s, numbers of small banks, mostly the domestically owned ones failed. Even though these banks controlled an insignificant part of (less than 5%) the total banking asset their failure could carry about a decline of public confidence in banking systems, and possibly could lead to systemic crisis in the sector.

The CNB responded to the situation by developing the Consolidation Program II which comprised a set of measurements for consolidating small/medium banks. According to the CNB, the radical interventions were conducted upon the

²³ See United States' Department of Commerce, *supra* note 25.

²⁴ Number of licences issued is reported to reach 63 according to some sources.

agreement with the banks and their shareholders. 15 out of 18 banks were treated under the program with nine of them undergoing a radical solution consisting in the revocation of their licenses or the introduction of conservatorship following a reduction in capital. (Mejstřík, Cultivation of the Financial Market in the Czech Republic, 2004). For the remaining banks, shareholders were to cooperate or new investors were to be sought to cover the potential losses they were facing.

In 1996, Stabilization Program addressing existing small banks was implemented. Banks receivables were to be bought at their nominal value, yet on the condition that they are obliged to pay back in seven years to the entailed institution, Česká Finanční. However, only half of the banks took part in the program, but all, except one, were excluded and liquidated on the basis of unfulfilled criteria.

The Czech economy got into a second economic downturn in the end of the 1990s. Period before 1996 was characterized by an increased money supply, a credit boom especially to corporate sector, higher wage, higher consumption and they all resulted in a soaring domestic demand. The level of corporate sector loan in the Czech Republic (55%) was many times higher than the other transition countries, for example Hungary with registered credits to GDP of around 19% and Poland 15.4% in 1994 (Čech, 2003). However, extensive lending policy of banks led to private asset price bubble as loans were backed by mainly real estate while ignoring the real profitability of the investment projects. The overall uncertainty of economy, consequence currency depreciation and tightened the money supply that soared interest and exchange rate added to the over-debted enterprises financial difficulties and it was reflected by the high share of both classified and loss loans in the portfolios of the commercial banks.²⁵ Following the monetary turmoil, banks

²⁵ See Čech (2003).

especially the large ones, changed their lending behavior radically from 1997 to 1999, decreased credit issues and replaced them by safer government securities.

The larges, namely KB and ČS were affected the most by the worsening economic and the state, as the main shareholder the state rescued them again by injecting capital and cleaning their balance sheets. These operation temporarily hold them float and the privatisation of large banks become an inevitable step (see Table 2).

Table 2: Real Growth (in %) in lending of 4 large banks in the CR

	1996	1997	1998
ČSOB	-4.03	18.17	13.32
Investiční a poštovní banka	7.95	-0,02	4.62
Komerční Banka	3.45	-4.13	-21.39
Česká spořitelna	8.99	7.29	-18.36

Source: Hampl-Matoušek (2000)

2.3 THE RECENT DEVELOPMENT 2000-2008

This period is characterized by the privatization of large state banks and overall stabilization banking sector in both countries.

MONGOLIAN EXPERIENCE

Wholly stated owned banks started to be privatized as early as in 1996 and until recently there was no bank fully owned by the state and only 2 banks have state participation.

The most recent and significant privatization cases are following:

In 2002, the government sold it 76% share of Trade and Development Bank, the oldest biggest and the most profitable bank, through international bid to Banca

Commercial Lugana/Gerald Metals. It was the first internationally known bank who had entered the local market. The remaining 24% of shares are owned by bank staffs and minor shareholders (ADB, Loan and Equity Investment in Mongolia: TDB, 2008).

In 2003, the Agriculture Bank was sold to a Japanese company, HS securities which upon the privatization changed the name to Khan Bank, now the largest bank of Mongolia.

In 2006, Saving Bank of Mongolia was privatised through international open tender to MD Securities Company and was the last state bank to be privatised.

While in the first half of 2000, state-owned banks and the BWSP occupied about 70% of the commercial banking system, in four years, this position has narrowed down to no more than 10 percent (Khulan, 2005). Banking sector benefited from foreign participation through increased bank competition, increased efficiency and product expansion. Also according to a survey conducted by BOM, NPL in banks have decreased with the participation of foreign investments.

Public confidence towards banks has been raised and deposit inflows to banks increased providing the base for bank loans. The speed of loan extension outperformed any other macroeconomic growth indicators such as GDP growth, broad money and deposits growth. Reportedly it outperformed other CIS states such as Bulgaria and Russia. Acceleration of credit expansion exceeds that of Bulgaria, Russia and is slightly less than Belorussia but if the nominal GDP growth rate taken into account (58.8% for Bulgaria against 10.2% of Mongolia), ratio of loans to GDP is much higher. Loan to GDP ratio was in 2000 8% and soared to 32.5% in 2003 while Belorussia recorded 9% to 11.5% during the period. The ratio further increased to 37.9% in 2005, (BOM, 2005).

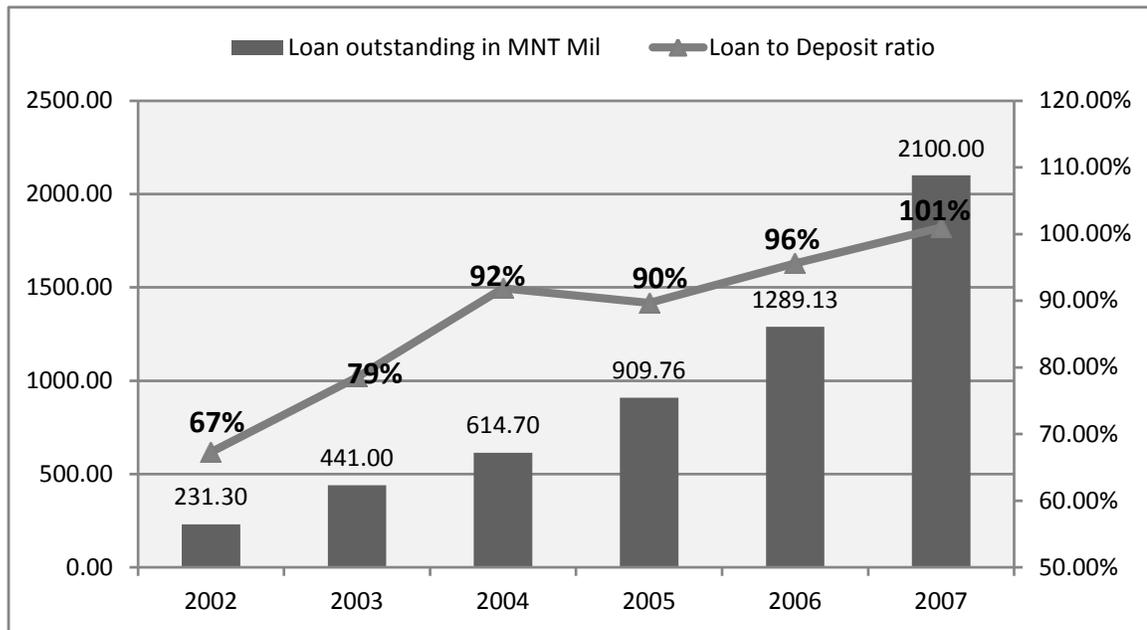
Credit expansion until 2006 has been further characterized by increased loans issued to individuals (from 9% of total loan in 2000 to 35% at the end of 2005) and decreased loans to private sector (from 72.3% in 2000 to 57.8% in 2005) which nevertheless remain high. Moreover, by sector non-industry sector has driven the loans to private entities, raised from 52% in 2000 to 57% in 2005 (BOM, 2005).

Most loans, roughly 80% of all loans extended are with very short term maturity, mostly less than 1 year while credits with 5 years or more maturity make up only 5% of total loans. This is due to the seasonality of business activities of Mongolian economic sector (WorldBank, 2009). For example, mining and agricultural sector is active only a half of the year due to long and harsh winters. Banks try to set the loan repayment term as short as possible as not to raise disincentive to repay loan.

In 2000, banks total outstanding loan was around MNT 60 billion and as of 2007 total outstanding loan was MNT 2,100 billion, or 35 times greater. The largest year-on-year growth was realized at the end of 2001 or 125% while in 2007 the loan growth was 63% year-on year basis. The rapid extension of loan is attributed to several factors. Consequent crisis of the last decade banks were limited as intermediaries due to low incentive to issue loans and were distressed by the NPL on their balance sheet. Once they have managed bad assets catching-up process followed immediately.

Secondly, in these particular years, Mongolian economy started to strive, once negative GDP growth turned into positive reporting 10% on average. The loans were financed primarily by public deposits and banks have faced no liquidity (see Figure 1, the bars depict the total loan outstanding in absolute value and the line is the tendency of total loan to total deposit ratio).

Figure 3: Loan growth in Mongolian Banks (in MNT mil)

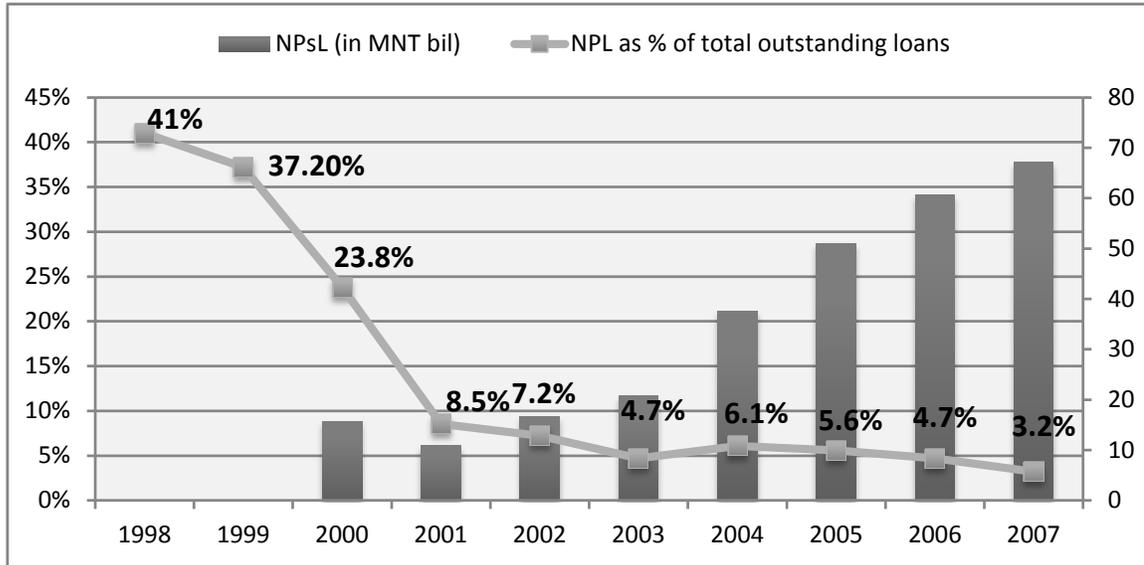


Source: BOM, annual reports

In the Figure 3 loan growth over 2000-2007 is portrayed. The bars with respect to the left axis illustrate the growth of loan in absolute value and the line with respect to the right axis indicates the loan to deposit ratio. In 2000-2007 no bank has faced insolvency problem and liquidity. Close-to-unity ratio of total loan outstanding to total deposit moreover indicates that the banks are not dependent on foreign funding as opposed the CEE banking systems heavy reliance on foreign funding. However the ratio shows increasing tendency in last years (2006 and since), hence the picture might change in near future.

Over the years the fraction of NPLs in total outstanding loans steadily decreased (see Figure 4).

Figure 4: Non performing loans development as a fraction of total outstanding loans



Source: BOM, annual reports

In this respect Mongolian banks seem to outperform other countries in managing NPL. NPLs level in China, for example, was 13% of total loans and in Thailand 12% as compared to Mongolia's 6.1% in 2004 (Xu, 2005). But compared it is slightly higher compared that of to the Czech Republic's. But compared to these countries, Mongolia's financial market is much illiquid, immature and underdeveloped. It is also questionable that whether NPLs decreased as a result of rapid credit extension or actually due to its effective management, improved legal enforcement. Even though there is an increasing trend in volume of NPLs (indicated by the bars in above figure, with respect to the right Y-axis), the share of NPLs has been decreasing steadily (depicted by the line with respect to left Y axis). It is possible that the decreased NPLs in 2002-2007 can partially be explained by the rapid credit extension of the same period. But the ratio of NPL to total loan varies among individual banks as larger banks tend to have much smaller ratio of NPLs to total loan than that of smaller banks.

Including the improved asset quality of banks as indicated with decreasing NPLs portion in the total loan, the aggregate picture of Mongolian banks has relatively gotten healthy (see Table 3).

Table 3: Financial soundness of banking sector, selected indicators (in %)

	2002	2003	2004	2005	2006	2007
Regulatory capital to RWA	20.0	20.4	20.0	18.2	18.1	14.2
Regulatory Tier 1 to RWA	17.7	18.5	17.4	15.8	15.6	11.9

Source: BOM

Capital Adequacy Ratio (CAR) has been falling substantially from 20% in 2000 to 14.2% in 2007 which is still well above the international standard of 8%. But Decreasing CAR led to more efficient usage of capital as a loan extension during the period.

2.3.1 CZECH EXPERIENCE

The postponed privatization of the large state banks during the transformation period became an upfront issue. Under state management their competitiveness and profitability gotten worse especially during the second half 1990s, parallel with macroeconomic contractions. For further proper and healthier development of banking sector, a strong, attractive shareholder and investors were needed. But before privatisation the non-performing assets accumulated at the banks during the credit extension years, had to be cleaned. Cost associated with the cleaning process is estimated to be around 20% of GDP and the privatization cost of the large banks around 8% of GDP (Havel, 2004).

Table 4: Summary of large banks privatization

	Year	Privatized by	Sold state share
Komerční banka	2001	Société Générale	n.a
Česká spořitelna	2000	Erste Bank	52%
ČSOB	1999	KredietBank, Belgium	66%
IPB²⁶	1998	Nomura International	36%

Source: CBN, annual reports

After the rescue actions by the state (often in forms of capital injection and bad asset transfers to CoB) and the successful privatisation of the large banks (mostly to the EU based banks) banking the system of the Czech Republic improved significantly both in scope of activities and prudential indicators.

Table 5: Selected Prudential indicators (in %) for the banking sector

	1999	2000	2001	2002
Quick Asset/Total asset	19.5	19.5	20.8	32.4
Classified credits as % of total credit	32.2	29.9	21.5	16.8
NPL/Total Loan	22.0	19.9	13.7	8.8
Weighted Classification as % of total credit	16.9	13.7	10.0	6.1

Non performing loans=Classified-watch credits. Source: CNB

According to Teplý (2002) the Czech approach to dealing with the NPL and clearing up the bank balance sheet were rather **passive**, that is transfer of classified and NPLs to a separate institution, CoB, and also capital strengthening financed

²⁶ It was resold to CSOB in 2000.

from state budget. However there has been an attempt to restructure the banks' portfolio through **active approach**, that is, by engaging in instruments that value the bad assets. One such example is securitization, a financial transaction in which taking of an illiquid asset, or group of assets, and through financial engineering transforming them into a security. Securitization contributes to increasing transparency and development of capital market, but in the CR securitization did not lead to such benefits, but it even blurred the problem of the banks. Therefore, Teplý (2000) claims that Czech securitization should be cited as **pseudo or quasi securitization**.²⁷

2.4 CHAPTER SUMMARY

Even though both countries started shock therapy approach to transition at almost the same time, Mongolia's transition process with regard to banking sector seemed to follow a slower pace of development than that of the Czech Republic. In the beginning of the transition both countries suffered from the burdens from last which hardened the starting condition of banks for the further development. Through the transition banks went through several crises as a consequence of both weak legacy and underdeveloped banking supervision, monetary policy mismanagement and numerous bankruptcies. The privatization of large and undercapitalized state banks benefit the sector subsequently and banks have become more sound, efficient and competitive.

Reform of the banking sector in the Czech Republic was more extensive, deeper and complex. Below are the most obvious differences observed and their possible reasons from the author's point of view.

²⁷ See Teplý (2002).

In Mongolia small and medium sized banks received relatively little attention from authorities than in the Czech Republic. The Czech reform consisted of three main stages (firstly the consolidation of large state banks, and it continued in consolidation of small to medium banks and finally the implementation of stabilization program aimed at problems of small/medium of banks which continued for 5 years) and two of them have been set up for specially small-medium sized banks.

Delayed privatization completion of Mongolian state banks. Privatization of state banks started in Mongolia as early as in 1996 and it was not completed until the end of 2003, whereas privatization of Czech large state banks started relatively late, in 1998 and was complete by 2002. It could be due to the difficulty of finding strong, potential investors domestically and to the foreign investors Mongolia was relatively closed (just think of the location) and must have been considered to as a risky investment.

No “credit crunch” occurrence in Mongolian banks. During the second half of the 1990s Czech banks changed their lending behavior which resulted in credit crunch while Mongolian banks did not. This can be almost fully explained by the second macroeconomic downturn the Czech economy experienced which deteriorated the debtors financial position increasing banks concern over Mongolia went through recession only once in the beginning of the reform.

Cost incurred during the bank restructures, balance sheet cleaning is much higher in the Czech Republic than in Mongolia. It can simply be because the Czech financial market is bigger and higher financial intermediation. On the other hand it indeed is a confirmation of large extent of banking reform in the country. In both countries the transformation cost was borne by mainly public sector institutions such as MARA in Mongolia and Česká konsolidační agentura in the Czech Republic, the central banks and governments

Chapter 3

3 STATUS QOU OF THE MONGOLIAN BANKING SECTOR

Mongolian banking sector is rather small, with total banking asset around 70% of GDP as compared the Czech Republic where it is more than 100%. There are 15 banks which are way too many for 3 million people and most of these banks are between existence and non-existence. There has been no consolidation in the banking sector in the post-transition period but in 2009 two banks have gone bankruptcy and other two small but problematic banks were united into a single state owned bank.

3.1 OWNERSHIP OF BANKS

As of the end of 2009, total 15 banks are operating in Mongolia, out of which 14 banks are privately owned, of which 10 banks are foreign owned and 4 are pure domestic and one is a state owned bank, The State Bank. (see Table 6).

Table 6: The ownership structure of banks, in selected year

	2000	2004	2007	2009
Banks	12	17	16	15
Private	10	16	16	14
Domestic	10	10	6	4
Foreign	0	4	10	10
State owned	2	1	0	1

Source: BOM

The state bank was established in 2009 on the ground of one of the two recently recently failed banks. Two of the 4 domestic private banks have state minor participation. The banking sector is heavily dominated by foreign owned banks as is typical for most transition countries.

As of 2000 there was no bank with foreign participation, but at the end of 2009, there are 10 foreign owned (pure foreign owned and joint stock with foreign participation). Compared to the Czech Republic where the banking sector is dominated by large international groups, foreign owners of Mongolian banks are wealthy individuals, institutional investors and relatively small regional banks.

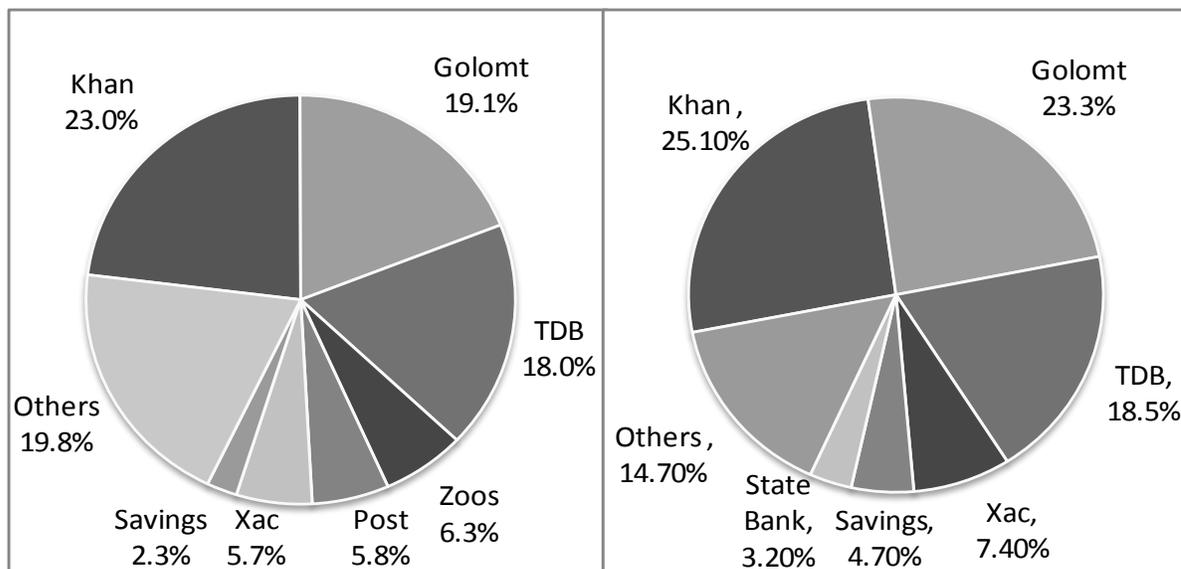
3.2 TOTAL ASSET

Between 2000-2007 total bank assets growth averaged at 39%, amounting to around 60% of the country's GDP (BOM, 2007).

In 2008-2009 the total asset grew by only 19% as a result of a steady appreciation of the US dollar and also reserve increase of banks, as desired by the central bank after the failure of the two commercial banks at the end of 2009.

As of 2008 the biggest 5 banks controlled 78.5% of total bank assets and the largest 3 (Khan, Golomt and TDB) hold 60.1% of total. In 2009 share of 5 biggest banks rose to 82%, all of them being private banks with foreign owners (see Figure 5). Golomt and TDB concentrate in the capital city where approximately 82% of the total assets of the financial sector are located and specialize mainly in corporate lending. In addition, they offer a range of international-standard banking products for domestic and international markets, including capital market services, consulting, liability management, real estate financing and structural debt instruments.

Figure 5: Market share in total asset in 2008 and 2009



Source: BOM

3.3 TOTAL LOAN

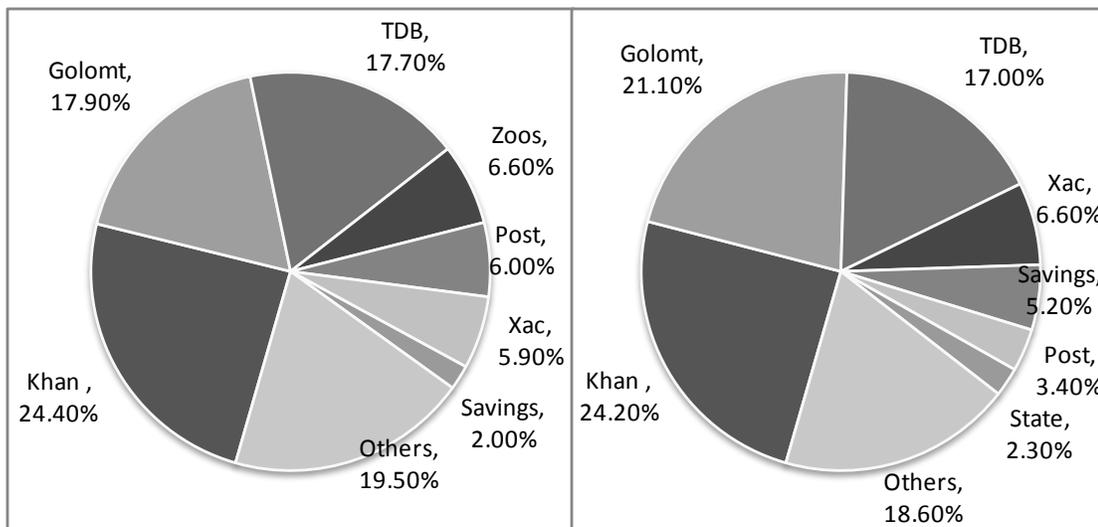
The above picture repeats itself in case of total loans as well. The industry's credit exposure is highly concentrated; the largest three banks controlling two-third of total credit exposure (see Figure 6).

It raises a concern as an extensive share of total loan is being handled by few banks. Given an environment where risk management capacity and internal control mechanisms of most banks need strengthening, rapid increase in loans could lead to additional deterioration in portfolio asset quality in the near future and this would adversely affect the ability of key banks to deal with financial problems in future and impact the capital adequacy of the banking sector.²⁸

Figure 6: Market share in total loan in 2008 and 2009

²⁸ See World Bank Poverty Reduction and Economic Management, Sector Units in the East Asia and Pacific Region Vice-presidency, (*Mongolia Quarterly*),

2008 <http://siteresources.worldbank.org/INMONGOLIA/Resources/MNTQtrlyFeb2008.pdf>



Source: BOM

Interest rates on loans have been decreasing steadily, falling to 17.3% per annum at the end of January 2008, as compared to 25.3% in the same month of 2007. The classification of loans by the total types of borrowers is also changing. At the end of 2008 loans to private sector made up 55.5% of total loans, to individuals 41.8% and 1.5% to public sector, the rest is to other entities. It represents a significant change as compared to 2006 for example, when the private sector made up 94.0% of total loans, to the public 4.5% and 1.5 to the other sectors, which indicated a serious lack of loans to individuals.²⁹

The loan portfolio of Mongolian banks is different from the Czech commercial banks in at least two aspects.

Firstly, the mortgage lending doesn't take up a large space in overall loan portfolio of commercial banks. First mortgage lending was issued as late as in 2003 with the technical assistance of the ADB in the framework of House Finance Sector Project and the availability of mortgage loan is still very restricted from the supply

²⁹ The statistics are taken from Bank of Mongolia Monetary Survey, January 2006, 2007 and 2008.

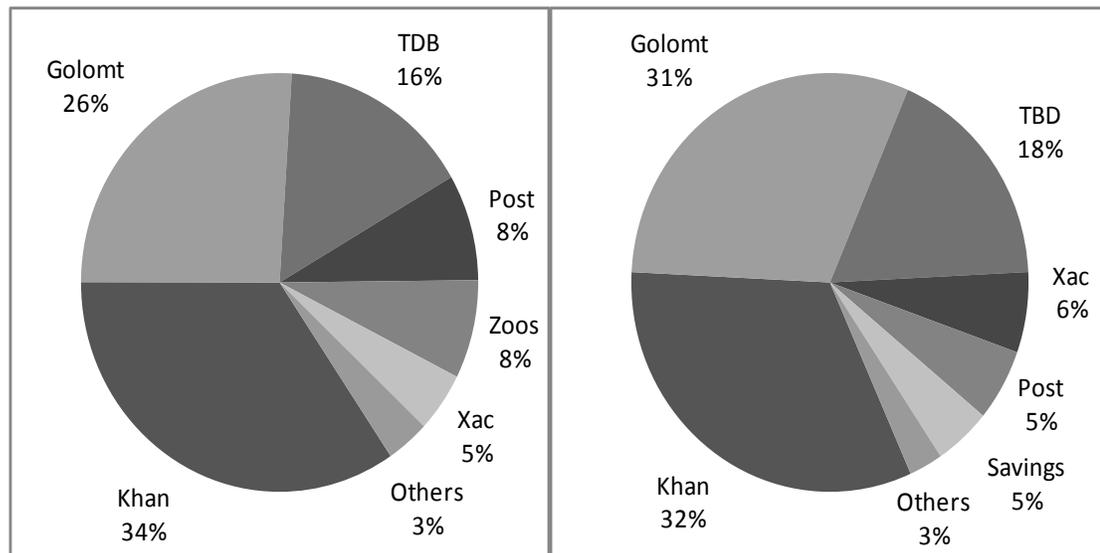
side. According to the survey conducted by ADB, the banks participated in the program have deviated from the standardization with respect to underwriting, property appraisal, servicing and loan documentation. Underwriting guidelines vary from bank to bank, sometimes varying within banks depending on the level of decentralization. Collateral appraisals are even more subjective as banks tend to deal with different real estate developers who provide with different data regarding the same subject. Hence there is not uniform set of criteria such as number of rooms of distance to the public transportation. Besides collateral valuation, the consumer evaluation is also an obstacle as the cash flow and income projections are based on the customers' verbal statement or their personal business records which are not transparent and reliable. ³⁰ Despite these difficulties, the inadequacy of housing stock in the capital city and raising demand for mortgage loans in recent years are leading to an increased lending to households as well as to construction sector. The consequences of which is the bank exposure to real estate risk, but it will bring a diversification to bank loan portfolio and increased profitability.

Secondly, in the last decade the microfinance industry has grown rapidly and the key microfinance institutions generated profits despite the low population density, the seasonality demand for financial services and very poor rural infrastructure. Micro loans represent a significant part in loan portfolios of several banks, namely Khan, Xac and Mongol Post banks. Majority of loans in microfinance are individually collateralized consumer loans with terms up to 12 months and they together serve for 70% of the existing market for both micro and SME lending (IMF, 2008).

3.4 TOTAL DEPOSITS

³⁰ USAID, Report to BOM regarding secondary mortgage market, 2007

Figure 7: Market share in total deposit in 2008 and 2009



Source: BOM

In total deposits, Golomt and Xac bank increased their shares, as opposed to Khan bank who has lost a modest share. The domestic deposits are relatively high in Mongolia compared to other developing countries. It is around 13% in Mongolia as compared to for example around 8% in Azerbaijan, 6.5% in Vietnam and 2% in Cambodia (Ianchovichina & Gooptu, 2008). This is mainly due to competition pressures in recent years that drove the deposit rate higher as well on the lending rate. Accordingly spread between the loan charge and deposit rate, the interest rate spread is again higher in Mongolia compared to those countries. This can be explained by the fact that banks prefer to increase the loan rate instead of assessing the associated credit risk through sophisticated risk management techniques. According to the firm findings of Mongolia's Investment Climate Report, the difficulty in assessing credit risk derives from a number of forces. Among which poor corporate governance and depicts in the transaction records of businesses are the main two obstacles that make it very difficult to assess the borrowers' creditworthiness.

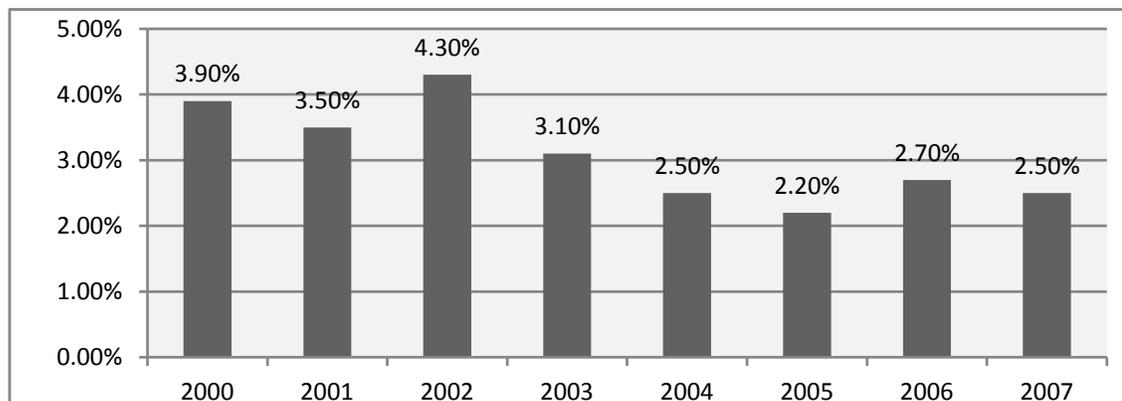
Overall, absence of insolvency standard, bankruptcy and the right of lending institutions in recovering the debts are directly linked to the high cost of bank operations in Mongolia. World Bank investment Climate survey data show that bankruptcy claimants recover only 17% of total claims from insolvent firms in Mongolia, on average, compared to 24% percent for East Asia as a group and 73.8% for OECD countries. In response, banks in Mongolia have been forced to rely entirely on collateralized lending and to charge high risk premiums on their loans to small businesses and individuals. In turn, the high collateral requirements translate into limited access to financing for the companies. The ratio of collateral required to loan value is 224% in Mongolia compared to the average for East Asia (78%), and Europe and Central Asia (154%) (Ianchovichina & Gooptu, 2008). Moreover, people in the rural area are more challenged since they have no assets in the forms as required by banks (buildings, house etc) as the land is not privately owned. Therefore those in the rural area have to pay exceptionally high interest rates for bank finances.

Chapter 4

4 MONGOLIAN BANKS PROFITABILITY

Mongolian banks on average are very profitable. In Figure 3, the time series of the sector's ROAA (after tax) is depicted. The peak periods of 2000-2003 reflects the benefits of ownership diversity, in the sluggish, inefficient state banks that were privatized during the period.

Figure 8: Time series of the banking system's ROAA (after tax)



Source: BOM

Rather stabilized and lowered profitability is due to regulatory rules and competition pressure among banks. If averages at 2.88% which is significantly higher than the other banking sectors around the world.

4.1 COMPARISON WITH CZECH BANKS AND TRANSITIONAL ECONOMIES

In Table 7, the largest three Mongolian banks are compared against the largest three bank of the Czech Republic and the average of the Eastern Europe as of 2008. Profitability of Mongolian banks, as measured by ROAA is noticeably higher than that of the comparisons, on average twice higher than Czech banks. In case of NIM, the performance is almost three fold higher for Mongolian banks.

Table 7: Selected performance ratios (in %), 2008

	Czech Republic			Eastern Europe	Mongolia		
	KB	ČS	ČSOB		Khan	Golomt	TBD
ROAA	1.94	1.88	0.13	1.8	3.9	1.81	2.67
ROAE	23.29	25.73	1.92	n/a	32.22	27.27	25.37
NIM	3.3	3.9	2.61	5.1	12.92	4.24	8.21
OOI/TA	1.8	0.83	-0.25	6.3	1.56	1.32	1.48
LLR/GL	3.2	1.93	1.63	6.3	2.67	3.3	1.55

Source: Bankscope. Note: OOI/TA: Other operating income over Total asset. LLR/GL: Loss Loan reserve NIM-Net Interest Margin.

Moreover, given the relatively long existence of bank institutions, the Czech market is much more penetrated and saturated than Mongolian market. Even though Mongolian financial market is small and growing fast there is still a gap in bank services, a large pool of underserved customers in the rural Mongolia especially. Recently banks are more active in exploiting the potential markets and extending their customer bases to those underserved customers. One such example would be microfinance field, which is completely absent in the western world. XAC, the fastest growing microfinance bank, is providing an electronic banking and payment services through a combination of mobile phone and cash-handling agents

in both remote and urban areas.³¹ Several banks started to engage in mortgage lending at certain extent which also resulted in new streams of revenue, supporting profitability.

4.2 COMPARISON WITHIN THE COUNTRY

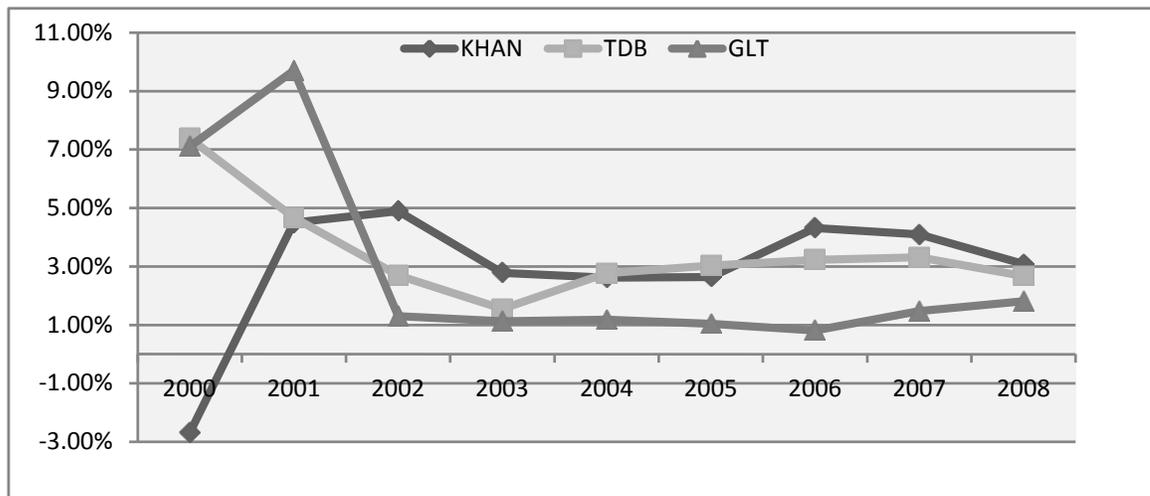
The above indicators displayed in Table 9 might be missing some information since it is based on indicators of only one financial year. In this session selected banks are grouped together and their performance over 2000-2007 is studied. The transition phase is left out of the analysis as it was the period when banks were in the non-standard economic environment which was characterized by serious problems connected with quality of bank loans and extremely volatile earning ability especially when measured by single creation indicators like ROAA. Therefore I prefer to analyze the bank profitability in period 2000-2007 when financial market and the macroeconomic conditions were rather stable and functioned normally.

Of total 15 banks, six banks consisting of the three largest and the three smaller banks are chosen. The existence of middle sized banks is hard to evidence in Mongolia as banks tend to fall into of two groups, either large with market share ranging between 18-25% or smaller with market share of 5-7% and the small banks with (see Figure 5 and 6). Nevertheless, these six banks together controlled approximately 81% of total banking assets as of 2007 therefore they can be considered be a well-defined sample of Mongolian banking industry.

Figure 9 illustrates the time series of ROAA of Mongolia's largest three banks, where at the beginning of the 2000s ROAA of Khan bank soared while TDB and Golomt banks' declined.

³¹ The more suitable terminology for this service would be Mobile-banking for Nomads.

Figure 9: Times series of ROAA of three largest banks of Mongolia, in (%)



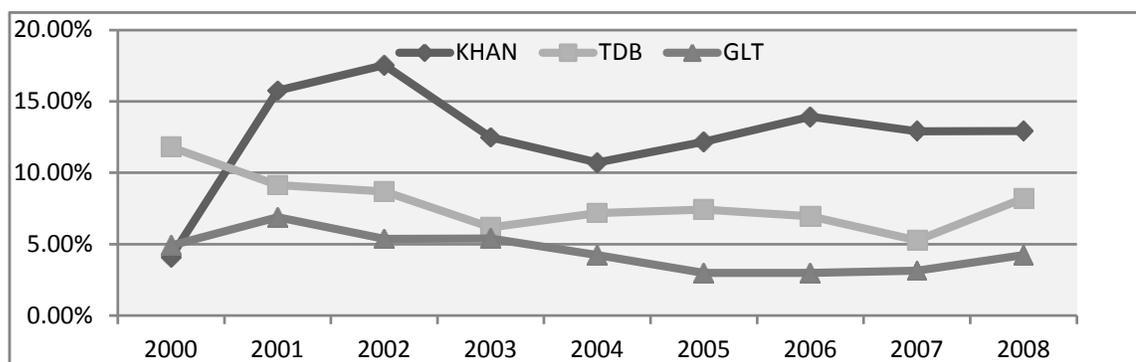
Source: Bank scope

Khan bank was established in 1991 for the purpose for supporting agricultural development and it inherited massive structure from the Monobank split including over 300 rural branches. But as was discussed in the previous chapter, it has gotten into problems involving liquidity and massive bad loan and several times were at the edge of bankruptcy throughout the 1990s. However, its role in providing financial services in the vast rural areas was vital; the government's support to the bank has been generous. Therefore sharp improvements in the financial condition of Khan Bank are derived from the implementation of memorandum of understanding that it signed with the BOM prior to 2000. Within the framework of the program, the bank exchanged its accumulated bad loans for the government bond and cash which was ultimately financed by the ADB and the WB. The managerial competence was also addressed; the US specialists and advisors were invited to provide technical, knowhow support and training. Khan Bank's high ROAA is fully attributable to its increased funding ability, enhanced asset quality and managing policy of skilled and experienced foreign bank specialists.

As for the TDB, one of the oldest (established in 1991) and the most profitable bank once, its ROAA had virtually been falling until 2002 when it was privatized. Although the bank is no longer the leader, its operations in foreign investment and the trading is the most active, currently handling near 50% of all foreign transactions (ADB, Loan and Equity Investment in Mongolia: TDB, 2008). It was the first Mongolian bank to have issued foreign currency denominated note on the international bank and currently holds the largest portfolio of foreign asset. Its performance is linked its ability to raise cheaper funds from international affiliates and financial organizations which enabled it to provide long term loans to its clients at lower interest rate. Thanks to its owner, one of the leading US merchant bank TBD banks activities resembles the most the western investment banking.

Since 2002 profitability the banks has been stabilized and tended to converge. The most profitable banks, Khan bank and TDB are both private banks with foreign ownership. Golomt, the least profitable bank among the three is a pure domestic bank. The importance for ability to finance loans, equity base and foreign management skill seem to be the main reason behind difference in the profitability. But the average ROAA over the period is 3.6% for those three banks which is a satisfactory performance.

Figure 10: Time series of NIM of the largest three banks



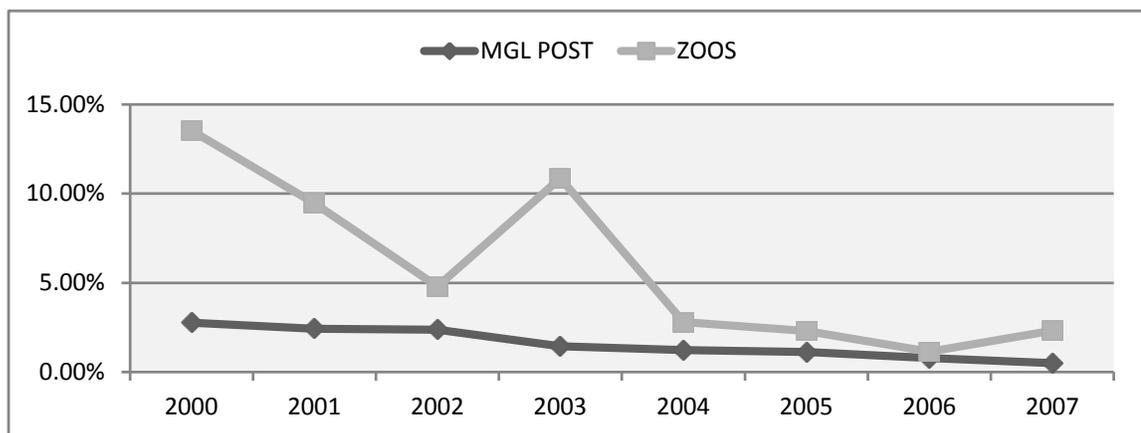
Source: Bankscope

The pattern of NIM of the three tells much of the same story: a moderate fluctuation in the beginning of 2000s and the stabilization since 2002. Khan bank again outperforming its competitors and Golomt bank being the least profitable, however when averaged the NIM of the three is 8.28% which is higher than that of the Czech market data over the same period (See Figure 10).

In the following figure, the ROAA of small-sized three banks' (with 5.8-6.3% market shares) is depicted.

Zoos bank, a privately owned domestic bank, was the highest profitable at the time of its establishment in 1999 and the following year. But since 2000 its ROAA has been falling except the short recovery it experience in 2003. It granted loans to entities whose businesses were extremely sensitive to macroeconomic conditions. Its asset quality significantly worsened following the defaults of those companies which indeed is the very reason caused the bank to bankrupt in 2008.

Figure 11: Time series of ROAA of the smaller two banks



Source: Bankscope

As for the Mongol Post bank, its main competitor Khan bank strengthened in the rural Mongolia where its main operations are concentrated. Drop in the ROAA of most banks (except Khan bank) at the beginning of the period is mostly due to competition pressure among banks. In 2000-2002 the number of banks increased

the most and the existing banks began to reduce and even abolish some of fee and commissions charged for cash withdrawals, wire transfers and other type of banking services. According to the BOM in 2000-2002 banks, especially Golomt and TDB have subsequently reduced their commissions, for example, for domestic currency withdrawal and payments in foreign and domestic currencies while Post bank set a fixed fee for those services.

The third small-sized bank, whose series is not displayed in Figure 12, is Xac bank and was established in 2004. It specializes in microfinance and is currently considered to the fastest growing bank in terms profitability growth. Xac bank obtains its funding mostly from donor investments (rather than deposits) of international organizations such as ADB, the WB, and the European Bank for Reconstruction and Development (EBRD).

Therefore, given the fact that profitability of smaller banks over the same period is 2.4% as compared to the 3.5% of the largest three banks, one can conclude that the on average smaller banks tend to be less profitable than the larger banks.

4.3 PROFITABILITY AND SIZE: DOES SIZE OF A BANK MATTER?

On the basis of group analysis in the previous part, it was noted that the earning performance of larger banks are better than that of smaller banks in general. But does asset size really matter? Does a smaller bank always have a lower profitability than a larger bank?

According to the theory of economies of scale and scope the larger size benefits banks in terms of better cost structure which accordingly leads to a higher profitability. Economies of scale and scope occur when average cost declines as output expands and more products are produced jointly. In case of banking industry, banks with physical branch distribution network, infrastructure software

and electronic distribution system perform more efficiently, realizing economies of scale and economies of scope can be explained by bank ability to use the same delivery mechanism to provide more services. ³² But bank size effect on bank profitability is mixed in empirical studies. Bank size can in general reflect higher risk. As it happens, the state rescue large banks under the „Too big to fall“ , a risk associated with size would require banks to have lower profit through lower interest charged to borrowers. Sinkey (1998) documents that ROA declines as bank size increases and variability of ROA increases as well with bank size .³³

For this reason, a hypothesis that a bank asset size does lead to a higher profitability is examined for the same sample of Mongolian banks as was chosen in the previous part. When the banks are grouped the above statement seems to be valid for Mongolian banks but in case of individual banks the profitability situation varies greatly.

Table 8: A comparison of ROAA of the largest two commercial banks

	Khan bank			Golomt Bank		
	2007	2006	2005	2007	2006	2005
ROAA (after taxes)	4.1	4.32	2.64	1.47	0.81	1.04
Tax Margin	1.3	2.12	1.40	0.36	0.35	0.46
ROAA (before taxes)	5.4	6.44	4.04	1.83	1.16	1.51

Source: Bankscope and own calculation

For example, let’s take two banks, Khan and Golomt, who have 18.82 and 20.2% of market share in 2007, respectively. But despite their similar sizes Khan is

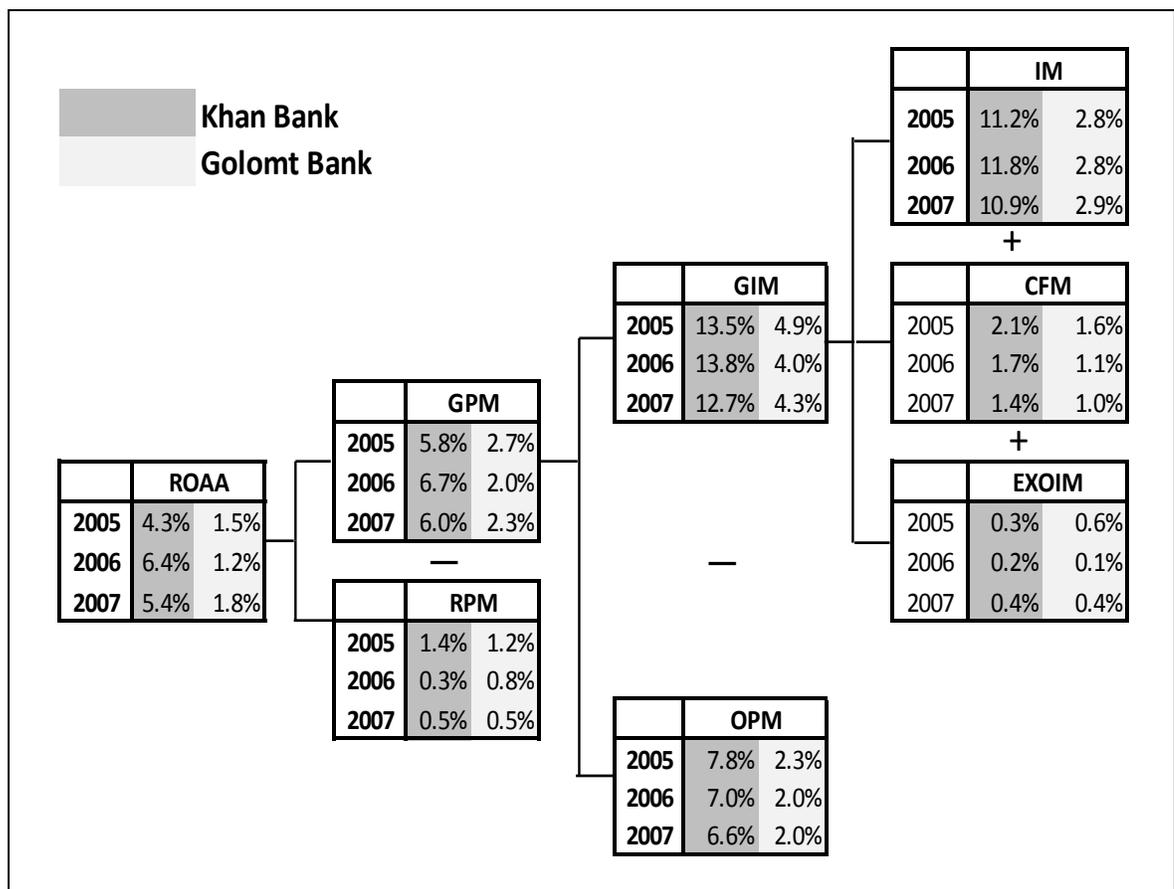
³² See Fernando Luiz, 2002.

³³ See Sinkey (1998), page 95.

operating consistently better than Golomt bank, with average ROAA that is 3.5 times larger than that of Golomt bank (see Table 8).

To figure out where the difference in performance emerges from, the extended decomposition of ROAA, as introduced earlier, is conducted for all the sample banks for three subsequent years, 2005, 2006 and 2007. The figures for calculation of individual items on the scheme are found on the financial statements of the banks on Bankscope, a database comprised by Fitch and Bureau Van Dijk. In addition, ROAAs calculated here on before taxes basis, leaving the tax effect on the ROAA.

Figure 12: DuPont Demposition of selected banks



Source: Bank annual reports from Bankscope, own calculation.

A summary comparison of key features observed in the scheme is discussed below.

Very high Interest Margin in Khan bank as indicated by IM. Khan bank is able to charge much higher (three times higher rate set by Golomt bank, sometimes the highest annual effective rate in the sector) interest rate for its loan products.

Insignificant fee and commission income in both banks. Incomes from commissions and fees appear to be moderate to low in both banks and show a declining trend. It might be so because the banks increased intention to compete by lowering their commissions to attract consumers rather than lowering their interest rates which is the main source income.

The fee/commission to interest income ratio also reveals level of about the banking sector sophistication. As was mentioned before fee and commission can be charged on services such as ATMs, trade financing, cheques and advisory service which lead in usage and access to banking sector. Therefore the low level of such income indicates the lack of sophistication as well as penetration of the banking sector.

Higher operating expense in Khan Bank with a tendency to increase. Operating expense is higher for Khan bank mainly due to high investment in its rural. For example in 2007 Khan bank opened 43 new branches whereas Golomt bank opened only 12. (BOM, 2007). But its higher operation cost is well covered by high interest rate incomes.

Declining RPM. RPM is falling in both banks with a slightly higher speed in case of Khan bank indicating the improvement in asset quality. The falling reserve for lost loan at both banks can be (partially) explained by the total loan growth in virtually all banks.

Overall, as Khan bank's average IM is four times larger than that of Golomt bank, the difference in above two banks' ROAA is undoubtedly related to interest rate they charge for the loan products and associated interest rate setting policies and power.

For the rest of the sample, the above calculations are performed for the smaller three banks that have a compatible market share: Zoos bank 7.8%, XAC bank 4.7% and Post bank 8.3%. The result is summarized Table 11.

Table 9: DuPont decomposition for selected banks, in (%)

	ZOOS			XAC			POST		
	2007	2006	2005	2007	2006	2005	2007	2006	2005
IM	5.02	5.39	6.93	8.70	11.33	12.28	4.06	5.11	5.61
CFM	0.55	0.70	0.76	1.25	1.43	1.50	0.28	0.18	0.40
EXOIM	0.94	0.17	0.38	0.26	0.33	0.43	2.34	0.80	0.97
GIM	6.50	6.26	8.06	10.20	13.08	14.21	6.68	6.09	6.97
OPM	3.53	4.09	4.79	7.10	9.09	9.78	4.48	4.03	4.52
GPM	2.98	2.17	3.27	3.10	3.99	4.43	2.20	2.06	2.45
RPM	0.88	1.13	0.76	0.25	0.52	-0.29	1.65	0.86	0.73
ROAA	2.09	1.04	2.52	2.85	3.47	4.72	0.55	1.20	1.72

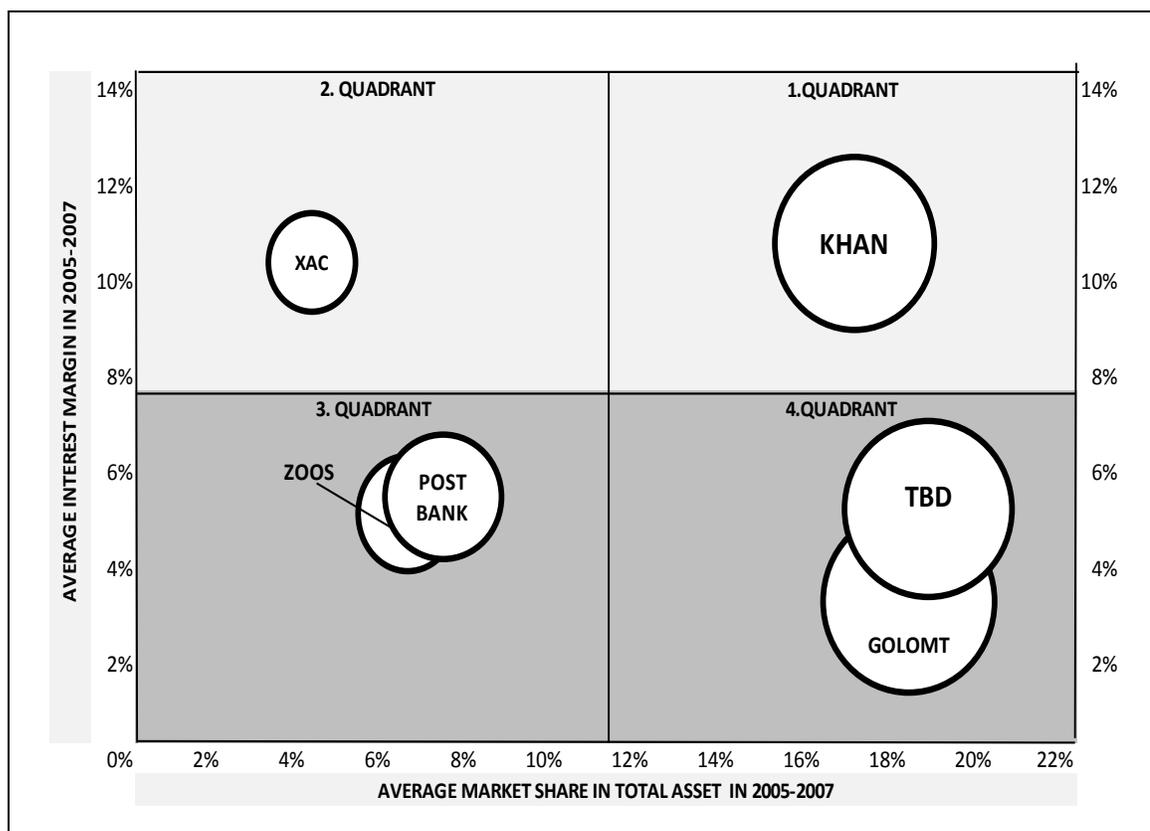
Source: Bankscope and own calculation

XAC banks ROAA outstands out despite the fact that it has the smallest market share. The driver behind is again the very high interest income which indeed is as high as Khan bank's IM while its asset is 4 times smaller than that of Khan bank. Although its IM and GIM as well as ROAA are falling but so are the indicators of other banks.

In the Figure 14 the whole sample is represented. The horizontal axis measures the profitability or ROAA and the vertical axis reflects the market share as measured by the bank asset over total banking sector asset. The size of the bubble reflects the bank size. According to the above hypothesis banks with should be located in the first quadrant, as they will accordingly endure lower cost and

generate higher profit. The smaller banks should be at the left lower corner, the 3rd quadrant. The graphical presentation reveals that this is invalid at least for Mongolian case. The banks with higher market share (Golomt and TBD) are located in the lower profit part (the lower half of the area) together with the banks with 3-3.5 times smaller market shares are allocated.

Figure 13: Comparison of sample banks in terms of bank size and interest profit margin



Source: Bankscore, BOM and own calculation

Moreover, these smaller banks, Zoos and Post, are producing as high ROAA as the Golomt and TBD banks. Most interestingly, XAC bank who has smallest market share is in the high profit quadrant, almost at the same level as Khan who has at least 4 times larger asset. The reason for the performance diversities can be revealed through deeper analysis of interest incomes bank receive as well as their

respective pricing policies. Unfortunately for neither of them the bank statements on hand don't provide data for and moreover the pricing policy cannot be studied in the financial statements.

On the other hand, balance sheet structure can also be used for the explanation bank interest incomes. It is useful to examine the weights of interest generating assets for the subsample of banks (excluding the two exceptional banks Khan and XAC) as it will contain four remaining banks that are rather "normal" representatives large and small banks as related to profitability.

Loan product of banks consists of two packages, customer/corporate loan and capital market activities, i.e., interests on securities including government bonds. In Table 10 the loans and trading securities for subsample of the bank is compared for the period of 2005-2007. The smaller bank not only have bigger loan profiles but also hold less of trading securities which in most cases is only government bonds paying off risk free interest rate. On average the large banks hold approximately twice as much investment securities than the smaller banks in the subsample, and as for the Khan bank it has similar weight of securities as Golomt and TBD.

Table 10: Loans and securities held by subsample banks as a percentage of total assets

	ZOOS			POST		
	2007	2006	2005	2007	2006	2005
LOANS	64.0	63.0	68.9	61.7	59.1	56.0
SECURITIES	0.2	1.6	3.1	1.8	8.2	13.1
	GOLOMT			TBD		
	2007	2006	2005	2007	2006	2005
LOANS	49.28	49.50	48.3	68.6	56.3	51.8
SECURITIES	5.7	4.2	7.3	8.2	6.5	15.4

Source: Bankscope, own calculations

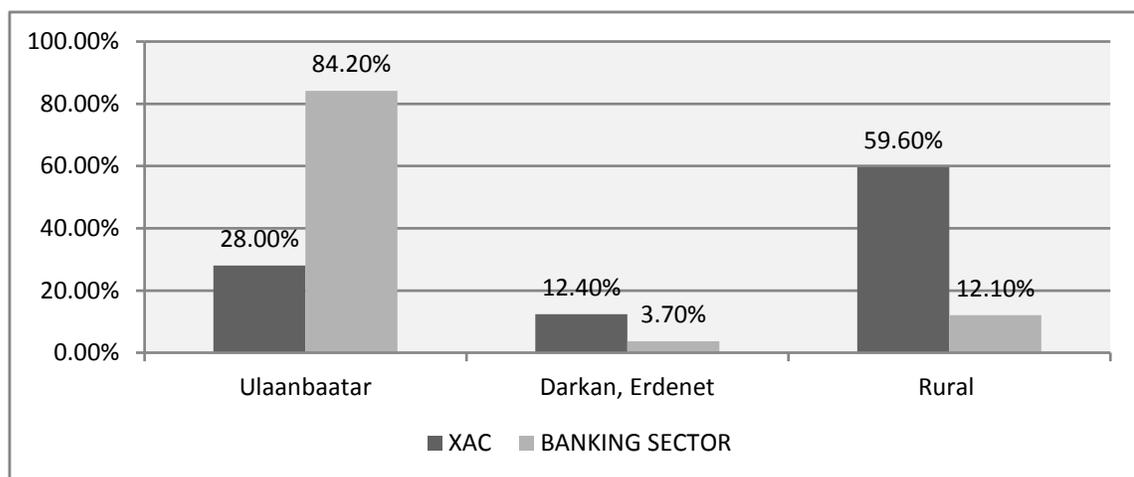
Zoos and Post banks consistently the share of securities in the total asset and increased their customer loans. The tendency to hold less and less of securities that yield low return and more of higher interest income earning products certainly generates higher profitability. On the contrary, the larger two tended to increase their security shares and in case of Golomt bank its loan to customers/corporates are basically frozen whereas it holds the largest share of loans and advances to other banks (3-6 times larger). It is difficult to provide clear and unambiguous explanation for this different strategic behavior of the subsample banks. Nevertheless, the larger banks give preference to more liquid assets with lower interest income and are more risk averse. The smaller banks are those who are usually very young and eager to provide loans that are certainly riskier for them. To reflect this fact the smaller banks with more loans should have larger reserve for the loss loan and however their reserve is the same as the large banks, even the larger banks tend to have higher ratio of loss loan reserve compared to the small banks. Therefore this behavioral difference amongst subsample banks is may be connected to the past experience and troubles the larger banks have been into in the past.

Of the sample studied, the strongest violation of the hypothesis was found for the smallest bank XAC, yet the second most profitable bank after Khan bank. As was mentioned before they have something in common: the microfinance. Microfinance, often defined as financial services for poor and low income clients, has grown rapidly in the last decade in Mongolia. These institutions involved in microfinance utilize techniques such as to make and manage very tiny uncollateralized (in most cases) loans. These techniques include group lendings and liability, pre-loan saving requirements, graduated loan sizes, and the most importantly an implicit guarantee of quick access to future loans if present loans are repaid promptly. (Gonzalez & Rosenberg, 2004).

Their high profitability was directly connected to very high interest margin, 2-4 times higher than the rest of the sample. They could charge for exceptionally

high rate of interest thanks to very low market penetration in the rural area where a half of the population is scattered through. Most banks are discouraged to operate in the rural due to several reasons, the biggest being the lowest population density. 35% of population lives in rural areas as semi-nomadic herders despite the fact that the total area for the rural market is 85 times larger than in urban areas (Hishigsuren, 2006). The scattered population in the countryside directly translates into uneven and dispersed demand for financial services. Moreover low economic activity, seasonal fluctuation in household income and lack of collateral for make the rural costumers more risky compared to urban economic units. Of 15 commercial banks only three banks, Khan, XAC and Mongol Post banks have a wider network of rural branches. In terms of product variability and number of branches Khan certainly is the leader. Khan bank had 466 branches throughout the county while Mongol Post 230 and XAC have 40 branches (BOM, 2007). Average outstanding loan with size of USD 389 takes up 90% of all lending in rural areas in Khan bank (Gutin, 2005). The Figure 15 reveals the significant position of XAC bank especially in the rural area.

Figure 14: Share of Loan Portfolio of XAC bank by location



Note: Darkhan and Erdenet are cities besides Ulaanbaatar, the capital city. Source: Hishigsuren, 2008

Common sense suggests it is a risky business to lend to lower income individuals/consumers but the experience is not only in Mongolia but also in other developing countries such as Bangladesh, shows that these customers honor their loan commitment well because of community pressure and fear of losing the chance to lend in future. Besides loans are granted with very short maturity often up to 1-3 years and installments are more frequent to lower the default risk.

Reaching the underserved people in the sparsely populated area where the administrative cost of lending is high the corresponding interest rates should be high to cover these costs. But there is another side to the story: it is one thing that the banks serving rural customers are profitable and it is another thing if their services are really contributing to the lives of the poor who are paying high interest rates. The conventional wisdom has been that microfinance clients are relatively insensitive to interest rates (Gonzalez & Rosenberg, 2004), but it should not entirely encourage banks to charge high rates.

With very frequent loan installments and high interest payment one side and the lower economic activity and household income on the other side, the question whether the rural business units/individuals are able to generate profit for themselves and improve the quality of their lives, is very hard to justify. It would be a high price to pay if these poor customers are working just to repay the bank interest rates. In this is the case the only ones benefiting from the microfinance would be banks themselves, not the poor customers as many others think and it should be of an important political concern.

CHAPTER SUMMARY

While the overall banking sector's performance is fairly good, the individual banks' performance tends to vary a lot. Larger banks with the biggest market shares in total lending and asset market were able to generate the higher profit. As opposed, the smaller banks are less profitable. As far as the ownership concerned,

those with foreign investment and management are evidently outperforming the pure domestic banks. The foreign invested banks have also wider access to international financial markets and are able to finance the loans with cheaper offshore funding than the domestic banks.

Based on the group analysis, a hypothesis that the large banks always generate higher profit than the smaller banks was set up and tested for the sample banks. The extended DuPont decomposition of bank ROAAs was performed on the sample banks. It provides a well-organized insight in the profitability structure of banks, using the data from the financial statements only. It was found that the larger banks are not always dominant over the smaller banks in terms of profitability. The diversity in the profitability is explained mainly caused by the interest rate differentials on loan products and the asset structure of the banks. The subsample banks analysis indicate that the larger banks are more risk averse holding more of liquid assets and tend to limit their customer loan as opposed to smaller banks constantly granting more loans and hold less trading securities and government bonds that yield low return. As core business of commercial and retail banking is issue loans and invest into them, therefore banks should apply more sophisticated credit risk measurement and management techniques that would help them manage the risks associated rather than avoiding it.

When bank product strategy is considered, the banks specializing in microfinance generate much higher and persistent profit. It refers to Khan bank, the best among the largest three and XAC bank, the best performing bank among the smaller banks. They both have a significant rural presence and recognize the informal lending sector³⁴ as a real potentiality for their further growth. Whether

³⁴ Informal sector consists of individual traders and enterprisers engaged in activities such as taxi drivers, retailing through pavement kiosks, meal preparation and sale, offering of pavement based mobile phone services. Such persons are registered at local authorities to pay a flat tax in lieu of calculated income tax.

they have a larger market share it could maintain high lending rate thanks to less competitive pressure.

There are two regulatory and political concerns arising from above discussions and analyses. Firstly, small sized banks are much more aggressive in their lending activities. They seem to trade the prudence indicators for the profitability indicators. The reserve for loss loans are of similar as the larger banks who hold relatively more equity capital and less loans on the balance sheet. Even if they are small in size, If times go wrong they are the ones who are most likely to run into liquidity problems, jeopardizing the customer deposits in extreme cases and moreover threatening the stability of the banking sector as a whole.

Second one concerns the exceptionally high interest rates charged by microfinance banks for loans provided to rural customers. Banks are evidently benefitting but it does not always mean that the customers are benefitting as well. The various evaluation programs of microfinance institutions mostly highlight the increasing numbers of rural customers served or the increasing total amount of loans granted. But the true welfare of those customers, if their quality of life really improved thanks to micro loans is often left uninvestigated and ignored at least in case of Mongolia. The hidden agenda here is that the poor might be feeding the banks, not the other way around. Therefore it calls for such an evaluation with wider and deeper scope, addressing the customers' welfare and benefits directly.

The analysis has its limitations as well. It was based mainly on the income side of profitability. Therefore it "practically" ignores the asset and liability structure of bank balances, the maturity of the liabilities, the ability and willingness to turn the funding into interest generating assets, cost efficiency and their impacts on banks' profit. Data used was also limiting as they were collected on annual bases; monthly or quarterly data would have provided more detailed pictures, seasonal fluctuations in income generation and profitability as well. However for these kind

of analyses information on a higher level would be need rather than the published financial analysis.

Chapter 5

5 DETERMINANTS OF BANK PROFITABILITY IN MONGOLIA

This part of the thesis studies the determinants of profitability in Mongolia banking sector as a whole in the post-reform period 2000-2007. The purpose of this part is to study how profitability is affected by bank specific variables such as credit risk, cost management efficiency, loan intensity and the of course, the market share.³⁵ Most empirical studies on bank profitability include macroeconomic indicators such as Gross Domestic Product (GDP) growth and inflation. I did not opt so because of properties of time series variables will be challenging to verify given the very short period time considered contributing to the limitation of the model. The main goal of this simple econometric regression is to verify the hypothesis of the bank size effect profitability discussed and analyzed in the previous chapter.

5.1 DATA AND METHODOLOGY

Balanced annual panel data for 6 commercial banks, those discussed in the last part, of 8 periods, thus total 48 observations are considered. The same sample banks are chosen as in the previous for the sake of consistency of the two analyses.

³⁵ I attempted to include as less independent variables (those who are most relevant for the sample) as possible in order not to lessen the degree of freedom due to the small sample size.

Bank-specific variables were calculated from financial statement of banks on Bankscope.

The following general linear model is employed for the estimation:

Model 1: A linear model for the ROAA and selected independent variables

$$ROAA_{i,t} = \alpha + \sum \beta_{i,j} * X_{i,j} + \sum \gamma_{t,m} * Y_{t,m} + \varepsilon_{i,t} ,$$
$$i = 1, \dots, 5 \text{ and } t = 2000, \dots, 2007;$$

where α is a constant, $ROA_{i,t}$ is the return on asset of i-th bank for period t. $X_{i,j}$ denotes the set of bank specific variables (j=) and $Y_{t,m}$ represents macroeconomic variables (m=1,2) and $\varepsilon_{i,t}$ is the error term.

5.1.1 DATA DESCRIPTION

Bank profitability is proxied by different indicators in empirical studies. The most studies focus on ROE, ROA or Profit margin. Focusing on a profit margin highlights critical components of, and the way to get to, a bank's bottom line: net interest income, provision for loan losses, and net non-interest burden (noninterest income minus noninterest expenses).³⁶ ROE, defined as after tax profit over book value of equity is another measurement of bank profitability. Mongolian banks equity was artificially changed and diluted many times during the transition period, therefore ROE is not an appropriate measure of bank profitability in Mongolia. As ROAA accounts for financial leverage and risk associated with it, ROA is the best and most comprehensive accounting measure of a bank's overall performance.

³⁶ See (K. Sinkey, 1998), page 100.

The capital ratio (CAP), determined as the total equity over total asset, indicates the capital adequacy and overall financial stability. As a general rule, the higher the ratio the more sound the bank. Higher profitability is reflected as well by the higher capitalization in a sense that, by holding higher capital bank is more immune against future probable losses, it can be encouraged to engage in more risky assets that yielded higher return, thus fostering a higher profitability. There are other channel through which the two are related, for example through lower funding³⁷ costs or through prudent lending³⁸. Empirically, Berger (1995) and Goddard (2004) provided an evidence of positive relationship between profitability and bank capital ratio for the United States and European banking systems, respectively.

The asset composition (LOA) which is proxied by total bank's loan divided by total asset is a measure of income source. The more loans bank grant the more it earns on interest rates and is expected to have positive relationship with bank performance. The profitability is influenced by the banks ability to transfer the deposits into loans, other things being equal. But on the other hand with rapidly increasing loans banks are required to endure higher costs for funds and this could also have to a negative effect on profitability.

Cost Management Efficiency (CME) is proxied by the the ratio of non-interest expenses to total assets. A positive association is expected when a bank is able to transfer a part of operating cost to its clients (depositors and borrowers) through charging high commissions and fees.

³⁷ See Martinez-Peria and Schmukler (1998) for more on depositor market discipline and bank's ability to to lower their funding cost.

³⁸ Banks with high franchise value, measure in terms of capitalization-have incentive to remain well capitalized and engage in prudent lending. See Garcia-Herrero, Gavila and Santabarbara (2009).

Bank size (BSZ) is an important factor determining profitability. Number of ways are introduced by scholars/academists to proxy the variable, for example market share (ratio of each bank's total asset to that of whole banking system) or by concentration (Herfindahl-Hirschman index, or ratio of each bank's total outstanding loan to the net credit of the country). I opt for rather rough proxy measurement, a ratio of each bank's total asset to overall total asset over banking sector total asset.

The expected sign of the variable is ambiguous. Using market data (stock prices) instead of accounting measures of profitability, Boyd and Runkle (1993) find a significant inverse relationship between size and rate of return on assets in the U.S. banks from 1971-1990, and a positive relationship between financial leverage and size. Berger, et al. (1987) develop a set of scale and product mix measures for evaluation the competitive viability of firms, and apply it to 1983 data. They showed that as product mix and scale increases, banks experience some diseconomies, implying a negative relationship between size and firms.³⁹ Also most studies have shown the presence of economies of scale (benefits derived from the production of a large quantity of a product) for banks that have assets USD 1 billion to USD 15 billion⁴⁰ and anything more than this amount leads to diseconomies of scale. As related to economies of scope (benefits gained from the production of a variety of products) majority of studies show insignificant results. Therefore it can be assumed that since the size of the sample banks fall between the specified range there could be a positive relationship between size and the bank but the magnitude of can be small.

³⁹ Flamini, McDonald and Schumacher (2009).

⁴⁰ www.islamicbanker.com/islamic-bank-size.html

5.1.2 METHODOLOGY

Given the nature of the dataset (closed, exhaustive), the most intuitive way to account for the individual behavior of banks is to assume that some of the regression coefficients areas allowed to vary across individuals or through time. The natural candidate therefore here is the *fixed effect model* (FE). But Pooled OLS was used to estimate the Model 1 as a cornerstone and as a comparison to FE.

Table 11: Pooled OLS estimates (robust) of the Model 1

	Coefficient	Standard Errors	T-Statistics	P-value
Constant	0.00936844	0.00783714	1.195	0.2385
CAP	0.0873497	0.0163077	5.356	3.13e-06 ***
LOA	0.00127049	0.00143271	0.8868	0.3801
CME	0.0954410	0.182528	0.5229	0.6037
BSZ	7.88673e-05	7.38516e-05	-1.068	0.2915
Related Statistics				
F-statistic (4, 43) = 5.562981 (p-value = 0.00136)			Durbin-Watson statistic = 1.00611	
Sum of squared residuals = 0.015207			Standard error of residuals = 0.0188	
Unadjusted R-squared = 0.341016			Adjusted R-squared = 0.279715	

Only two variables appear to be significant, CAP was expected however MPR is unexpected, if we remember the modest income generated for the banks from sources other than loans. R-squared is 34%, a rather poor fit. In other words, the independent variables explain only 34% of variability in the dependent variable. The fit will be better if more independent variables are added to the model which however will result in loss of degrees of freedom and is not recommended. As indicated by F-statistics with a very low p value, the independent variables are jointly significant in explaining the dependent variable. But before even interpreting the result, if the data is poolable at should be checked. In addition, the test for the fixed effect in Pooled OLS will be tested as well.

- **Test of Poolability (Chow Test)**

Chow tests checks the stability of the regression parameters over the groups, in our model we are testing whether the 5 regression coefficients are stable through the 6 banks. The test is:

$$H_0 = \beta_i = \beta \text{ for all } i \text{ against } H_a: \beta_i \neq \beta \text{ for at least one } i, i = 1 \dots 6$$

F-statistics for the Chow test is calculated according to following formula:

$$F_{K(N-1), N(T-K-1)} = \frac{(RSS-URSS)/K(N-1)}{URSS/N(T-K-1)}$$

And in the Pooled Model K=4, N=6, T=8, F statistics is:

$$F_{(25,24)} = 2.0044 \text{ (} p \text{ value} = 0.014)$$

The Restricted and Unrestricted Sum of Squared Residuals, RSS and URSS, respectively are estimated by entering following input to Gretl console:

Input to Gretl console:

```
? urss=0;
Generated scalar urss (ID 9) = 0
? loop i=1..6
Enter commands for loop. Type 'endloop' to get out
> smpl $i:1 $i:8
> ols ROA const CAP LOA CEM MPR
> urss=$ess+urss;
> smpl full
> endloop

? ols ROA const CAP LOA CEM MPR --quiet
? rss=$ess;

Generated scalar rss (ID 10) = 0.0149991
? a=((rss-urss)/20)/(urss/18)
Generated scalar a (ID 11) = 2.0044
```

The critical value for F statistics is 2.0044 with corresponding p-value which is greater than the 0.05, or the 5% level of significance. Therefore we cannot reject the null hypothesis; in order words the data is poolable.

- **Test for Fixed Effects in the Pooled OLS**

The test for the fixed effect in the Pooled OLS is rather straightforward since it is performed by the software automatically if we estimate the same model Fixed Effect method. The output of the regression is found in the below:

Table 12: Fixed-effects estimates (robust) for the Model 1

	Coefficient	Standard Errors	T-Statistics	P-value
CONST	0.01589	0.00420	3.782	0.0005 ***
CAP	0.112327	0.00835	13.45	5.04e-016 ***
LOA	0.002693	0.00054	4.974	1.44e-05 ***
CME	0.12999	0.10365	-1.254	0.2174
BSZ	2.20099e-05	2.06264e-05	1.067	0.2927

Related statistics:

Standard deviation of dep. var. = 0.022159	Sum of squared residuals = 0.009485
Standard error of residuals = 0.015678	Unadjusted R-squared = 0.5952
Adjusted R-squared = 0.49938	F-statistic (9, 38) = 6.209292 (p-value 0.00002)

The null hypothesis for the fixed effect in the Pooled OLS is:

Null hypothesis: The groups have a common intercept

Test statistics: $F(5, 38) = 4.7735$ with p-value = $P(F(5, 38) > 4.7735) = 0.0017549$. If the chosen level of significance is $\alpha = 5\%$ the null hypothesis is rejected since the p value is smaller than 5% level of significance.

Since the associated P-value with the F statistics is larger than 0.05, or the 5% level of significant, we fail to reject the stability of the coefficients across the groups; as such the data is poolable. The hypothesis that the intercepts are the same for all banks was rejected supporting the logical and intuitive presumptions (a small set of units favor) for the Fixed Effect Model. Even though the Pooled OLS could be an option the standard errors of the coefficients much larger than the FE estimates. All these evidences favor the FE method; therefore the results of FE estimates displayed in Table 12 will be used for further interpretations.

5.2 REGRESSION RESULT

The joint significance of the independent variable is very well as indicated by the corresponding p-value of the F statistics. Taking into account the fact that few independent variables were used in a very small sample, the overall fit of nearly 50% should be considered as a fairly well fit as the adjusted R-squared shows. The signs of the variables are as expected.

In terms of both magnitude and significance, the CAP, own capital of bank appears to be the main indicator, meaning that the well capitalization is the key to high profitability for the Mongolian banks. Mongolian banks hold approximately 1.75 higher risk weighted capital than internationally accepted 8% CAP.

Second to CAP, the LOA, the loan share in the total asset is found to be significant. It was noted that incomes are generated mainly through interest margins in Mongolian banks which is a feature of traditional cash economy. Banks should invest into activities that would generate more income streams outside the loan business which will bring diversification in their profit.

CME, determined as the total non-operating expenses over total asset is negative; however is insignificant implying that the Mongolians banks are not able

to pass part of their non-operating expenses costs to the customers and it is done usually through raising fees and commissions. It is consistent with the previous analysis where the profit margin of commission and fee income was modest to insignificant.

Lastly, the coefficient of bank size, variable BSZ, is positive supporting the theory of economies of scope and scale, it is nearly zero and insignificant as expected. In other words, it has almost no effect on bank profitability; banks with a large share market share in asset (loan, deposit) do not necessarily enjoy a cost advantage against other banks. Together with CME, it reveals the inefficiency of Mongolian banks in managing costs.

5.3 CONCLUSION

It is a consensus that a strong and sound banking sector is a prerequisite for persistent economic growth. Therefore it is important to determine the main drivers behind bank profitability in order to sustain their soundness and support stability of the financial sector. Banks with more equity capital are presumed to be more reliable and safe, realizing an advantage that directly linked to the bank's performance. The analyses showed that the interest spread is an important determinant of bank profit especially where there is low competition pressure. As such, it is the quality of the loan that matter the most, not the size of the loan or the size of the total asset.

6 Bibliography

- ADB. (2008). *Financial Sector In Mongolia-Transition to a Market Economy Built on Successful Financial Reforms.*
- ADB. (2008). *Loan and Equity Investment in Mongolia: TDB.*
- Bessis , J. (2002). *Risk management in banking.*
- BOM. (2008). *Bank of Mongolia Monetary Survey.*
- Čech, Z. (2003). The Financial Intermediation and the Role of Banking Sector in the Czech Republic.
- Coricelli, F. (1998). *The Financial Sector in Transition: Tales of Succes and Failure.*
- Dermine, J. (2009). *Bank Valuation and Value-based Management .*
- F. Brigham, E., & C. Ehrhardt, M. (2008). *Financial Management: Theory and Practice.*
- F. Sinkey, J. (1998). *Commercial Bank Financial Management.*
- Fernando, L. (2002). *Expansion strategies of banks: does size matter?*
- Flamini, V., McDonald, C., & Schumacher, L. (2009). *The Determinants of Commercial Bank Profitability in Sub Saharan Africe.*
- Garcia-Herrero, A., Gavila, S., & Santabarbara, D. (2009). *WhatEexplains the Low Profitability of Chinese Banks?*
- Gonzalez, A., & Rosenberg, R. (2004). *Findings from a database of 2600 microfinance institutions.*
- Gutin, J. (2005). *Khan Bank, The Agricultural Bank of Mongolia.*

- Heffernan, S. (1996). *Modern Banking in Theory and Practice*.
- Hishigsuren, G. (2006). *Information and communication Technology and Microfinance: Options for Mongolia*.
- Ianchovichina, E., & Gooptu, S. (2008). *Growth diagnostic for a Research-Rich Transition Economy: The case of Mongolia*.
- IMF. (2008). *Mongolia: Financial System Stability Assessment*.
- IMF. (2009). *Mongolia: Microfinance and Financial Sector Diagnostic Study*.
- Jeucken, M. (2004). *Sustainability in Finance: Banking on the Planet*.
- K. Sinkey, J. (1998). *Commercial Bank Financial Management*.
- Khulan, A. (2005). *Position of Banks with Foreign and Government Participation in the banking system*.
- Mejstřík, M., Pečená, M., & Teplý, P. (2008). *Basic Principle of Banking*.
- Mejstřík, M. (2004). *Cultivation of the Financial Market in the Czech Republic*. Karolinum.
- MSO. (2008). *The Yearbook*.
- Popa, G., & Mihailescu, L. (2009). *EVA-Advanced Method for Performance Evaluations in Bank*.
- Rezaee, Z. (2001). *Financial Institutions, Valuations, Mergers and Acquisitions: The Fair Value Approach*.
- S. Robbins, G. (2000). *Banking in Transition: East Germany after Unification*.

- Shagdar, E. (2007). *Neo-Liberal "Shock Therapy" Policy During the Mongolian Economic Transition.*
- Slok, T. (2000). *Monetary Policy in Transition: The case of Mongolia.*
- Teplý, P. (2002). *Řízení Úvěrového rizika v Českých Bankách.*
- Teplý, P. (2002). *Řízení Úvěrového Rizika v Českých Bankách.*
- Tomlinson, R. (1998). From Genghis Khan to Milton Friedman. *Fortune.*
- Tserenpil, Harrington, & Molomjamts. (2000). *Mongolian Economy: Money and Finance.*
- USAID. (2007). *Report assistance to the Bank of Mongolia with development of policies and regulations to support secondary mortgage market development .*
- Vít , B., & Singer, M. (2005). Banking sector after 15 years of restructuring.
- WB. (n.d.).
- Wet, J., & Hall, J. (2004). *The Relationship between EVA, MVA and leverage.*
- WorldBank. (2009). *Mongolia: Microfinance and Financial Sector .*
- Xu, M. (2005). *Resolution of Non-Performing Loans in China.*