

The Financial Performance and Operating Efficiency of the Privatized Banks in Malawi

M.A (Economics) Thesis

By

EDWIN ELLIYA KANYOMA
B.Soc.Sc (Malawi)

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DECLARATION BY CANDIDATE

I the undersigned, declare that this thesis is my own work and that it has never been submitted for an academic award before. Acknowledgements have been made where work of other people have been used. All errors found in this thesis are mine.

Signature: _____

EDWIN ELLIYA KANYOMA

Date: _____

CERTIFICATE OF APPROVAL

We declare that this thesis is from the student's original work, where it has been indebted to the work of others, acknowledgement has been made.

We also declare that this thesis has been submitted with our approval.

First Supervisor:

Assoc. Prof. E.W. Chirwa: Date: / / 2006.

Second Supervisor:

Prof. B.Kaluwa: Date: / / 2006.

DEDICATION

I dedicate this paper to my late sister, Euphrasia.

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LIST OF ACRONYMS

ADMARC	Agriculture Development and Marketing Corporation
AIHCL	Admarc Investment Holding Company Limited
CDC	Commonwealth Development Corporation
EIB	European Investment Bank
ESOP	Employee Share Ownership Program
FINCOM	Finance Company of Malawi
FMB	First Merchant Bank
IFC	International Finance Corporation
IMF	International Monetary Fund
INDEbank	International Development Bank
MDC	Malawi Development Corporation
MSB	Malawi Savings Bank
NICO	National Insurance Company
NITL	National Investment Trust Limited
NPL	Non-performing loans
OIBM	Opportunity International Bank of Malawi
PCL	Press Corporation Limited
PSOB	Privatized State-Owned Banks
ROA	Return on Assets
ROE	Return on Equity
SAP	Structural Adjustment Program
SCP	Structure-Conduct-Performance
SOB	State-Owned Bank
SOE	State-Owned Enterprise

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ABSTRACT

Barely five years after its inception, the privatisation programme in Malawi was temporarily suspended in 2001. Government decided to suspend the program after the public questioned the benefits and expressed the fears of the negative impact of privatisation. This study contributes to the few available literature on the impact of privatisation in Malawi. This dissertation evaluates the impact of privatisation on the financial performance and operating efficiency of four privatised banks, one private bank and one state-owned bank, using panel data covering the period from 1994 to 2004. The dissertation specifically investigates the impact of bank privatisation on profitability, operating efficiency, investment intensity, output and employment. The hypotheses, were tested using statistical analysis and estimation of an econometric equation using Feasible Generalized Least Squares (FGLS) method. The results of our empirical analysis show that there is no significant evidence that bank privatisation in Malawi is associated with high profitability, high output, improved net income efficiency, low deposits-assets ratio and low employment levels. We find significant evidence that investment intensity and gross labour productivity increased in the post privatisation period. Using regression analysis of the determinants of bank profitability, we find that bank privatisation in Malawi is associated with low profitability and that other factors which include state-ownership and market share, significantly impact on bank profitability. We also find that privatisation has industry effects.

CHAPTER 1

1.1 Introduction

Privatisation can be defined as the transfer of ownership and control of an enterprise, from the public to the private sector. This is sometimes referred to as divestiture, which is a process where government transfers title, sells some or all assets, or shares in an enterprise regardless of any transfer of control to private investors (White and Bhatia, 1998; World Bank, 1994). Divestiture, however, would not include equity dilutions, joint ventures, leases, concessions and management contract because government, although it has ceded ownership control under these methods, has not divested shares or assets.

Arguments for state ownership or control rest on some actual or perceived market failure, and countries have responded to market failure with state ownership. This is under the assumption that governments can and do act benevolently, and thus state ownership is economically efficient. Privatisation in turn, is a response to the failing of state ownership. Proponents of state ownership justify government control of business: as a way to ensure that business enterprises balance social and economic objectives, rather than focusing exclusively on profit maximization; and as a response to significant market failures which includes natural monopolies, externalities and information asymmetries between the principal (the public) and the agents (producers), (see Megginson, 2003). On the other hand, state ownership of banks was driven by specific factors. These includes: a perceived lack of private capital with sufficient risk tolerance to finance growth; inadequate funding to sectors and groups with low financial returns but high social returns; a desire to promote industrialization and development at a pace more rapid than private financing would allow; and a desire to maintain domestic control over a nation's financial systems. Unlike privatisation of non-financial firms where reasonably large number of research exists, very little empirical research exists on bank privatisation.

Although privatisation started with the Pinochet Government of Chile, which gained power after the ouster of Salvador Allende in 1973 where there was an attempt to privatise companies that the Allende Government had nationalized, most people associate

modern privatisation programs with Thatcher's Government in the early 1980's (Megginson and Netter, 2001). So privatisation started in the United Kingdom in the 1980's and spread to other developed countries. In the developing countries, and Africa in particular, privatisation started in the late 1980s. Many reasons have been cited for privatisation, namely: reduction of fiscal deficit; development of private sector; increasing economic efficiency; broadening ownership; and raising government revenue (Megginson et al., 2001; White and Bhatia, 1998). The major pull and push factors behind privatisation in Africa, none the less, has been the World Bank and International Monetary Fund (IMF) sponsored Structural Adjustment Programs (SAPs). The need for financial assistance and the need to satisfy World Bank disbursement conditions has been a great incentive for privatisation and explains why the World Bank and IMF have played such a significant role in getting privatisation off the ground in Africa.

The Malawi Government started implementing privatisation of State Owned Enterprises (SOEs) within the framework of expenditure-switching and expenditure reducing structural adjustment program of the World Bank and IMF following the poor performance of state owned enterprises in the 1980s (Chirwa, 2000a). The Department of Statutory Bodies was created in 1981 to spearhead parastatal reforms and to monitor financial and operational performance of the parastatal sector (Malawi Government, 1987). Lawson and Kaluwa (1996) found that Malawian state owned enterprises, apart from operating under uncompetitive conditions, are subject to multiple principals and multiple objectives, and they attribute multiple principals as the major source of SOE inefficiency.

Kaluwa (1999) characterizes the privatisation process in Malawi into three phases. The first phase was the period between 1984 and 1987 when there were assets swaps between two state holding companies, Agriculture Development and Marketing Corporation (ADMARC) and Malawi Development Corporation (MDC), and Press Corporation Limited (PCL) (also see Chirwa, 2000a). The second phase was between 1987 and 1993 when ADMARC and Malawi Railways underwent restructuring with ADMARC divesting its investment further. According to Chirwa (2000a), thirteen non-

manufacturing enterprises and eleven manufacturing enterprises held by ADMARC and MDC were privatised by the end of 1992. The first and second phase did not involve privatisation of any financial institution. The third phase of privatisation started in 1996 and is ongoing. This phase started with the enactment of the Public Enterprises (Privatisation) Act, 1996 and the establishment of the Privatisation Commission to oversee the privatisation program in Malawi. About 150 state- owned enterprises or their subsidiaries were earmarked for privatisation. As at 2003, more than sixty-nine privatisation activities including four banks had been completed (Privatisation Commission, 2003).

1.2 Problem Statement

Privatisation in Malawi like in other African countries was implemented within the context of the Structural Adjustment Programs (SAPs), sponsored by the World Bank and IMF. Among major motives for privatisation as advocated by these two institutions are reducing fiscal deficit, promoting economic efficiency and encouraging competition. The Malawi Government has also set its own objectives to be achieved by the privatisation program. Barely five years after its inception, the privatisation programme in Malawi was temporarily suspended in 2001. Government decided to suspend the program after the public questioned the benefits and expressed the fears of the negative impact of privatisation. People perceived that there were massive job losses due to privatisation and feared welfare deterioration for the remaining employees. It was also felt that products and services might become unavailable to the average Malawian from newly privatised companies, either due to price increases, or due to refusal to supply certain markets. Another area of concern was that it was perceived that the modes of privatisation used, favoured foreigners as compared to Malawians, (see Privatisation Commission, 2001 and 2002). Based on the above arguments, the program was suspended pending review. The suspension was lifted on 4th October 2001.

Despite the fact that privatisation in Malawi started as early as 1984, very few studies have evaluated the performance of privatised enterprises in general and no study that we are aware of, has been conducted on the financial sector in particular. Chirwa (2000a)

undertook a study to evaluate the impact of privatisation on financial and operating efficiency of six privatised enterprises, three state owned enterprises and six private enterprises competing in three oligopolistic manufacturing industries in which privatisation took place between 1984 and 1991. Using the same sample and the same time- period, Chirwa (2000b) evaluated the impact of privatisation on technical efficiency. Thus, both studies by Chirwa (2000a and 2000b) concentrated on the manufacturing sector. Kaluwa (1999) evaluated the impact of privatisation program in general that also included the insurance companies. Despite the specific contributions of the studies on the impact of privatisation by Chirwa (2000a) and Kaluwa (1999), the impact of privatisation, specifically on the financial (banking) sector has not been done. Therefore, this study is aimed at filling the empirical research gap in this area.

1.3 The objective of the study

The overall objective of this study is to evaluate the impact of privatisation on the financial and operating performance of the banking sector. The overall objective will be achieved by considering five specific objectives:

- To investigate if privatisation has improved the firms' profitability
- To investigate if privatisation has improved the firms' operating efficiency
- To investigate if privatisation has caused or allowed firms to increase its capital investment spending.
- To investigate if privatisation has increased the firms' output.
- To investigate if privatisation has lowered employment levels.

1.4 Hypotheses

The null hypotheses of the study are:

- Privatisation does not improve profitability
- Privatisation does not improve operating efficiency
- Privatisation does not result in increased investment spending
- Privatisation does not increase output
- Privatisation does not lower employment levels.

1.5 Organisation of the study

The rest of the paper is organized as follows: Chapter 2 gives an overview of the Malawian banking sector, its evolution and developments with regards to changes in ownership structure. In chapter 3 we review the theoretical and empirical literature. The fourth chapter presents the methodology of the study and this is followed by chapter 5 that gives the empirical results. Conclusion and policy recommendations are in chapter 6.

CHAPTER 2

Overview of the Banking Sector in Malawi

2.1 Structural characteristics

According to the Banking Act of 1989, banking business involves receiving funds from the public by accepting demand and time deposits, borrowing from the public or other banks, and using such funds in whole or in part for granting loans, advances and credit facilities and for investing by other means.

With the adoption of the Structural Adjustment Program in 1981, government embarked on financial liberalization, which was followed by privatisation of financial institutions. Financial liberalization, among other things, led to the removal of restrictions on credit and interest rate charged by commercial banks; the complete overhaul of the legal and regulatory framework of the banking system (this includes the revision of the Reserve Bank Act of 1965 in 1989, and the enactment of the Banking Act, 1989); and the opening up to new entrants into the banking system. Despite these developments, until recently, ownership structure in the banking industry in Malawi was highly concentrated, with most banks being controlled by a small number of international, domestic agricultural, financial and industrial conglomerates with interlocking ownership across the economy (see Chirwa, 2001 and Gondwe, 2001). The intensification of the privatisation program since 1996 has resulted in changes and broadening of the ownership structure with government and parastatals shading off all or part of their shareholding to the private sector. The following banks have since been privatised: National Bank of Malawi Limited, Stanbic Bank (formerly Commercial Bank of Malawi Limited), Nedbank formerly Finance Company of Malawi (FINCOM), and the NBS Bank formerly the New Building Society. The Malawi Savings Bank is in the process of being privatised while government still maintains majority shareholding in INDEbank Limited.

The banking industry in Malawi has emerged from an oligopolistic beginning, where at independence in 1964 there were only two foreign commercial banks namely the Standard Bank and the Barclays Bank, along side Post Office Savings Bank (POSB), the

New Building Society and the National Finance Company. National Bank of Malawi Limited was incorporated in 1971 following a merger of the Standard Bank and Barclays Bank. Stanbic Bank, formerly Commercial Bank of Malawi Limited, was incorporated as a locally owned bank in 1969 and started its operations in 1970. The National Bank of Malawi Limited and Stanbic Bank Limited have been and are still the dominant and competing banks in Malawi offering almost similar products and operating a network of branches throughout the country. The revision of the Reserve Bank Act of 1965 in 1989, and the enactment of the Banking Act in 1989, opened up entry of new banking institutions including Nedbank, formerly Finance Company of Malawi (FINCOM), in 1991, the First Merchant Bank in 1994, the Finance Bank of Malawi in 1996 (went into voluntary liquidation in 2006), Loita Investment Bank in 1999 and Opportunity International Bank of Malawi (OIBM) in 2003.

2.2 Changes in ownership structure

Since 1994, there have been substantial changes in ownership structure of the banking institutions, (see table 1 below). Government and parastatals have sold all or part of their shareholding in the National Bank of Malawi, Stanbic Bank, NBS Bank, and Nedbank.

Table 1: Shareholding in the Banking System for 1994 and 2004

Name of Bank	Year Privatised	Voting Strength 1994 (%)	Name of Shareholder 1994	Voting Strength 2004 (%)	Name of Shareholder 2004
National Bank of Malawi	August 2000	48.27 39.16 12.57	PCL AIHC South Africa Mutual Life Assurance	51.80 1.80 25.00 20.20 1.20	PCL AIHC Old Mutual Public ESOP
Stanbic Bank (Malawi) Limited	May 1998	40.00 30.00 30.00	PCL MDC Malawi Govt.	60.18 12.50 8.70 4.49	StanbicHolding NICO Public Old Mutual
NBS Bank	February 2001	51.00 15.00 33.10	Malawi Govt. PCL Lonrho and Protea Assurance (SA)	74.00 16.00 10.00	NICO Malawi Govt. NITL
Nedbank	July 1999	100.00	AIHC	68.75 28.35 2.90	Nedbank Stanbic AIHC
INDEbank Limited	Not privatised	25.13 22.23 22.23 22.23 5.74 2.42	AIHC CDC DEG FMO EIB IFC	25.67 22.13 22.13 22.13 4.99 2.95	AIHC CDC DEG FMO EIB ESOP
Malawi Savings Bank	Not yet privatised	100.00	Malawi Govt.	100.00	Malawi Govt.

Source: Annual Reports (various banks); survey reports from management of various banks; and Annual Report (2001) Privatisation Commission.

Note: PCL = Press Corporations Ltd; AIHL = ADMARC Investment Holdings Company Ltd; MDC = Malawi Development Corporation; NICO = National Insurance Company; NITL = National Investment Trust Limited; CDC = Commonwealth Development Corporation; DEG = German Investment and Development Company; FMO = Netherlands Development Finance Company; EIB = European Investment Bank; IFC = International Finance Corporation; ESOP = Employee Share Ownership Scheme.

National Bank of Malawi Limited was incorporated in 1971 following a merger of Standard Chartered Bank and Barclays Bank. It is the largest commercial bank in the country in terms of assets base. It has 13 branches and operates 9 static agencies throughout the country (National Bank of Malawi, 2003). As part of the privatisation process, the National Bank of Malawi was listed on the Malawi Stock Exchange on 21 August 2000. As at December 2004, Government had 1.8% equity in National Bank of Malawi.

Stanbic Bank (Malawi) Limited, formerly Commercial Bank of Malawi Limited, was incorporated in 1969 and started its operations in 1970. It has 12 branches and runs a number of agencies throughout the country. It is the second largest bank in Malawi. As part of the privatisation process, it was listed on the Malawi Stock Exchange in June 1998 and 12% of government shares were sold through a public offer. In 2002, Stanbic Africa Holdings Limited of South Africa acquired 60% ownership of Commercial Bank and changed its name to Stanbic Bank (Malawi) Limited.

The NBS Bank, formerly New Building Society, was established in 1964 under the Building Society Act. The bank was incorporated as a Limited Company on 14 March 2003 and registered under the Banking Act on 1 March 2004. The NBS Bank has the widest branch network in the country and currently it has 12 branches and 11 agencies. As part of the privatisation program, Government in February 2001 reduced its shareholding from 51% to 26% by selling 25% to NICO Holdings Limited. On the other hand, Lonrho was divesting from Malawi and its shareholding of 24.5% was sold to NICO who had used its pre-emptive rights to buy the shares. In 2003, government transferred 10% of the shareholding to National Investment Trust Limited, a public trust created to promote local ownership of the privatised companies. Government's intention is to off load 12% of its remaining shareholding through the listing of the Bank on the Malawi Stock Exchange, and selling 4% to staff through the Employee Share Ownership Scheme (ESOP).

Nedbank, formerly Finance Company of Malawi (FINCOM), has also been privatised. Initially it was wholly owned by Admarc Investment Holdings Company Limited. In July 1999 Nedcor Company from South Africa bought 75% shares and changed the company name to Nedbank. As at 2004, AIHCL had only 2.9% stake in Nedbank.

INDEbank Limited. The Investment and Development Bank of Malawi Limited (INDEBANK) merged with its merchant banking subsidiary Indebank Financial Services Limited (INDEfinance) to create INDEbank Limited as a fully-fledged commercial bank in October 2001. INDEbank Limited has not been privatised as government still maintains, through AIHCL, its 25% shareholding in the bank. However, effective 14 February 2005, TransAfrica Holdings Limited became the majority shareholder (41.38%) while Press Trust and AIHC have 30% and 25.67%, respectively.

Malawi Savings Bank (MSB), formerly Post Office Savings Bank (POSB), established in 1911 to provide facilities for small savers in both rural and urban areas was in 1990 incorporated into a government company as Malawi Savings Bank (MSB). As part of its policy for divesting from public enterprises, government has nominated the Malawi Savings Bank for restructuring and privatisation.

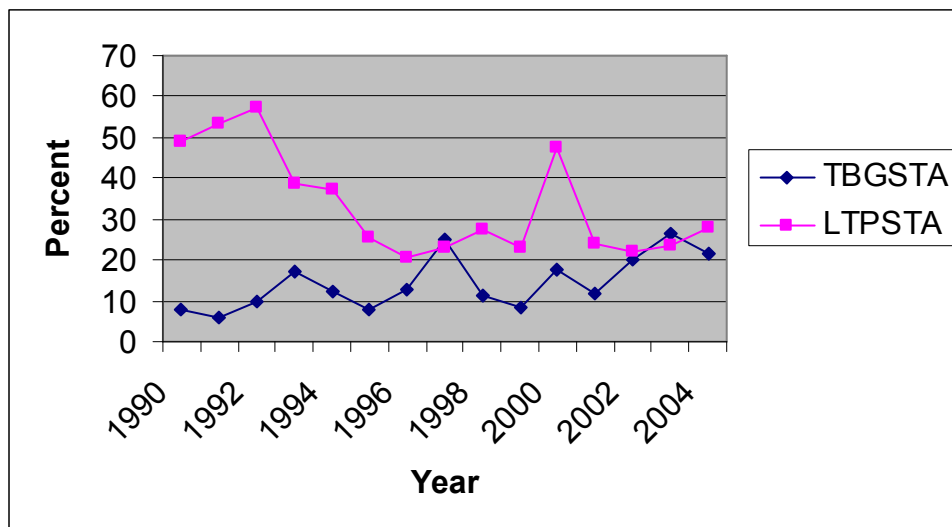
First Merchant Bank Limited (FMB) is the first private sector commercial bank to be licensed in Malawi. First Merchant Bank was incorporated on 13 November 1994 and opened to the public on 26 June 1995. FMB currently operates out of 9 branches countrywide. FMB has enjoyed rapid growth since inception. The First Merchant Bank was listed on the Malawi Stock Exchange in June 2006. FMB wholly owns a subsidiary, the Leasing and Finance Company of Malawi Limited, which is engaged in the provision of lease finance.

2.3 Trends in Bank Intermediation Measures

Malawi's financial system, like in many other financial markets, continues to be dominated by the banking sector, with a relatively developed insurance sector and an emerging capital market. Commercial banks provide the most crucial intermediation

between lenders/savers and borrowers. By making funds available for both borrowers through loans and lenders/savers through deposit withdrawals, banks provide liquidity intermediation. Banks also play an important role as issuers and managers of transaction accounts. The financial system in Malawi is just developing and access to credits has been a major impediment to the growth of the economy. There has been a declining trend in provision of credit to the private sector due to a number of reasons including the interest rates being high and unpredictable resulting in increased cost of financing. There have been risk mismatches in assets and liabilities. Banks have also become risk averse and have resorted to investing a significant amount of their deposits in the high yielding risk – free government securities. Figure 1 depicts the trend in commercial banks provision of loans to the private sector (LTPSTA) and investment in government securities (TBGSTA), both deflected by total assets.

Figure 1: Trends in Loans to Private Sector and Government Securities relative to Total Assets



The figure indicates that over the years commercial banks have shifted from their core business of provision of loans to the private sector in favour of investing in risk -free government securities. This has resulted in the crowding out of the private sector.

Figure 2: Trend in Private Sector Deposits

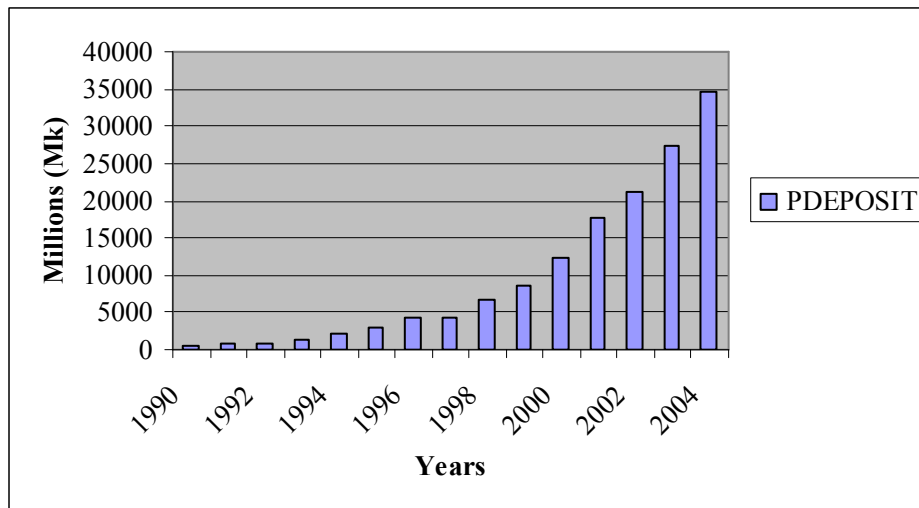


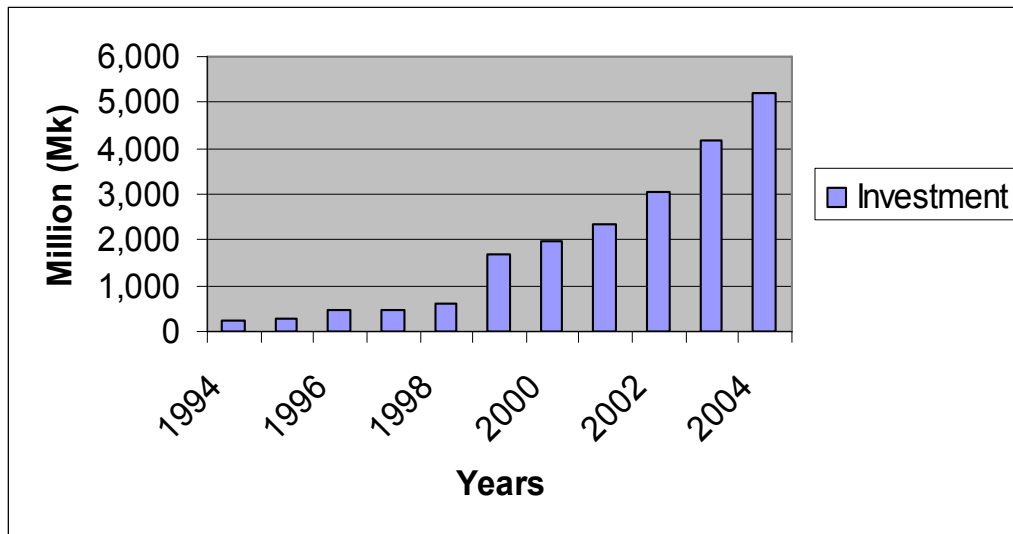
Figure 2 depicts the trend in private sector deposits in commercial banks and shows that there has been a steady growth in deposits particularly in the post privatisation period, from the year 2000 onwards, as compared to the years before. In any economy, the principal role of the financial markets is to channel funds from the ultimate lenders to the ultimate borrowers, but in the case of commercial banks in Malawi, the growth in private sector deposits has not resulted in proportional growth in credit to the private sector.

2.4 Innovations in the Banking Sector

To keep pace with the increasing sophistication of communications and technological advancement in the financial service industry and to be part of the global village, the banking sector has invested heavily in Information Technology (IT) and new products in the post privatisation period. The Reserve Bank of Malawi, in line with the country's National Payments System Modernisation Program, established the Malawi Switch Centre (MALSWITCH) in 1999 to facilitate the development of the financial systems and promote efficient payment, clearing and settlement systems in the economy. On their part, commercial banks have made significant investments in upgrading IT operations, acquiring new banking programs and software, introducing new products and training staff on new technologies. The innovations, that have been introduced, include Auto

Tellor Machines (ATMs), ATM cards, Cheque Guarantee Cards, on line real time facilities, visa branded cards and internet banking. Figure 3 shows the trend in investment levels in the banking sector for the sample period.

Figure 3: Trend in Investment Levels in the Banking Sector



There has been a dramatic increase in the levels of investment in the post privatisation period (from 1999 to 2004) compared to the pre – privatisation period. The innovations in the banking sector have resulted in improved service delivery and reduction in cueing in the banking halls. On the other hand, the innovations have brought the introduction of service fees by the commercial banks.

CHAPTER 3

Literature Review

3.1 Theoretical Literature

State ownership of enterprises experienced a period of popularity among developed nations in the 1930s, 1940s and 1950s, and developing nations throughout the post war period. In industrialized countries, state ownership was viewed as a remedy for market failures such as externalities and monopoly. In developing nations, these justifications were coupled with arguments that SOEs facilitated “economic independence” and planned development (Shirley and Walsh, 2000). Privatisation in turn is a response to the failings of state ownership. The main economic justification for privatisation is that it promotes economic efficiency of the privatised SOEs. There are at least four alternative theories that provide theoretical explanations why private enterprises perform better than public enterprises in terms of economic efficiency and, hence, the rationale for privatisation.

The Theory of Property Rights

The economic theory of property rights attributes differences in performance of public enterprises and private enterprises to marked differences in attenuation of property rights (Demsetz, 1967; Furubton and Pejovieh, 1972; Shleifer, 1998; Shirley and Walsh, 2000; Starr, 1988). As developed by economists such as Armen Alchian, Ronald Coase, and Harold Demsetz, the theory of property rights explain differences in organizational behavior solely based on individual incentives created by property rights. In this view, property rights specify the social and economic relations that people must observe with each other in their use of scarce resources. A right of ownership actually comprises several rights, chiefly the rights to use an asset, to change it in form, substance, or location, and to transfer all or some of these rights. As far as the state restricts these rights, they become attenuated. Thus, the key issues for the theory are to whom are property rights assigned and how, if at all, are they attenuated (Starr, 1988)?

Like other branches of microeconomics, the property rights school conceives of human action as purely individualistic. The more individuals stand to gain from tending to their property, the better will it be tended. Conversely, the more attenuated and diluted their property rights, the less motivated individuals will be to use their control efficiently. Private ownership concentrates rights and rewards, whereas public ownership dilutes them. Property rights in public enterprises are attenuated partly because property rights cannot be easily transferred (Villalonga, 2000). The problem of transferability is that the costs and rewards of economic activities do not accrue more directly to individuals responsible for property rights. In general, the property rights theory shows that there will be differences in performance between private and public firms because the diffused ownership in public enterprises makes it difficult to monitor the behaviour of public managers where as there is a broader range of monitoring devices under private ownership.

Principal – Agent Theory

The principal- agent theory focuses on the differences in incentives and monitoring mechanisms that public and private managers as agents of shareholders face. Here we assume that the objective of public enterprises is welfare maximization while that of private sector is profit maximization. According to Shirley and Walsh (2000) most arguments on principal – agent problems within a hierarchy draw heavily from Alchian (1965). Alchian argues that the key difference between public and private firms is the incentive and ability of owners to monitor managers. In the case of private firms, ownership is concentrated relative to public sector, and ownership shares may be sold. As a result, private owners have the incentive to monitor the performance of their managers and align the manager's interest to their own. In the case of public firms, ownership is highly diffused (indeed all citizen are owners) and shares of ownership have no value and may not be sold (Villalonga, 2000; Clarke et al., 2003; Megginson, 2003). Thus, owners of public firms not only have little incentive to monitor their managers (Vickers and Yarrow, 1991; La Porta and Lopez-de-Silanes, 1999; Megginson, 2003), but even if there were such incentives, they would free- ride on any monitoring efforts.

Managers (the agents) of both private firms and SOEs are assumed to seek maximization of their own utility rather than that of the organization or its owners (principal). In private firms, this divergence is reduced through the existence of the threat for hostile takeover; threats of bankruptcy or liquidation and a managerial labour market. In the case of state-owned firms all these mechanisms or threats are absent or are not credible (see Vickers and Yarrow, 1991; Villalonga, 2000; Clarke et al., 2003; and Megginson, 2003).

For reason stated above and in the property rights theory, principal – agent’s problems are more experienced in public enterprises than in private enterprises as private firms have better incentives and monitoring mechanisms. Therefore, the change in ownership from public to private will result in change in objectives from welfare maximization to profit maximization. There will also be a change in incentive structure and monitoring mechanism after moving from public to private ownership. These shifts may result in higher profits and increased operational efficiency (see Vickers and Yarrow, 1991). We expect the profitability and efficiency of the privatised banks to improve after divestment as there will be a change in objectives (i.e reduced lending to Government and State-Owned Enterprises) and improved monitoring and incentives possibly due to change in Management and Board of Directors.

Public Choice Theory

James Buchanan and Gordon Tullock are credited with being the primary developers of public choice theory through their book “Calculus of Consent” published in 1962. The public choice theory focuses on the differences in motives and objectives of the owners of the enterprises as the main determinant of the differences in performance between public and private firms. The public choice theory postulates that states use SOEs for other purposes other than social welfare or profit maximization and this has adverse impact on their performance. Proponents of public choice theory hold that government bureaucrats, politicians, legislators etc, are able to maximize their own utility – in form of votes, budgets(income), accumulation of power, employment, and favours in ways that subvert common good (see Boycko et al., 1996; Shleifer, 1998; Shirley and Walsh, 2000;

Clarke et al., 2003). As such, government actors may promote distortionary and inefficient SOE practices in order to reap political benefits. In contrast, there is less latitude for such a government to intervene in the operations of private firms. Theory further predicts that state actors will be most likely to act in self-interested ways in weak institutional settings where voters have less information and capacity to require good performance, as is the case in less developed countries (Villalonga, 2000). It is therefore, expected that once privatised, direct government interventions in the operations of the privatised banks will cease. The inefficiencies promoted by government through encouragement of over employment and lending to non-viable institutions will reduce.

Organizational Theories

Finally, the difference in performance between public and private firms can be explained using organizational theories. Proponents of organizational theories argue that differences in performance of public and private enterprises are influenced by differences in management incentives and contractual mechanisms, culture, goals/objectives, labour, communication and reporting systems, organizational structure and the nature and location of business (see Bishop and Thompson, 1992; Villalonga, 2000; and Chirwa, 2000a). This approach argues that regardless of goals, private enterprises will be more successful than SOEs in addressing issues of corporate governance.

In summary, all the four theories of privatisation converge to the fact that ownership really matters in determining the performance of an enterprise. Monitoring and incentives are also central to all the theories such that economic efficiency is brought about by ensuring maximization of profits (welfare) subject to minimization of costs of monitoring and incentives.

3.2 Empirical Literature

Recent empirical literature consistently suggests that privatisation improves performance of privatised enterprises. These results are in most cases irrespective of differences in methodology and region/country of study. However, these results could also be attributed

to sample selection bias, arising from several sources, including governments' desire to make privatisation look good by privatising healthiest firms first (see Megginson and Netter, 2001). Another sample selection problem is that data availability tends to be greater in more developed countries (and perhaps for better performing firms within countries). Accordingly, developed countries (and better performing firms) are over-represented in empirical analysis. In short, these biases result in many successful cases of Privatisation being recorded as opposed to unsuccessful cases.

There have been arguments that the extent to which privatisation affects the economic efficiency of the privatised enterprises will depend on the market structure. Competition in product market is widely viewed to improve the allocative efficiency. In the presence of competing producers, prices will tend towards marginal cost, thus allocating resources to their highest value. Conversely, when competition is absent, prices are raised and production is lowered relative to competitive equilibrium. There is empirical evidence that in the absence of competition, SOEs will produce allocatively inefficient results. Studies show that while both ownership and competition do affect performance, a public-private gap exist even in competitive markets. Boardman and Vining (1989, 1992) presents data showing that private firms are more efficient than SOEs, even in competitive industries. Megginson, Nash and Randenborgh (1994), looking at firm performance before and after privatization, find that private ownership increases efficiency in all situations, and that this effect is more pronounced in competitive markets. Ros (1999) finds that both ownership and market structure have significant effects on efficiency, but that ownership effect is slightly more robust across different measures of performance. The empirical literature suggests that while market structure has a positive impact on performance, this impact fails to dominate the ownership effect. Taken together with theoretical literature, empirical studies suggest that both competition and ownership affect firm performance, and there are many ways in which the effects of ownership can negate the influence of markets.

Studies on Non – Financial SOEs

Studies offer at least limited support for the proposition that privatisation is associated with significant improvements in the operating and financial performance of divested state owned enterprises. Five studies (Megginson et al., 1994; Boubakri et al., 1998; D'Souza and Megginson, 1999, 2000; and Boardman et al., 2000) document economically and statistically significant post – privatisation increases in the real sales(output), profitability, efficiency (sales per employee), and capital spending, coupled with significant declines in leverage.

La Porta and Lopez-de-Silanes (1999) find the former Mexican SOEs they studied, rapidly close a large performance gap with industry matched private firms that had existed prior to divestment. These firms go from being highly unprofitable before privatisation to being very profitable thereafter.

Boubakri and Cosset (1999) examined pre- versus post-privatisation performance of 16 African firms privatised through public share offering during 1989-96. They document significantly increased capital spending for privatised firms, but find insignificant changes in profitability, efficiency output and leverage. This is in contrast to their finding in 1998, where they conducted a study involving 21 developing countries, 79 firms and 32 industries. In this study, they document significant post-privatisation increases in output (real sales), operating efficiency, profitability, capital investment spending, employment, and significant decreases in leverage. These contradictory results could mainly be due to the differences in the sample periods as the 1998 study covered only 8 years (1989 to 1996) while the 1999 study covered a longer period 13 years (1980 to 1992)

Almost all studies that examine post-privatisation changes in output, efficiency, profitability, capital investment spending, and leverage document significant increases in the first four and significant decline in leverage. Studies examined are far less unanimous regarding the impact of privatisation on employment levels in privatised firms. All

governments fear that privatisation will cause former SOEs to shed workers, and key question in virtually every case is whether the divested firm's sales will increase fast enough after privatisation to offset the dramatically higher levels pre- privatisation worker productivity. Two studies find significant increases in employment (Megginson et al. 1994; Boubakri and Cosset, 1998), another two document insignificant changes in employment (Macquieire and Zurita, 1996; D'Souza and Megginson, 2000) while the other four finds significant employment declines, (La Porta and Lopez-de-Silanes, 1999; Laurin and Bozec, 2000; D'Souza and Vining, 2000). These conflicting results could be due to differences in methodology, sample size and make-up, or omitted factors. However, it is more likely that the studies reflect real differences in post- privatisation employment changes between countries and between industries.

Studies on Bank Privatisation

Unlike privatisation of non – financial firms where reasonably large number of research exists, very little empirical research exists on bank privatisation. However, empirical evidence on bank privatisation indicates that privatisation generally improves performance, but by far less than is typically observed in studies of non – financial industries. There is little empirical evidence to suggest that privatisation alone transforms the efficiency of divested banks, especially when these are partially privatised (see Megginson, 2003).

Verbrugge et al., (1999) investigated bank privatisations that use public security offerings as the divestment mechanism involving 65 banks from 12 high information economies and 13 emerging economies. They examined the 3 years, pre and post-privatisation performance using Wilcoxon test and binomial test. They document limited improvement in bank profitability, operating efficiency, leverage, and non-interest revenue after privatisation. They document significant increase in return on assets (ROA), ratio of non-interest income to assets, and a modest decline in non-interest expenses to assets indicating a slight improvement on operating efficiency. On the other-

hand, they find insignificant increase in return on equity (ROE), net interest margin, total income to assets, and loan to assets ratio. They document substantial government ownership of banks remains even after privatisation, and contend that this raises serious problems for establishing market-oriented governance and decision-making systems in the banks. The study is limited in that there are likely to be significant institutional differences across countries in financial reporting and other areas that could result in problems in comparing pre and post-privatisation performance using sample from different countries. Secondly, bank performance may differ across countries and a more appropriate test would be to compare pre and post-privatisation performance with private banks for the same country.

Bonin et al., (2004) investigated the impact of bank privatisation in six transition countries (of Bulgaria, Croatia, the Czech Republic, Hungary, Poland and Romania) involving 67 banks and 451 observations covering the period 1994 to 2002. Four categories of banks, foreign greenfield, domestic *de novo*, state-owned and privatised banks were included in the sample. Stochastic frontier analysis (SFA) method was used in estimating bank efficiency. They also made pre and post-privatisation comparison of means of various performance measures. They document return on assets (ROA) being higher in privatised banks than in either state-owned or domestic *de novo* banks and lower, but not significantly so, in foreign greenfield banks. Privatised banks have significantly lower loan to assets ratios and significantly higher deposit to assets ratios than foreign greenfield banks. Net interest margin is higher in privatised banks than in domestic private banks, but it is not significantly different from the other categories. They also find that privatised banks have the highest commission-income ratio and that this ratio increases significantly after privatisation. They attribute this increased focus on fee-for-service business after privatisation to the presence of a strategic foreign owner in most privatised banks. In short, this study found that privatisation matters in terms of increased profitability, more fee-for-service income, and to a lesser extent improved cost management.

Berger et al. (2005) investigated the impact of bank privatisation in Argentina. Their data set included quarterly information on all Argentine banks from 1993 to 1999. They conducted the return on equity (ROE), costs/assets and Non-performing loans (NPL) regressions using OLS and conducted profit efficiency rank and cost efficiency rank by censored regressions. They document relatively little performance improvement or deterioration associated with either domestic M & A or foreign acquisitions, NPL declines dramatically and profit efficiency increases substantially as well. However, they point out that these improvements are attributed to the placing of most NPL into residual entities. They also find that banks that were privatised, tend to have decreased loans relative to other assets and have less of their loan portfolio allocated to mortgages, Peso loans, and agricultural loans. This is consistent with the possibility that banks lend more prudently after privatisation. They also find high non-performing loan ratios for state-owned banks which may in part reflect the different goals and lending directives of these organizations. Cornette et al. (2003) investigated the post-privatisation performance of 81 banks divested in whole by governments of 22 developing countries over the period 1986 – 1998. They find that privatisation alone does not seem to significantly impact on profitability or operating efficiency. Ownership type and industry concentration significantly impacts risk-taking behaviour by privatised banks, with banks controlled by industrial groups taking the highest risk exposure, followed by locally controlled banks and with foreign owned banks taking the least exposure.

Finally, Beck et al., (2003) examine the effects of privatisation on performance using an unbalanced panel of 69 Nigerian banks with annual data for the period 1990 to 2001, with 576 observations. The data included 9 banks that were completely privatised during the study period. Performance was assessed using return on assets (ROA), return on equity (ROE) and share of Non-performing loans (NPL), relative to other banks and relative to the period before privatisation. They document a significant decrease in ROE and a significant decrease in NPL. The performance gap between commercial privately owned banks and privatised banks was closed through privatisation. They find significant positive impact from privatisation, even in a macroeconomic and regulatory environment that was inhospitable to financial intermediation. They also find that there were some

improvements in profitability and portfolio quality in those Nigerian banks where government fully divested its shareholdings, but where government retained minority shareholdings, performance was substantially worse than fully privatised banks.

Studies on Malawi

There are two known studies conducted in Malawi with respect to the impact of privatisation. These are studies by Kaluwa (1999) and Chirwa (2000). Chirwa (2000a) finds no significant evidence that privatisation in Malawi is associated with high profitability, high sales efficiency, low employment and low output. However, there is weak evidence in favour of high net income efficiency, but significant evidence that investment intensity declined in the post privatisation period. After controlling for other factors in the multiple regression analysis, Chirwa (2000a) documents a statistically significant positive relationship between profitability and privatisation, but decline in labour productivity. He cautions that these results could be influenced by the role of state ownership, import competition, capital intensity and structural adjustment programs. The study also finds that privatisation has significant industry effects, and according to Chirwa this suggests that studies that ignore the behaviour of competing enterprises in oligopolistic industries understate the impact of privatisation. The above study investigated the impact of privatisation on financial and operating efficiency of six privatised enterprises, three state owned enterprises and six private enterprises competing in three oligopolistic manufacturing industries in which privatisation took place between 1970 and 1997.

An evaluation study on the impact of privatisation program in Malawi for 1997 – 1999 period by Kaluwa (1999) finds that the privatisation program had had a positive impact on the economy. At the enterprise level, the study shows significant positive impact of privatisation on debt position, new investment including technology, and improved customer relations. The performance of output was mixed with substantial increases registered in the manufacturing and hospitality sectors, while modest growth was recorded in the farming sector. Production declined in some manufacturing enterprises as well. The study finds that post privatisation trends in relation to employment cannot be

generalized either across or within sectors. Net expansion in employment was registered in the farming and financial sectors, while there was a general trend of rationalization of employment in the manufacturing, hospitality and distribution sectors. The study also documents a positive growth in output in the finance and insurance sector but indicates that this is unlikely to be attributable to the privatisation exercise but to on going adjustment to a competitive environment. At macro-level the study by Kaluwa documents that privatisation has contributed to increased Malawian participation in all sectors; to the development of the capital markets; to increased domestic competition; and to direct privatisation revenue.

Summary

In summary, in most studies that examine post-privatisation changes in output, efficiency, profitability, capital investment spending, and leverage in both developed and developing countries including Africa, document significant increases in output, efficiency, profitability and capital investment spending and significant decline in leverage. Results on the impact of privatisation on employment are mixed. Studies on bank privatisation seem not to offer overwhelming support for the view that privatisation alone can improve financial and operating performance of state owned banks. Bank privatisation yields smaller and less pervasive performance improvements than privatisation of non – financial industries. However, in Malawi there are mixed results on the impact of privatisation such that it is difficult to draw conclusions from the studies done so far.

CHAPTER 4

4.1 Study methodology

The various theories of privatisation predict that privatisation increases the performance of both the privatised enterprises and private enterprises competing in the same industry. However, most empirical studies focus on privatised enterprises and ignore the industry effect of privatisation. Chirwa (2000a) argue that studies that ignore the behaviour of competing enterprises in oligopolistic industries understate the impact of privatisation. Most studies on the impact of privatisation use statistical tests to establish the difference in mean performance before and after privatisation (see Megginson et al.1994; D'Souza and Megginson, 1999 and 2000; Boubakri and Cosset, 1998 and 1999).

In this study, the hypothesis that privatisation improves the financial and operating efficiency of both the privatised banks and private banks competing in the same industry is tested in two ways: First, the statistical analysis of variance to test the difference in the means before and after privatisation is used. Secondly, an econometric model is used to investigate the impact of privatisation on competing banks within an oligopolistic market but isolate the effects of privatisation on economic performance by controlling for other

factors such as competition and organisational restructuring. First, the indicators of financial and operating efficiency is defined before specifying the model.

4.2 Indicators of Financial and Operating Performance

Various measures of enterprise performance have been suggested in the literature. Most studies use accounting ratios which are grouped into profitability, operating efficiency, investment efficiency, real output and employment as indicators of economic performance. The use of profitability as a measure of enterprise performance is based on the assumption that the objective of privately owned enterprise is to maximize profits (Chirwa, 2000a). The principal –agent theory postulates that profitability is likely to be higher after privatisation because the objective function of the firm changes from welfare maximization to profit maximization. Two proxies for profitability are used in the study: return on assets (ROA) defined as net income divided by total assets, and return on equity (ROE) defined as net income divided by equity. These are the most used profitability indicators in bank studies (Chirwa, 2001; Clarke, et al., 2005; Bonin, et al., 2004). The study uses the ratio of total deposits to number of employees, the ratio of total deposits to total assets, the ratio of total loans to total assets and the ratio of net income to the number of employees as proxies for operating efficiency. We expect these ratios, except loans to assets ratio, to increase following privatisation. It is unclear whether privatised banks would be expected to increase or decrease the importance of lending in the bank. It has been argued that it would be rational to reduce lending in the post-privatisation mode as a response to the previously extensive credit extension that was completely controlled by state policies and usually resulted in loans to SOEs (see Verbrugge et al.;1999). As such, we have no expectation regarding the direction of the change for loans to assets ratio.

The study also investigates the impact of privatisation on capital formation by examining the stock of capital and investment intensity. The ratio of capital expenditure to total assets is used as a proxy for investment intensity. Investment intensity of privatised banks is expected to increase following privatisation mainly because the privatised banks will need heavy investment for them to be competitive with the private banks. Secondly,

investment is expected to increase as a result of involvement of foreign investors who acquire ownership in the privatised banks. These will bring new technology and new products.

The impact of privatisation on output is assessed using total deposits as a proxy of output. Deposits and loans are recognized as output proxies in the banking literature, (see Clark and Seims, 1997; Berger et al., 2005; and Bonin et al, 2004). Deposits are used as a proxy because it is recorded in most financial reports. The public choice theory predicts that state-owned enterprises produce at inefficiently high levels to maximize employment, budgets, and a change in ownership should lead to a decline in real output as a result of a decline in employment. However, most studies report increases in real output following privatisation (Megginson et al., 1994; D'Souza and Megginson, 1999, 2000; Boubakri and Cosset, 1998). The explanation given for these contrary results is that after being privatised, firms become more efficient due to changes in incentive structure and monitoring mechanism, and there is also increased competition. Privatised firms respond to these changes by increasing the number of products on offer, branches, and marketing activities, which leads to increase in output. Therefore, on a priori, we do not know the direction of change in real output. Similarly, on a priori, we do not know the direction of change in employment.

4.3 Statistical Analysis

In testing the hypothesis that privatisation increases the financial and operating efficiency of the privatised banks, we first use the statistical analysis of variance (ANOVA) to test the difference in the means before and after privatisation. For each bank, we code the value of one as the period after privatisation and a value of zero as the period before privatisation. The F-test statistic is used, under the null hypothesis of no relationship between performance and privatisation. Three sub-samples, consisting of 4 privatised banks, 1 state owned bank and 1 private bank are analysed. In conducting the ANOVA, the study uses SPSS version 8.0 computer package.

Expected outcome after privatisation.

Performance Indicator	Expected Results
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Profitability:

Return on Assets (ROA)	$ROA_A > ROA_B$
------------------------	-----------------

Return on Equity (ROE)	$ROE_A > ROE_B$
------------------------	-----------------

Operating Efficiency:

Deposit/ Employee	$(D/E)_A > (D/E)_B$
-------------------	---------------------

Deposits/ Assets	$(D/A)_A > (D/A)_B$
------------------	---------------------

Loans/ Assets	$(L/A)_A ? (L/A)_B$
---------------	---------------------

Net Income/Employee	$(I/E)_A > (I/E)_B$
---------------------	---------------------

Investment Intensity:

Investment/Assets	$(INV/A)_A > (INV/A)_B$
-------------------	-------------------------

Output and Employment:

Deposits	$(D)_A ? (D)_B$
----------	-----------------

No. of Employees	$(E)_A ? (E)_B$
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Note : Subscript A = after privatisation and B = before privatisation

> means greater than; ? means undetermined; A = Assets;

D = Deposits; L = Loans; E = Employees; I = Net Income; INV= Investment.

4.4 Model Specification

Many factors influence the profitability and operating efficiency of firms in an industry. The theories of privatisation and empirical studies suggest that the extent to which privatisation affects efficiency depends on competition, organization structure and economy-wide changes. In this study we adopt, though with some modification, the structure-conduct- performance (SCP) model. According to Martin (1993), the central hypothesis of the SCP is that observable structural characteristics of a market determine the behaviour of firms within that market, and that the behaviour of firms within a market, given structural characteristics, determines measurability aspect of market

performance. We adopt in parts the model specification used by Chirwa (2000a) which takes the following general form:

$$\Pi_t = \beta_0 + \beta_1 \text{PRIV}_t + \sum_{k=1}^m \alpha_k X_{kt} + \varepsilon_t \quad \text{--- -- (1)}$$

Where t = time, Π is the measure of performance, PRIV is the dummy variable capturing privatisation, X is the vector of variables representing competition, barriers to entry and exit, demand variables, organizational characteristics and the policy environment, and ε is the error term.

Our regression equation is as follows:

$$\begin{aligned} \Pi_{it} = & \beta_0 + \beta_1 \text{PRIV}_{it} + \beta_2 \text{STATE}_{it} + \beta_3 \text{HHI}_{it} + \beta_4 \text{MS}_{it} + \beta_5 \text{LOAS}_{it} \\ & + \beta_6 \text{DEAS}_{it} + \beta_7 \text{DPSOB}_{it} + \beta_8 \text{DPVT}_{it} + \beta_9 \text{DENTRY}_{it} + \varepsilon_t \quad \text{----- (2)} \end{aligned}$$

Where:

- Π = Measure of performance
- PRIV = Dummy variable for privatisation
- STATE = Proportion of state ownership in a bank
- HHI = Herfindahl-Hirschman Index of market concentration
- MS = Banks' market share in the industry
- LOAS = Loans to Assets ratio
- DEAS = Deposits to Assets ratio
- DPSOB = Dummy for privatised state owned banks
- DPVT = Dummy for private banks
- DENTRY = Dummy for entry of new banks
- ε = Error term
- t = time

Expected signs:

$$\beta_1 > 0; \beta_2 < 0; \beta_3 > 0; \beta_4 > 0; \beta_5 > 0; \beta_6 < 0; \beta_7 > 0; \beta_8 > 0; \beta_9 < 0$$

We use return on assets (ROA) as our measure of profitability. The ownership structure and privatisation in the model is captured by variable STATE , denoting the proportion of state ownership in a bank at a given time, and PRIV , a dummy variable denoting 1 for the

period after privatisation on all firms, respectively. Privatisation theories postulate that economic efficiency of both privatised firms and private firms competing in the same industry improves after privatisation. Therefore, we expect a positive and significant relationship between profitability and privatization. ($\beta_1 > 0$). Thus, we expect a negative relationship between variable STATE and the performance indicator, ($\beta_2 < 0$).

We include two dummy variables, DPSOB, denoting 1 for privatised state owned banks and zero otherwise, and DPVT, denoting 1 for private banks and zero otherwise. These will capture ownership status. Theories of privatisation predicts and empirical evidence indicates that privatised banks perform better than state owned banks, but the performance improvements do not surpass that of private banks. It is, therefore expected that the coefficients of both DPSOB and DPVT will be positive and that the coefficient of DPVT will be greater than that of DPSOB.

Early econometric analyses of structure – conduct – performance, relationships taking off from Bain's seminal work¹, emphasized market concentration and barriers to entry as determinants of industry profitability, and market share as determinant of firm profitability (Martin, 1993). The most common measures of market concentration in both industrial and banking studies have been the m- firm concentration ratio (CR_m), defined as the sum of the market shares of m largest firms in an industry; and the Herfindahl – Hirschmann Index (HHI), defined as the sum of squares of firm's market shares in the industry. In this study, we use the Herfindahl-Hirschman Index (HHI), to capture the effects of competition on profitability. Competition theorists argue that firms from highly concentrated industries refrain from competing among themselves. Thus, the greater the market concentration is, the more likely are incumbents to recognize their mutual interdependence and the less likely are they to act as price taking firms. So, the more concentrated the industry, the higher the profitability.

¹ See Bain, Joe S. (1951)

It has been argued that, rather than arising from collusion among leading firms, the statistical relationship between concentration and profitability might be the result of efficiency. Firms that are more efficient earn both higher profits and a larger market share over time as a result of their superior efficiency (Jensen et al., 1998). We therefore expect a positive relationship between market share (MS) and profitability at firm level.

Profitability differs across industries not only because of differences in market structure and firm conduct, but also because of differences across firms and markets in risk. A complete specification of a profitability equation in a SCP model requires some control for differences in risk across firms or industries (Martin, 1993). In this study, we use the loan to assets ratio (LOAS) to capture bank-specific risk. The capital asset pricing theory (portfolio theory) predicts higher returns from riskier assets. Therefore, we expect a positive relationship between loan to assets ratio and profitability.

Turning to intermediation measures, privatisation theories predicts that both privatised and private banks competing in the same industry will improve their intermediation measures following privatisation. We expect an increase in both deposit collection and lending. However, it is anticipated that the deposit- asset ratio will decline as more deposits will be converted into loan creations in hope of getting higher returns from riskier portfolio. Therefore, we expect a negative relationship between deposit asset ratio and profitability.

We have also included a dummy variable, DENTRY, to capture entry of new banks and other macro economic factors that might have impact on bank profitability. This dummy variable takes the value of 1 for the period from the year 2000 and zero otherwise. Economic theory suggests, decline profitability after entry of new banks due to increased competition. Therefore, we expect the coefficient to be negative. On the other -hand the dummy could also capture some economic factors that might affect the sign of the coefficient.

The above equation is estimated using panel data methods. The estimation is done using Stata package, version 7.0. The full sample for the banking industry will be estimated. The significance of the privatisation variable on the full sample will indicate that privatisation has an impact on the overall banking industry. On the other-hand, the significance of the dummy for privatised state owned banks (DPSOB) would indicate that privatisation has an impact on the performance of privatised banks.

4.5 Data Sources

The study uses secondary annual data covering the period 1994 to 2004. The study involves the four privatized banks: namely, Stanbic Bank, National Bank of Malawi, NBS Bank and Nedbank; one state owned bank, INDEbank; and one privately owned bank, First Merchant Bank. The data for First Merchant Bank covers the period from 1996 to 2004 only as the bank started its operations in 1996. As such, we have an unbalance panel. It must be noted, that the other banks were not included in the sample because they were established recently, Loita Investment Bank in 2000 and Opportunity International Bank in 2003. Finance Bank of Malawi, which went into voluntary liquidation in January 2006, was also not included due to inaccessibility of data.

The number of years privatised banks have been under new ownership range from 3 to 7 years and range from 5 to 8 years before privatisation. The main data sources are from annual reports and accounts of the above-named banks. Other sources are the *Financial and Economic Review* of the Reserve Bank of Malawi and the *International Financial Statistics* of the International Monetary Fund. Data on the number of employees and shareholding in some instances were obtained directly from management of respective banks. The description and definitions of the variables used in the statistical and econometric analysis are given in the appendices 1 and 2, respectively.

4.6 Estimation Procedures

The model is estimated on Stata version 7.0 package using panel data approach. The procedure adopted in the study involves the following steps:

Heteroscedasticity

The sample was tested for heteroscedasticity using Breusch-Pagan / Cook – Weisberg test for heteroscedasticity. Assuming homoscedastic disturbances when heteroscedasticity is present results in consistent estimates of regression coefficients, but these estimates are not efficient. In addition, standard errors of these estimates will be biased unless one computes robust errors correcting for the possible presence of heteroscedasticity (Baltagi, 2001)

Serial Correlation

Ignoring serial correlation when it is present results in consistent but inefficient estimates of the regression coefficients and biased standard errors. It is argued that in panel data, especially large panels, one is concerned with individual effects and guaranteed their existence (Baltagi, 2001). In this case, it is inappropriate to test for serial correlation assuming no individual effects. However, we tried to test for serial correlation using the Bhargava et al., Durbin-Watson Test (1982).

Hausman Specification Test

We found heteroscedasticity in the sample as such we could not proceed to use the Hausman specification test. The Hausman test is used to determine the appropriateness of using a fixed effect model or a random effect model. The fixed effects model assumes that the intercept varies across individuals but the slope coefficients may be constant or may vary over time and individuals. The random effects or error component model assumes that the individual effects are not correlated with the explanatory variables and the error term has individual specific disturbance. The model was therefore estimated using heteroscedasticity and autocorrelation consistent Feasible Generalized Least Squares (FGLS).

Multicollinearity

The model was tested for multicollinearity to check if there was near linear perfect relationship among the explanatory variables. High multicollinearity results in the regression coefficients being unstable and the standard errors for the coefficients can get wildly inflated, making precise estimation difficult. We used correlation matrix to check for multicollinearity.

Model Specification Test

The Ramsey's RESET test was used to check if the model was correctly specified. Model misspecification results in running spurious regressions.

CHAPTER 5

Empirical Estimation and Interpretation of Results

5.1 Impact of Privatisation on Performance: Statistical Results

The results of our statistical analysis of the financial and operating performance of the privatised banks are presented in table 2. The analysis used three sub-samples, for Privatised State Owned Banks (PSOB), State Owned Banks (SOB) and Private Banks (PVT). The three categories were used to assess whether there were significant differences in performance between the privatised banks and the SOB and PVT. If improvements in performance of the privatised banks is greater than those of private banks, then privatisation affects privatised banks more than competing private banks. State owned banks are those banks that government has not started disposing off its shareholding while private banks are banks that have always been under private ownership. The results should be taken with caution, as the samples comprised of four privatised banks, one state owned bank and one private bank.

Table 2: Profitability and Operating Efficiency in the Banking Sector by Type of Bank

Performance Indicators	Privatised Banks (PSOB)			State-Owned Bank (SOB)			Private Banks (PVT)		
	Mean before	Mean after	Mean change [p-value]	Mean before	Mean after	Mean change [p-value]	Mean before	Mean after	Mean change [p-value]
<i>Profitability</i>	<i>4(23)</i>	<i>4(21)</i>		<i>1(7)</i>	<i>1(4)</i>		<i>1(5)</i>	<i>1(4)</i>	
Return on Assets(ROA)	0.0431	0.0456	0.0025[0.862]	0.0684	0.0382	-0.0302[0.157]	0.0615	0.0778	0.0163[0.343]
Return on Equity(ROE)	0.4112	0.2837	-0.1275[0.417]	0.6067	0.2010	-0.4057[0.106]	0.6792	0.8334	0.1542[0.398]
<i>Operating Efficiency</i>	<i>4(23)</i>	<i>4(21)</i>		<i>1(7)</i>	<i>1(4)</i>		<i>1(5)</i>	<i>1(4)</i>	
Deposits/Employees	18.00	21.87	3.87[0.028]	49.67	16.43	-33.24[0.024]	22.02	21.41	-0.61[0.929]
Deposits/Assets	0.6715	0.6717	0.0002[0.998]	0.6491	0.4796	-0.1695[0.018]	0.5950	0.6797	0.0847[0.025]
Loans/Assets	0.4045	0.2897	-0.1148[0.024]	0.3528	0.1314	0.2214[0.012]	0.2198	0.2061	-0.0137[0.835]
Net Income/Employees	1.7028	1.2666	-0.4362[0.636]	5.7038	1.3644	-4.3394[0.116]	1.8932	2.4331	0.5399[0.125]
<i>Investment Intensity</i>	<i>4(23)</i>	<i>4(21)</i>		<i>1(7)</i>	<i>1(4)</i>		<i>1(5)</i>	<i>1(4)</i>	
Investment/Assets	0.0555	0.0779	0.0224[0.025]	0.0187	0.0573	0.0386[0.000]	0.0350	0.0503	0.0135[0.352]
<i>Output and Employment</i>	<i>4(23)</i>	<i>4(21)</i>		<i>1(7)</i>	<i>1(4)</i>		<i>1(5)</i>	<i>1(4)</i>	
Deposits	10,976	11,338	362[0.891]	1,187	1,461	274[0.337]	2,009	6,257	4248[0.000]
Employees	634	550	-84[0.555]	25	88	63[0.000]	112	292	180[0.002]

Notes: The numbers in italics and parentheses are respectively the number of firms/observations in each period and the figures in brackets is the F-test probability of rejecting the null hypotheses of no difference in performance before and after privatization.

With respect to profitability, the results show that profitability measured by ROA increased for PSOB and PVT while profitability declined for SOB. The results indicate that profitability measured by ROE declined for PSOB and SOB and increased for PVT. In the discussion of our results, the preferred indicator ROA is used. ROA reflects the ability of a bank's management to generate profits from bank's assets. Malawi's capital market is underdeveloped as such we expect ROE to produce perverse results. All the results on the relationship between privatisation and profitability are statistically insignificant. Therefore, the hypothesis that privatisation is associated with high profitability is rejected. Chirwa (2000a) found similar results on Malawi's manufacturing industries. The above results are not different from what Otchere (2003) found on study on privatised banks in middle and low- income countries.

Secondly, with respect to operating efficiency, there are mixed results. The deposits efficiency (deposits per employee) which is a proxy for gross labour productivity increases for PSOB while gross labour productivity declines for SOB and PVT. The hypothesis of no mean difference in deposits efficiency is rejected at 5 percent level for the case of PSOB and SOB. The possible explanation for the improvement in gross labour productivity could be that after privatisation most banks started shifting from the traditional labour intensive banking to capital- intensive banking services. This has seen the introduction of ATMs, machine counting of money and internet banking.

There is an increase in the ratio of deposits to assets for PSOB and PVT while the deposits assets ratio declines for SOB. The hypothesis of no mean difference in deposits-assets ratio before and after privatisation is rejected at 5 percent level for PVT and SOB. The loans to assets ratio decline for PSOB and PVT, and increases for SOB. The decline in loans to assets ratio during the post- privatisation period could be attributed to the harsh economic conditions, which lead to the decline in productivity thereby constraining the demand for loans. This could also mean that the bank managers for PSOB and PVT banks were not willing to take additional risks during this lean period. It could also imply that the SOB are risk lovers when it comes to lending to government by virtue of being a state owned banks. These results are consistent with the view that less efficient

institutions are less risk averse than their more efficient counterparts. The results reject the null hypothesis of no mean difference in loans to assets ratio before and after privatization in the case of PSOB and SOB at 5 percent level. Similar results of significant decline in loans to assets ratios after privatisation were found by Bonin et al., (2004) and Berger et al., (2005). The significant decline in loans to totals assets in the post privatisation period is possibly due the fact that the commercial banks reduced lending to the private sector and SOEs, in favour of the very attractive returns on risk-free Treasury Bills.

In terms of net income efficiency (real net income per employee), the results show a decline for PSOB and SOB and an increase in net income efficiency for PVT. However, the null hypothesis of no mean difference in net income efficiency before and after privatisation may not be rejected, as the results are not statistically significant for all the cases. Chirwa (2001a) found weak evidence of high net income efficiency in the post-privatisation period in the manufacturing sector in Malawi. We find mixed results on the impact of privatisation on operating efficiency on the privatised firms. There is significant evidence that privatisation improved the operating efficiency as measured by the ratio of deposits to the number of employees (gross labour productivity). On the other hand, there is significant evidence the privatisation resulted in decline in operating efficiency when measured in terms of loans-assets ratio.

With respect to investment intensity measured by the ratio of investment expenditure to assets, the results show increase in investment across the banks. The results reject the null hypothesis of no mean difference in investment intensity before and after privatization for PSOB and SOB at 5 percent and 1 percent level, respectively. As indicated in chapter 2 there has been a modernisation of the financial system in the post- privatisation period. During this period new and modern banking technologies, new products such as ATM cards, and internet banking were introduced. Chirwa (2000a) found that investment intensity declined in the post-privatisation period in the manufacturing industries in Malawi.

With respect to output, the results indicate that mean real output (real deposits) increased across the banks following privatisation. However, the results are statistically significant for only PVT at 1 percent level. We therefore do not reject the null hypothesis of no mean change in output after privatisation for the privatised banks. There was no significant increase in output for PSOB possibly because they had already higher output (10,976) before privatisation, which could imply that they were over mobilising deposits, a sign of inefficiency. Therefore, in a bid to enhance efficiency in the post privatisation period the output levels had to either, be reduced or maintained. On the other hand, there was no significant increase in output for the SOB possibly due to its inability to compete favourably with the other categories.

With respect to employment, the results show a decline in the level of employment in PSOB and an increase in SOB and PVT after privatisation. One of the expected negative impacts of privatisation is the decline in employment in the privatised enterprises. However, in the case of Malawi's banking sector, the decline in employment for the privatised banks is not statistically significant. At the same time, the results reject the null hypothesis of no mean difference in levels of employment before and after privatisation for SOB and PVT. Otchere (2003) found that privatised banks did not lay off employees rather they reduced the rate of growth in employment after privatisation. In general, the results indicate that at industry level privatisation has resulted in increased employment while for the privatised banks, privatisation has led to insignificant reduction in employment.

5.2 Impact of Privatisation on Performance: Econometric Results

Most studies that only test the difference in mean performance before and after privatisation (as above results) assume that privatisation is the only factor that determines performance. In the econometric analysis, we estimate equation 2, in investigating the impact of privatisation on profitability whilst taking into account other factors that influence performance. Table 4 presents estimation results on the factors that determine profitability based on a full sample of the banking industry. We used Stata version 7.0 to estimate equation 2.

Diagnostic Tests

Before estimating the model we checked for heteroscedasticity and we found that the data was highly heteroscedastic (see Appendix 4A). The results of test for serial correlation shows that there was serial correlation. The Bhargava Durbin–Watson statistic was 1.6541 (see Appendix 4D) and lies outside the lower bound (d_{pl}) and upper bound (d_{pu}) of the Bhargava (1982) table are 1.8164 and 1.8945, respectively. With the presence of heteroscedasticity and serial correlation, we could not proceed to undertake the Hausman specification test. The model was, therefore, estimated using heteroscedasticity and autocorrelation consistent FGLS.

The results of the Ramsey’s RESET test show that the model was correctly specified (see Appendix 4C). We tested for multicollinearity using correlation matrix. Gujarati (2003) suggested as a rule of the thumb, that correlations of less than 0.8 as being less worrisome level of multicollinearity. Our results (see Appendix 4B) shows that there is high multicollinearity between HHI and PRIV(-0.8569), HHI and DENTRY(0.8700) and also between PRIV and DENTRY (0.8432). The rest of the explanatory variables are not collinear. Gujarati (2003) suggests as remedy that the problem of multicollinearity can just be ignored, and also that pooled regression reduces multicollinearity problems.

Descriptive Statistics

Table 3: Summary Statistics of the variables in the regression analysis

Variable	Unit of measure	Observations	Mean	Std. Dev.	Min	Max
ROA	Percent	64	4.9971	4.3228	-16.3385	11.4573
STATE	Percent	64	29.9777	28.2419	0	100
PRIV	Binary	64	.4531	.5017	0	1
DEAS	Percent	64	65.1661	17.1947	11.7935	86.7789
LOAS	Percent	64	31.7309	16.4931	7.6301	74.225
HHI	Percent	64	.3349	.0407	.2709	.3389
MS	Percent	64	17.1875	16.9287	.5974	49.0019
DPSOB	Binary	64	.6875	.4672	0	1
DPVT	Binary	64	.1406	.3504	0	1
DENTRY	Binary	64	.4688	.5029	0	1

Table 3 presents the summary statistics for the variable used in our regression analysis. The return on assets show a mean profitability of about 5.0% and the standard deviation, maximum and minimum rates are also low, suggesting that there was relatively stable variability of profitability during the study period. The deposit-assets ratio (DEAS) and loan-assets ratio (LOAS) show a mean ratio of 65.16% and 31.73%, respectively. The standard deviation and maximum rates are also high.

Figure 4: ROA for Private, State-owned and Privatised Banks

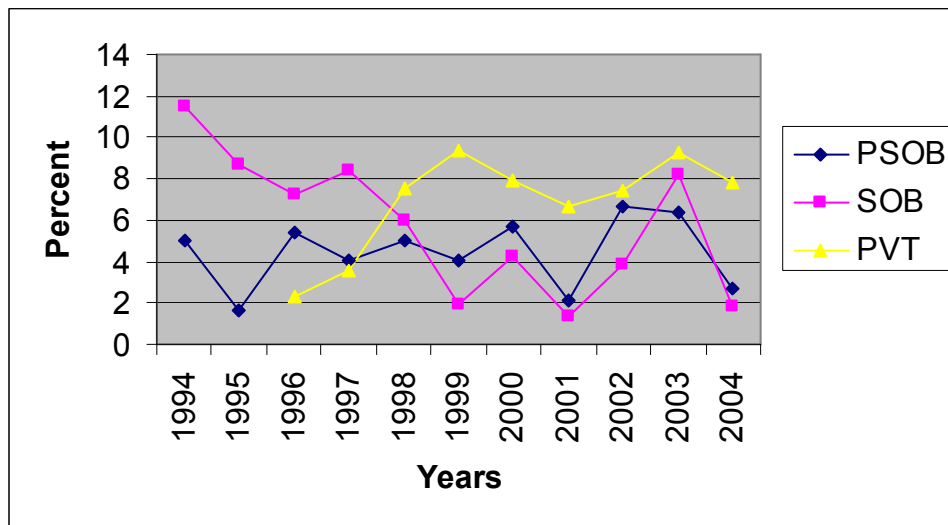


Figure 4 gives the trend in performance for the three categories of banks. The profitability trends clearly show that starting from the year 1999 onwards, the performance of private banks was above those of, both privatised state-owned banks and state-owned banks, and that except for the year 2003, the performance of the privatised banks was greater than that of state-owned banks. This is consistent with what we find in our statistical analysis results, although the difference in performance before and after privatisation period are not statistically significant. During the first two years of entry, the performance of the private bank was lower than that of the other banks, confirming the hypothesis that firms are prepared to make lower entry profits or even losses in hope of greater profits in future.. Finally, the profitability trend indicates that in 2001 when the

economy was in shambles due to drought among other factors, bank profitability also declined.

Table 4: Regression Estimates of Determinants of Profitability in the Banking Industry

Independent Variables	Banking Industry
	ROA
STATE	-0.0333 <i>(-1.26)</i>
PRIV	-1.8902 <i>(-1.13)</i>
DEAS	-0.0194 <i>(-0.52)</i>
LOAS	-0.0110 <i>(-0.31)</i>
HHI	-1.3209 <i>(-0.07)</i>
MS	0.1621^a <i>(4.66)</i>
DPSOB	-4.0446^b <i>(-2.19)</i>
DPVT	-0.8361 <i>(-0.43)</i>
DENTRY	0.8028 <i>(0.59)</i>
C	8.4968 <i>(1.02)</i>
N	64

Note: Subscripts a, b and c indicate that the parameter is statistically significant at the 1%, 5% and 10% level, respectively. The figures in parenthesis and italics are z-statistics. The model was estimated using heteroscedastic and serial correlation consistent feasible GLS estimation. N stands for the number of observations.

The results of our estimation, where we test the hypothesis that privatisation improves the performance (profitability) of both the privatized banks and the state owned banks and the private banks in the industry are presented in table 4. The results support the hypothesis that profitability increases with decrease in proportion of state ownership (STATE). However, the results are not statistically significant. Contrary to our expectation, the results show that privatisation in the banking industry is negatively

associated with profitability although this is not statistically significant. The results confirm what is found in the statistical analysis where there is also no significant relationship between privatisation and profitability. However, the decline in profitability could have been attributed to the unfavourable economic environment experienced from 2000 to 2004, characterized by high interest rates, volatile exchange rates, excessive government spending and suspension of donor support. These resulted in decline in productivity and subdued borrowing by the private sector, which in turn negatively affected the banks' core business of lending. In addition, there was a flight of a significant portion of interest bearing deposits as investors shifted preferences in favour of high yielding treasury bills. However, this is not the case as the DENTRY dummy, which captures the effects of entry of new banks into the industry and other economic factors is positive though insignificant. This might suggest that the macroeconomic environment had a positive but insignificant impact on bank profitability. The only explanation one might suggest for the negative coefficient of PRIV may be that the huge investments in the post privatisation period did not match with returns in the short period after privatisation. The sample period is not long enough to capture the benefits of the heavy investments done in the post privatisation period. Appendix 5 depicts the trend in net income and total assets.

We find a negative and insignificant relationship between market concentration (HHI) and profitability. This is contrary to the collusion hypothesis that predicts a positive relationship between monopoly power and profitability. Chirwa (2001) found a positive and significant relationship between market concentration and profitability, and the inclusion of market share variable did not change either the sign or the significance of market power. Studies indicate that when market concentration and market share variables are estimated together, it is often found that the coefficient of concentration is either negative or insignificant. The hypothesis of a positive relationship between market share (MS) and profitability is supported by the banking industry in Malawi. The results are significant at 1 percent level. The results show that a 1% increase in market share results in 16.2% increase in profitability. The results are contrary to what Chirwa (2001) found, a negative and insignificant relationship between market share and profitability.

The results indicate that profitability in Malawi cannot be explained by loans to assets ratio (LOAS) which is also the proxy for bank- specific risks. The results are not in support of prior expectation of a positive relationship between loans-assets ratio and profitability. As noted in Chirwa (2001), the performance of loan to assets variable has mostly produced perverse results with negative coefficients. However, our results supports the hypothesis of a negative relationship between the intermediation measures, deposits to assets ratio (DEAS) and profitability, although the results are not statistically significant.

We find that the performance (profitability) of the privatised banks in Malawi was 4.04 points lower when compared to the performance of state owned banks. This is shown in the coefficient for the dummy variable for the privatised state owned banks (DPSOB). The results are significant at 5 percent level. However, we find no significant difference in performance between state-owned banks and private banks. The coefficient of the dummy variable for private banks (DPVT) is negative suggesting that the performance of the private banks were insignificantly below that of state owned banks. These results contradict the theories of privatisation which expect privatized banks to perform better than state-owned banks but not as good as private banks. However, the results should be read with much caution as they reflect the performance for the entire sample period. Refer to figure 4 for the trend in performance of the three categories of banks. The trend shows that the performance is as predicted in privatisation theories.

CHAPTER 6

Conclusion and Policy Recommendations

6.1 Conclusion

This study investigated the impact of privatisation on the financial performance and operating efficiency of the privatised banks and other banks (state-owned and private) and the determinants of performance using panel data from six banks in Malawi and covering the period 1994 to 2004. We find mixed statistical evidence on the impact of privatisation on profitability and operating efficiency. There is no compelling evidence that privatisation improves the profitability of all the competing banks in the same industry. Similarly, we find no evidence that privatisation increases the profitability of the privatised banks. Gross labour productivity increased significantly for the privatised banks and declined significantly for the state owned bank. Privatized banks recorded an insignificant increase in deposits-assets ratio while there was a significant increase and decrease for the private bank and state owned bank, respectively, after privatisation. Privatisation is associated with decline in loans-assets ratio, which is significant for the privatized banks, and insignificant for the private bank. On the other-hand, the state owned bank registered a significant increase on loans-assets ratio during the privatization period.

We find that investment intensity increased for all banks irrespective of category after privatization period, but this increase is significant only for the privatized banks and the state-owned bank. The results indicate that real output increased in all banks following privatization, although this increase was only significant for the private bank. Fears that privatization might result in significant reduction in employment levels cannot be confirmed by our results. We find insignificant decline in employment levels for the privatized banks while there is significant increase in employment for both the state-owned and private banks.

Turning to the results on our econometric model, where we control for other determinants of performance, we find statistically insignificant negative relationship between privatization and profitability. This is so probably because the huge investments in the post privatisation period did not match with returns in the short period after privatisation. The predictions of the theories of privatization of a negative relationship between proportion of state ownership and performance has been confirmed but the results are statistically insignificant. The results also show that profitability of the banking sector in Malawi can be explained by market share. Profitability increases with increase in market share. Loans-assets ratio and deposits-assets ratio cannot explain profitability of the banking sector in Malawi. We find that during the sample period, in terms of profitability, the state owned banks performed better than privatized state-owned banks and that there was no significant performance difference between the state-owned banks and private banks. However, this cannot be attributed to privatization.

6.2 Policy Recommendations

The results indicate that to a larger extent privatization has not resulted in significant improvements in profitability in the banking sector in Malawi. Empirical evidence suggests that privatization alone is not sufficient for improvements in performance of the privatized firms. Other factors including a conducive macroeconomic environment must be taken into account for a successful privatization. Our results indicate a negative relationship between the proportion of state ownership and bank profitability. It is noted, that government retained minority ownership in some of the banks after privatisation and that government gradually reduced its stake in privatised banks. These might have negatively impacted on the results. It is therefore, recommended that government should in future divest completely for better performance of the privatised banks. Negative consequences of retaining some ownership after privatisation are well documented by Clarke et al., 2003; Megginson, 2003 and Beck et al., 2003.

Secondly, our statistical results show a significant decline in loans to assets ratio and our econometric results indicate a negative but insignificant relationship between loans-assets ratio and profitability. This points to the fact that banks have reduced their lending to the

private sector probably due to high risk of lending, high interest rates, or have shifted to the attractive risk –free government securities. This might have resulted in the crowding out of the private sector, which is the engine for economic development. It is therefore, recommended that government should make deliberate policy to reverse this trend.

6.3 Limitations of the study

This study is subject to some limitations and the results must therefore, be read with caution. Two banks that were established during the sample period and one bank that went into voluntary liquidation in January 2006 were not included in our sample. We could possibly have different results if these were included. Another limitation is that the post- privatisation sample period is shorter than the pre-privatisation sample period. This might also have affected the results. While it would have been desirable to explore the impact of government securities, non-performing loans, and product mix, on profitability, this was not done.

6.4 Suggestions for further research

The existing literature provides rather a comprehensive account of the effects of internal and industry-specific determinants on bank profitability, but the effect of the macroeconomic environment is not adequately dealt with. An investigation on this area, particularly on the relationship between bank profitability and inflation rate, real interest rate, growth in money supply, and business cycles in Malawi would be revealing. Secondly, it may also be desirable to examine the impact of bank privatization on the development of capital markets in Malawi. Finally, the issues of governance, before and after privatization have not been investigated, any study in this area might reveal whether changes in management and directors has an impact in bank privatization.

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APPENDICES

Appendix 1: Definitions of variables used in the Statistical Analysis

Table A1	
Definition of Financial and Operating Efficiency Indicators	
Variable	Description
Return on Assets(ROA)	The ratio of net income to total assets. Net income is equal to profit before taxation. Total assets are equal to the sum of the net book value at the end of year, cash and funds with the Reserve Bank of Malawi, balances with banks abroad, loans and advances, investment in corporate enterprises and financial assets, and fixed assets.
Return on Equity(ROE)	The ratio of net income to equity. Equity is equal to the some of share capital, reserves and retained profits.
Deposits/Employees	The ratio of real deposits to the number of employees. Deposits are equal to the sum of current accounts, foreign currency accounts, savings accounts and deposits accounts.
Deposit/Assets	The ratio of deposits to total assets.
Loans/Assets	The ratio of loans to total assets. Loans are equal to loans and advances to customers.
Net Income/Employees	The ratio of real net income to number of employees. Net income is equal to profit before taxation.
Investments/Assets	The ratio of investment expenditure to total assets. Investment expenditure is equal to the sum of investments in land and buildings, plant and equipment, transport equipment and office equipment.
Deposits	Deposits are equal to the sum of current accounts, foreign currency accounts, savings accounts and deposits accounts. Deposits are deflated by CPI.
Employees	The natural logarithm of the number of employees.

Appendix 2: Definitions of variables used in the Econometric Analysis

Table A2	
Definition of Variables in Econometric Models	
Variable	Definition of variables
	Dependent Variable: Profitability Measure
ROA	The ratio of net income to total assets.
	Independent Variable
STATE	The proportion of state ownership in a bank at a given time.
PRIV	The dummy variable for privatization. PRIV = 1 for the period after the year of privatization, zero otherwise.
LOAS	The ratio of loans to total assets
DEAS	The ratio of deposits to total assets
HHI	The Herfindahl-Hirschman index calculated as the sum of squared market shares in terms of deposits.
MS	The ratio of deposits of a bank to total deposits of the banking industry
DPSOB	Dummy for privatised state owned banks, 1 for privatised banks zero otherwise
DPVT	Dummy for private banks, 1 for private bank and zero otherwise.
DENTRY	Dummy for entry of other banks, 1 for period from 2000 and zero otherwise.

Appendix 3: Estimation Results

Cross-sectional time-series FGLS regression

Coefficients: generalized least squares

Panels: heteroskedastic

Correlation: panel-specific AR(1)

Estimated covariances	=	6	Number of obs	=	64
Estimated autocorrelations	=	6	Number of groups	=	6
Estimated coefficients	=	10	Obs per group: min	=	9
			avg	=	10.66667
			max	=	11
			Wald chi2(9)	=	49.27
Log likelihood	=	-153.4752	Prob > chi2	=	0.0000

roa	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
-----+-----						
state	-.0333272	.0263901	-1.26	0.207	-.0850508	.0183965
priv	-1.890218	1.67691	-1.13	0.260	-5.176901	1.396464
deas	-.019372	.0374543	-0.52	0.605	-.0927811	.0540371
loas	-.0110105	.0357325	-0.31	0.758	-.081045	.0590239
hhi	-1.320889	19.9443	-0.07	0.947	-40.41101	37.76923
ms	.1620672	.0347852	4.66	0.000	.0938895	.2302448
dpsob	-4.044558	1.844847	-2.19	0.028	-7.66039	-.4287248
dpvt	-.8360623	1.952536	-0.43	0.669	-4.662962	2.990838
dentry	.8028048	1.35377	0.59	0.553	-1.850536	3.456145
_cons	8.496812	8.314999	1.02	0.307	-7.800286	24.79391

Appendix 4: Diagnostics Tests Results

Appendix 4A

Heteroscedasticity Test Results.

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of roa

chi2(1) = 22.93

Prob > chi2 = 0.0000

Appendix 4B

Correlation Matrix

	STATE	PRIV	DEAS	LOAS	HHI	MS	DPSOB	DPVT	DENTRY
STATE	1								
PRIV	-.5908	1							
DEAS	-.2556	-.028	1						
LOAS	.4501	-.3390	-.2334	1					
HHI	.5742	-.8569	-.1183	.4784	1				
MS	-.0245	.0487	.4471	-.2687	.0266	1			
DPSOB	.3756	.0720	.1734	.2940	.0386	.4940	1		
DPVT	-.4328	-.0071	-.0451	-.2560	-.0643	-.2293	-.6000	1	
DENTRY	-.5741	.8432	.0639	-.4078	.8700	.0291	-.0422	.0704	1

Appendix 4C

Model Specification Test

Ramsey RESET test using powers of the fitted values of roa

Ho: model has no omitted variables

F(3, 53) = 1.70

Prob > F = 0.1790

Appendix 4D

Bhargava- Durbin –Watson Test for Serial Correlation

RE GLS regression with AR(1) disturbances Number of obs = 64
Group variable (i): bank Number of groups = 6

R-sq: within = 0.1569 Obs per group: min = 9
between = 0.7695 avg = 10.7
overall = 0.3636 max = 11

corr(u_i, Xb) = 0 (assumed) Wald chi2(10) = 27.74
Prob > chi2 = 0.0020

----- theta -----
min 5% median 95% max
0.0000 0.0000 0.0000 0.0000 0.0000

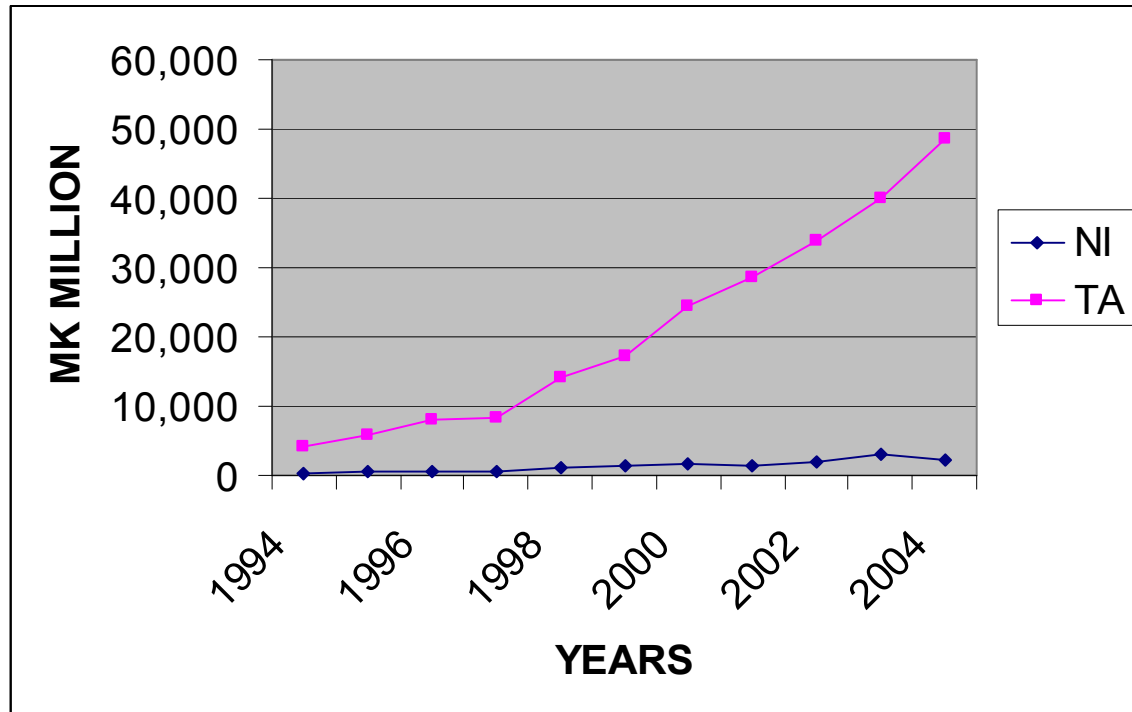
roa	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
-----+-----						
state	-.0582396	.0366398	-1.59	0.112	-.1300524	.0135731
priv	-4.771611	2.491793	-1.91	0.056	-9.655435	.1122137
deas	-.1209178	.0410403	-2.95	0.003	-.2013553	-.0404803
loas	-.0586142	.0433335	-1.35	0.176	-.1435463	.026318
hhi	-2.261256	30.48445	-0.07	0.941	-62.00969	57.48718
ms	.1664707	.0535537	3.11	0.002	.0615073	.2714341
dpsob	-2.218298	2.201965	-1.01	0.314	-6.534071	2.097475
dpvt	-1.068496	2.393387	-0.45	0.655	-5.759448	3.622456
dentry	1.740378	1.885507	0.92	0.356	-1.955148	5.435904
_cons	17.36356	11.95914	1.45	0.147	-6.075932	40.80305

-----+-----
rho_ar | .29973504 (estimated autocorrelation coefficient)
sigma_u | 0
sigma_e | 3.3912924
rho_fov | 0 (fraction of variance due to u_i)

modified Bhargava et al. Durbin-Watson = 1.6540706
Baltagi-Wu LBI = 1.8668269

Appendix 5

Figure 1A: Trends for Net Income (NI) and Total Assets (TA)



APPENDIX 6A DATA USED IN THE STATISTICAL ANALYSIS

BANK	YEAR	ROA	ROE	DEPEM	DEAS	LOAS	NIEM	INVAS	DEPO	EMPLO
1	1994	0.0505	0.4412	19.5395	0.7425	0.3559	1.3288	0.0867	25,050	1,282
1	1995	0.1013	0.9807	15.9468	0.7401	0.2517	2.1824	0.0582	21,273	1,334
1	1996	0.0803	0.7930	16.8417	0.7744	0.2765	1.7472	0.0499	22,012	1,307
1	1997	0.0654	0.5446	15.7888	0.7438	0.2844	1.3883	0.0498	19,689	1,247
1	1998	0.0936	0.9328	20.6715	0.7216	0.2945	2.6815	0.0336	24,310	1,176
1	1999	0.1086	0.6498	17.3610	0.7536	0.3572	2.5014	0.1029	20,174	1,162
1	2000	0.0744	0.5582	18.8939	0.6895	0.2714	2.0394	0.0755	21,766	1,152
1	2001	0.0633	0.4153	17.2189	0.6568	0.2209	1.6598	0.0726	18,321	1,064
1	2002	0.0592	0.3723	18.4597	0.6507	0.2124	1.6806	0.0793	18,847	1,021
1	2003	0.1029	0.5345	20.7139	0.6918	0.2486	3.0824	0.0774	20,424	986
1	2004	0.0851	0.4892	23.8264	0.6973	0.2954	2.9064	0.0724	24,208	1,016
2	1994	0.0692	0.8624	17.1346	0.7315	0.2912	1.6199	0.0291	16,843	983
2	1995	0.0968	1.2175	15.5591	0.7471	0.2359	2.0152	0.0381	15,497	996
2	1996	0.0563	0.4978	15.8220	0.7617	0.1813	1.1692	0.0738	15,616	987
2	1997	0.0528	0.4460	16.0114	0.7794	0.2433	1.0852	0.0716	15,611	975
2	1998	0.0616	0.6843	21.3840	0.7750	0.2219	1.7004	0.0490	21,042	984
2	1999	0.0850	0.6318	18.7742	0.7490	0.2697	2.1308	0.0972	18,155	967
2	2000	0.0872	0.6462	20.4396	0.7524	0.2942	2.3679	0.0954	18,907	925
2	2001	0.0424	0.3523	18.1222	0.6994	0.2297	1.0988	0.0962	16,093	888
2	2002	0.0402	0.3333	19.8061	0.6618	0.2137	1.2045	0.0945	15,568	786
2	2003	0.0600	0.4397	25.6476	0.7757	0.1767	1.9847	0.1217	18,005	702
2	2004	0.0080	0.0686	24.7106	0.7793	0.1318	0.2523	0.1314	16,210	656
3	1994	0.0195	0.3268	31.4246	0.8678	0.6533	0.7048	0.0246	6,599	210
3	1995	0.0325	0.3531	18.2949	0.8342	0.6030	0.7134	0.0451	4,848	265
3	1996	0.0423	0.3206	16.3057	0.8146	0.4495	0.8474	0.0395	4,745	291
3	1997	0.0233	0.1577	14.1145	0.8045	0.6055	0.4085	0.0529	4,305	305
3	1998	0.0069	0.0298	11.5507	0.7232	0.6114	0.1104	0.0879	3,708	321
3	1999	-	-	-	-	-	-	-	-	-
3	1999	0.0059	0.0380	13.1363	0.8047	0.4389	-0.0962	0.1218	3,888	296
3	2000	0.0407	0.3276	14.1533	0.8404	0.2854	0.6848	0.0810	3,991	282
3	2001	0.0282	0.2424	14.3430	0.8492	0.2894	0.4768	0.0815	3,887	271
3	2002	0.0833	0.7429	17.0772	0.7746	0.2415	1.8361	0.1149	4,201	246
3	2003	0.0575	0.6311	30.1598	0.8353	0.1538	2.0753	0.1045	7,359	244
3	2004	0.0158	0.1296	28.3506	0.8489	0.2115	0.5283	0.1192	7,881	278
4	1994	0.0599	0.9237	33.9757	0.1179	0.2355	17.2510	0.0185	815	24
4	1995	-	-	-	-	-	-	-	-	-
4	1995	0.1634	1.9412	29.8029	0.6657	0.7137	-7.3143	0.0927	834	28
4	1996	0.0376	0.1861	8.2182	0.2230	0.5427	1.3868	0.0442	271	33
4	1997	0.0224	0.1657	16.7568	0.3398	0.4888	1.1026	0.0125	687	41
4	1998	0.0381	0.5954	14.2908	0.1381	0.6830	3.9450	0.0137	643	45
4	1999	-	-	-	-	-	-	-	-	-
4	1999	0.0272	1.0117	15.9862	0.2153	0.4996	-2.0236	0.0173	767	48
4	2000	0.0241	0.2205	28.4853	0.4080	0.7423	1.6850	0.0119	1,396	49
4	2001	-	-	-	-	-	-	-	-	-
4	2001	0.0471	0.2801	29.4671	0.5459	0.5405	-2.5430	0.0317	1,473	50
4	2002	0.0841	0.3144	16.0398	0.4391	0.4663	3.0724	0.0454	882	55
4	2003	0.0334	0.1427	24.5801	0.6953	0.1556	1.1813	0.0389	1,671	68

4	2004	0.0024	0.0152	28.2656	0.6905	0.2196	-0.0987	0.0570	2,092	74
5	1994	0.1146	1.3992	90.6104	0.6742	0.4340	15.3987	0.0165	1,812	20
5	1995	0.0867	0.8852	67.8978	0.7243	0.2657	8.1304	0.0116	1,562	23
5	1996	0.0726	0.5645	42.3697	0.6962	0.2576	4.4164	0.0200	1,102	26
5	1997	0.0840	0.5824	33.1836	0.6195	0.4576	4.5003	0.0129	962	29
5	1998	0.0598	0.4199	23.8389	0.4467	0.5674	3.1913	0.0215	691	29
5	1999	0.0192	0.1085	32.4076	0.6577	0.2495	0.9437	0.0285	972	30
5	2000	0.0423	0.2869	57.3661	0.7249	0.2379	3.3457	0.0196	1,205	21
5	2001	0.0140	0.0856	16.5725	0.4651	0.1790	0.4973	0.0440	1,210	73
5	2002	0.0386	0.1966	10.1297	0.3649	0.0973	1.0724	0.0755	861	85
5	2003	0.0821	0.4305	21.5801	0.5331	0.0763	3.3230	0.0528	1,942	90
5	2004	0.0180	0.0913	17.4228	0.5555	0.1731	0.5648	0.0570	1,829	105
6	1996	0.0235	0.3172	44.5133	0.6599	0.0779	1.5874	0.0371	1,647	37
6	1997	0.0358	0.4423	18.6510	0.5736	0.3830	1.1654	0.0349	1,399	75
6	1998	0.0753	0.7356	14.4224	0.5800	0.2642	1.8715	0.0278	1,586	110
6	1999	0.0938	0.9192	17.3715	0.6079	0.1746	2.6806	0.0365	2,432	140
6	2000	0.0790	0.9817	15.1423	0.5535	0.1993	2.1609	0.0388	2,983	197
6	2001	0.0665	0.9626	21.4258	0.6352	0.1560	2.2423	0.0225	4,757	222
6	2002	0.0741	0.9228	19.3982	0.6416	0.1535	2.2417	0.0184	5,897	304
6	2003	0.0927	0.7394	19.6288	0.7302	0.2401	2.4908	0.0780	6,360	324
6	2004	0.0779	0.6689	25.2021	0.7119	0.2750	2.7577	0.0822	8,014	318

NOTE : These variables are defined in Appendix 1.

ROA = Return on Assets; ROE = Return on Equity; DEPEM = Real deposits per employee; DEAS = Deposits to Assets ratio; LOAS = Loans to Assets ratio; NIEM = Real net income per employee; INVAS = Investment to Assets ratio; DEPO = Real deposits; EMPLO = Number of Employees. Banks 1 = National Bank of Malawi; 2 = Stanbic Bank; 3 = NBS Bank; 4 = Ned Bank; 5 = INDEbank Limited; and 6 = First Merchant Bank.

APPENDIX 6B DATA USED IN ECONOMETRIC ANALYSIS

BANK	YEAR	ROA	DEAS	LOAS	STATE	PRIV	HHI	MS
1	1994	5.0492	74.2452	35.5884	39.16	0	0.3669	49.0019
1	1995	10.1285	74.0080	25.1658	39.16	0	0.3713	48.3323
1	1996	8.0339	77.4411	27.6475	39.16	0	0.3664	48.492
1	1997	6.5399	74.3771	28.4450	39.16	0	0.3591	46.1601
1	1998	9.3606	72.1610	29.4505	39.16	0	0.3889	46.7673
1	1999	10.8586	75.3634	35.7237	39.16	0	0.3528	43.4886
1	2000	7.4430	68.9542	27.1380	32.16	1	0.3404	43.3174
1	2001	6.3311	65.6789	22.0865	22.80	1	0.3040	40.0543
1	2002	5.9240	65.0692	21.2366	19.08	1	0.3045	40.7456
1	2003	10.2939	69.1755	24.8559	13.16	1	0.2710	36.6276
1	2004	8.5060	69.7312	29.5388	1.76	1	0.2709	40.1889
2	1994	6.9154	73.1484	29.1222	60.00	0	0.3669	32.9487
2	1995	9.6764	74.7104	23.5884	60.00	0	0.3713	35.2087
2	1996	5.6287	76.1688	18.1333	60.00	0	0.3664	34.4024
2	1997	5.2827	77.9431	24.3286	60.00	0	0.3591	36.6004
2	1998	6.1628	77.5021	22.1858	60.00	0	0.3889	40.4805
2	1999	8.5007	74.8994	26.9732	8.00	1	0.3528	39.1364
2	2000	8.7160	75.2363	29.4222	8.00	1	0.3404	37.6273
2	2001	4.2403	69.9380	22.9701	8.00	1	0.3040	35.1826
2	2002	4.0249	66.1814	21.3702	0	1	0.3045	33.6551
2	2003	6.0028	77.5713	17.6671	0	1	0.2710	32.289
2	2004	2.7957	77.9311	13.1822	0	1	0.2709	26.9117
3	1994	1.9463	86.7789	65.3258	51	0	0.3669	12.9093
3	1995	3.2528	83.4231	60.3026	51	0	0.3713	11.015
3	1996	4.2337	81.4614	44.9468	51	0	0.3664	10.453
3	1997	2.3282	80.4508	60.5458	51	0	0.3591	10.093
3	1998	0.6910	72.3209	61.1379	51	0	0.3889	7.133
3	1999	-0.5896	80.4663	43.8888	51	0	0.3528	8.3822
3	2000	4.0666	84.0424	28.5360	51	0	0.3404	7.9432
3	2001	2.8232	84.9181	28.9401	26	1	0.3040	8.4979
3	2002	8.3279	77.4551	24.1522	26	1	0.3045	9.082
3	2003	5.7475	83.5270	15.3802	16	1	0.2710	13.1974
3	2004	7.5817	84.8855	21.1480	16	1	0.2709	13.0846
4	1994	5.9881	11.7935	23.5478	100	0	0.3669	1.5951
4	1995	-6.3385	66.5731	71.3653	100	0	0.3713	1.8959
4	1996	3.7634	22.3026	54.2717	100	0	0.3664	0.5974
4	1997	2.2360	33.9826	48.8785	100	0	0.3591	1.6107
4	1998	3.8133	13.8137	68.2975	100	0	0.3889	1.2372
4	1999	-2.7248	21.5259	49.9636	25	1	0.3528	1.6542
4	2000	2.4134	40.7997	74.2250	5.7	1	0.3404	2.7778
4	2001	4.7113	54.5923	54.0506	2.9	1	0.3040	3.2212
4	2002	8.4113	43.9120	46.6323	2.9	1	0.3045	1.9072
4	2003	3.3415	69.5291	15.5592	2.9	1	0.2710	2.9975
4	2004	5.2511	69.0516	21.9558	2.9	1	0.2709	3.4725
5	1994	11.4573	67.4182	43.3953	25.13	0	0.3669	3.5450
5	1995	8.6734	72.4324	26.5704	27.6	0	0.3713	3.5481

5	1996	7.2568	69.6205	25.7636	27.6	0	0.3664	2.4268
5	1997	8.4021	61.9532	45.7604	26.9	0	0.3591	2.2562
5	1998	5.9795	44.6667	56.7372	26.1	0	0.3889	1.3300
5	1999	1.9154	65.7745	24.9474	25.67	0	0.3528	2.0959
5	2000	4.2279	72.4937	23.7939	25.67	0	0.3404	2.3975
5	2001	1.3955	46.5080	17.8958	25.67	1	0.3040	2.6449
5	2002	3.8632	36.4902	9.7330	25.67	1	0.3045	1.8614
5	2003	8.2086	53.3076	7.6301	25.67	1	0.2710	3.4831
5	2004	1.8007	55.5500	17.3125	25.67	1	0.2709	3.0371
6	1996	2.3532	65.9853	7.7918	0	0	0.3664	3.6283
6	1997	3.5844	57.3624	38.3048	0	0	0.3591	3.2796
6	1998	7.5257	57.9968	26.4187	0	0	0.3889	3.0520
6	1999	9.3799	60.7854	17.4620	0	0	0.3528	5.2428
6	2000	7.8988	55.3497	19.9333	0	0	0.3404	5.9367
6	2001	6.6480	63.5234	15.5982	0	1	0.3040	10.3991
6	2002	7.4142	64.1561	15.3546	0	1	0.3045	12.7487
6	2003	9.2663	73.0234	24.0062	0	1	0.2710	11.4054
6	2004	7.7900	71.1906	27.4994	0	1	0.2709	13.3051

NOTE : The data is as defined in equation 2 and appendix 2.