Determinants of profitability of domestic UK commercial banks: panel evidence from the period 1995-2002

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Abstract

The present study investigates the impact of bank's characteristics, macroeconomic conditions and financial market structure on bank's net interest margin and return on average assets (ROAA) in the UK commercial banking industry over the period 1995-2002. The results show that the ratio cost to income is negative and statistically significant in all cases. Liquidity is negatively related to NIM but positively related to ROAA. The impact of loan loss reserves has a positive impact on NIM and is statistically significant whether we consider bank characteristics alone or not and implies that higher risks result in higher margins. Capital strength was one of the main determinants of UK banks performance providing support to the argument that well capitalized banks face lower costs of going bankrupt, which reduces their cost of funding. Finally, the relation between size and performance is significant only in the case of NIM. The macroeconomic variables, we observe that both inflation and GDPGR have a positive and significant impact on performance. Finally, the variables used as proxies of the relative development of the banking industry and the stock market are both positive and statistically significant to performance, irrelevant of the measure that we use as an independent variable.

Keywords: Banks, Performance, Profitability, UK

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1. Introduction

The UK banking system has witnessed a substantial growth and change in recent years and its total assets have expanded rapidly since 1990. The sector consists of both domestic and foreign banks whose total assets reached 4,234bn GBP on August 2003, more than three times the 1990 total of 1,266bn GBP. The assets of the UK-owned banks represent 48% of the total assets of the UK banking sector and have increased by 5% since 1990. Major trends in the UK banking sector over the last years include the conversion of building societies into banks, the consolidation of the UK banking industry and the entrance of non-financial firms into the financial services market. Following the Building Societies Act 1986 a number of building societies converted into banks, especially between 1994 and 1997. In addition, the remaining building societies witnessed an increase in their commercial freedom in 1997 with the Building societies act 1997. These changes enhanced the scope for increased competition and wider choices for consumers. Furthermore, according to McCauley and White (1997) and White (1998), the UK experienced more merger and acquisition activity in its banking sector (in value terms) between 1991 and 1996 than any other European country. Finally, more recently, new players such as supermarkets, insurance companies and football clubs were allowed to enter the retail financial markets in Britain and are now offering a range of financial services such as credit cards, unit trusts etc.

It is reasonable to assume that all the above changes posed great challenges to UK banks as the environment in which they operated changed rapidly, which consequently affected their performance. However, despite the substantial structural changes and the significant increase of competition in the UK financial services sector in recent years, the UK banking sector remains relatively under researched (Drake, 2001). At the same time the limited studies focus on either the financial performance of UK-major banks or Building Societies performance. The purpose of this study is to

examine the internal (i.e bank's characteristics) and external (i.e macroeconomic and financial structure) factors that affected the performance of the UK-owned banks over the last years. A number of authors mention that the efficacy of financial intermediation affects country's economic growth (e.g Rajan and Zingales, 1998; Levin, 1997, 1998) while at the same time bank insolvencies can result in systemic crises which have adverse consequences for the economy as a whole with losses that arise in many cases 10-20% of GDP and occasionally as much as 40-55% of GDP (Caprio and Klingebiel, 2003). Indeed, the UK banking sector makes a significant contribution to the UK economy, accounting for an estimated 3.7% of the UK's Gross Domestic Product which is more than half of that generated by the financial sector as a whole (British Bankers Association, 2004). At the same time, the UK banking industry provides jobs for over 1.6% of UK employees and 40% of financial services employees (Maslakovic and McKenzie, 2002). Therefore knowledge of the internal and external determinants of banks profits and margins is essential not only for the managers of the UK banks but for numerous other stakeholders such as the government, the Bank of England, the British Bankers Association and the Financial Services Authority.

A number of studies have examined the determinants of banks' profits and margins in many countries around the world. Most of these studies consider internal factors (i.e bank's specific characteristics) and external factors (i.e financial industry and economic environment) and examine either a particular country or a number of countries. Single countries studies have examined US (Berger, 1995; Angbazo, 1997), Greece (Mamatzakis and Remoundos, 2003; Kosmidou and Pasiouras, 2005), Australia (Pasiouras et al. 2005), Malaysia (Guru et al., 1999), Colombia (Barajas et al., 1999), Brazil (Afanasieff et al., 2002) and Tunisia (Ben Naceur, 2003). Molyneux and Thorton (1992) examined the European banking sector and were among the first that examined the determinants of banks' profitability in several countries. Other panel country studies are those of Abreu and Mendes (2001) and Staikouras and Wood (2003) who also examined the European markets, Hassan and Bashir (2003) who examined a sample of Islamic banks from 21 countries and Demirguc-Kunt and Huizinga (1999) who considered a comprehensive set of bank characteristics,

macroeconomic conditions, taxation, regulations, financial structure and legal indicators to examine the determinants of bank interest margins and profitability in over 80 countries. Most of these studies conclude that internal factors explain a large proportion of banks profitability; nevertheless external factors have also an impact on the performance. However, the relations between bank's characteristics or external factors and profits and margins are not constant across countries or different periods within the same country. Therefore, further research is required. In addition given the differences in the banking sectors among countries, it is worthwhile to observe if the previous results are applicable to other locations.

The rest of the paper is structured as follows: Section 2 describes the variables chosen to measure the performance of the UK banks along with those chosen to test the factors that affect it. Section 3, describes the methodology and the data used in the study. Section 4 presents the empirical results, while in section 5 the concluding remarks are discussed.

2. Determinants and Variables Selection

As previously mentioned the empirical part of this paper attempts to examine the determinants of net interest margins and profits of the UK-owned commercial banks. Five bank's characteristics are used as internal determinants of performance. In addition, four indicators of financial structure and macroeconomic conditions are used as external determinants. The variables chosen to measure the performance of banks along with those chosen as proxies of the internal and external determinants are shown in Table 1 and discussed below. In addition, correlations between the independent variables are presented in Table 2.

[Insert Table 1 and Table 2 Here]

2.1 Performance Measures

In line with earlier studies that examined the determinants of banks' profitability, accounting ratios will be used as measures of performance in this study as well. The first ratio is the return on average assets (ROAA), calculated as net profit after tax divided by average total assets. This is probably the most important single ratio in comparing the efficiency and operating performance of banks as it indicates the returns generated from the assets that bank owns. Average assets are being used in this study, in order to capture any differences that occurred in assets during the fiscal year. The second ratio is the net interest margin (NIM) which is the net interest income[1] expressed as a percentage of earning assets[2], thereby showing the profitability of the bank's interest-earning business.

2.2 Determinants and Independent Variables

The five variables that are used as internal determinants of performance are the cost to income ratio, the ratio of liquid assets to customer and short term funding, the ratio of loan loss reserves to gross loans, the ratio of equity to total assets, and the bank's total assets. They represent efficiency in expenses management, capital strength, liquidity, asset quality and size accordingly.

Higher expenses normally mean lower profits and vice versa. The cost to income ratio (COST) measures the overheads or costs of running the bank, including staff salaries and benefits, occupancy expenses and other expenses such as office supplies, as percentage of income. It is used as an indicator of management's ability to control costs and is expected to have a negative relation with profits and margins.

As Golin (2001) mentions "*it is critical that a bank guard carefully against liquidity risk-the risk that it will not have sufficient current assets such as cash and quickly saleable securities to satisfy current obligations e.g those of depositors – especially during times of economic stress*". Without the required liquidity and

[1] Net Interest Income is calculated by subtracting interest expense (i.e the interest the bank must pay to its depositors and creditors from whom it has borrowed funds) from interest income (i.e income from loans and securities).

[2] The sum of bank's assets that earn interest, such as loans and investments in fixed-income securities. Can also be defined as total assets less fixed assets and non-interest earning assets.

funding to meet obligations, a bank may fail. However, liquid assets are usually associated with lower rates of return. The ratio of liquid assets to customer plus short term funding (LIQ) is used in this study as a measure of liquidity. This is a deposit run off ratio that indicates what percentage of customer and short term funds could be met if they were withdrawn suddenly. Therefore the higher this percentage the more liquid the bank is and less vulnerable to a classic run on the bank. A negative relationship is expected between this variable and ROAA and NIM.

The ratio Loan Loss Reserves to Gross Loans (LOSRES) is a measure of bank's asset quality[3] that indicates how much of the total portfolio has been provided for but not charged off. Given a similar charge-off policy the higher the ratio the poorer the quality and therefore the higher the risk of the loan portfolio will be. We are not making a hypothesis for the relation between this ratio and banks performance for the following reason. On one hand, the risk-return hypothesis implies a positive relationship between risk and profits. On the other hand, bad asset quality may have a negative impact on bank profitability by reducing interest income revenue and by increasing the provisions costs.

Although provisions and cumulative loan loss reserves provide early lines of defense against bad loans, bank's capital is the ultimate line of defense against the risk of bank's technical insolvency. This becomes obvious considering that if the bank will face a serious asset quality problem and loan loss reserves will be insufficient to allow all bad loans to be written of against them, the excess will have to be written off against shareholder's equity. Therefore capital strength, is linked to bank's soundness and safety. The ratio of equity to total assets (EQAS), which is considered one of the basic ratios for capital strength (Golin, 2001), is used in this study as a measure of capital strength. It is expected that the higher the equity to assets ratio, the lower the need to external funding and therefore the higher the profitability of the bank. In addition, well-capitalized banks face lower costs of going bankrupt which reduces their costs of funding.

[3] Asset quality refers mainly to the quality of the bank's earning assets, the majority of which comprises its loan portfolio (credit risk), although it will also include its securities portfolio (market risk) and off-balance sheet items. As Golin (2001) argues "*the challenge for bank management is to minimize the risk of loan defaults and to price loans so that returns are more sufficient to cover loan losses*".

The last bank's characteristic considered in this study is bank's size, measured by its total assets. The empirical results concerning size are mixed, since some studies found economies of scale for large banks (European Commision, 1997; Berger and Humphrey, 1997; Altunbas et al., 2001) and other economies of scale for small banks or diseconomies for larger banks (e.g Vander Vennet, 1998; Pallage, 1991).

Turning to the external determinants, two sets of variables have been considered in this study, indicating financial structure and macroeconomic conditions. The two macroeconomic variables used are GDP growth (GDPGR) and inflation (INF). GDPGR is a measure of the total economic activity and is expected to have an impact on numerous factors related to the supply and demand for loans and deposits. A positive relation is expected between the performance of the banks and this variable. Inflation may affect both the costs and revenues of any organization including the banks. Perry (1992) points out that the effect of inflation on bank performance depends on whether the inflation is anticipated or unanticipated. We finally examine how the performance of the banks is related to the relative development of the banking industry and the stock market using stock market capitalization divided by total assets of deposit money banks (MACPASS) and banking industry concentration (CONC). MACPASS reflects the complementarity or substitutability between bank and stock market financing. Demirguc-Kunt and Huizinga (1999) found stock market capitalization to bank assets, to be negatively related to margins suggesting that relatively well-developed stock markets can substitute for bank finance. We therefore expect, this variable to be negatively related to bank's performance. The last external indicator considered in this study is the concentration of the UK commercial banking sector, calculated as the total assets held by the five largest commercial banks in the UK divided by the total assets of all commercial banks in the country. According to the Structure-Conduct Performance (SCP) hypothesis, banks in highly concentrated markets tend to collude and therefore earn monopoly profits[4] (e.g Short, 1979; Gilbert, 1984; Molyneux et al., 1996). However, not all studies have found evidence to support

[4] Collusion may result in higher interest rates spread (e.g. higher interest rates being charged on loans and less interest rates being paid on deposits), higher fees being charged and so on (Goddard et al., 2001).

the SCP hypothesis. From the 45 studies reviewed by Gilbert (1984) only 27 provided evidence that the SCP paradigm holds.

3. Data and Methodology

3.1 Data

This study uses accounting data of UK banks as well as macroeconomic and financial market specific data drawn from the years 1995-2002. The data for the calculation of internal factors and concentration were obtained from Bankscope Database of Bureau van Dijk's company. The macroeconomic and other financial structure data were obtained from Euromonitor International Database which uses sources such as International Monetary Fund's (IMF) International Financial Statistics (IFS), International Financial Statistics and World Economic Outlook/UN/national statistics and World Bank.

Banks should meet the following three conditions in order to be included into the sample. First they had to be classified as UK banks in the Institutions included within the United Kingdome banking sector (at 31st December 2002) – nationality analysis of the Bank of England. Second, they should be characterized as commercial banks in Bankscope Database. Third, they should have annual accounting statements (balance sheet and income statement) for at least one year between 1995 and 2002 in the Bankscope Database. The time period was selected considering that it offers recent time series observations and it constitutes a period of structural changes for the UK banking system.

The above procedure yielded an unbalanced panel data of 32 commercial banks over the period 1995 to 2002, consisting of 224 observations.

3.2 Methodology

In order to test for the empirical relevance of the hypotheses regarding the causes of bank profitability, the following model has been developed.

$$z_{it} = a_{o_{it}} + a_{m_{it}} Y_{m_{it}} + a_{d_{it}} Y_{d_{it}} \qquad (1)$$

where

i refers to an individual bank,

t refers to year,

z is the dependent variable that refers either to the return on average assets (ROAA) or the net interest margin (NIM),

Y_m is a vector captured from the internal factors of a bank and

Y_d is a vector captured from the external factors of a bank

The model (1) is estimated through fixed effects regression. Based on the Breusch-Pagan test (Baltagi, 2001), we calculate the Lagrange Multiplier (LM) statistic. Comparing the relevant statistic of each model with $x^2_{0.05,n}$ and $x^2_{0.005,n}$ where n refers to the number of variables, we do not reject the null hypothesis that the errors are homoscedastic. Therefore, we consider that the fixed effects method used in our analysis is appropriate. The model (1) is finally extimated using White's transformation to control the cross-section heteroskedasticity of the variables.

Extending equation (1) to reflect the variables, as described in Table 1, the model is formulated as follows:

$$z_{it} = a_{ot} + a_{1t}COST + a_{2t}LIQ + a_{3t}RES + a_{4t}EQAS + a_{5t}SIZE + \\ + a_{6t}GDPGR + a_{7t}INF + a_{8t}MACPASS + a_{9t}CONC \quad (2)$$

4. Results

Tables 3 and 4 report the empirical estimations of equation (1) for ROAA and NIM respectively. The first column presents the results when only bank characteristics (i.e endogenous factors) are considered while the second when the external factors enter the equation. The explanatory power (in terms of adjusted R^2) of the NIM model is higher in both cases, while all F-statistic for all models is significant at 1% level. For the sample employed in this study, external factors had a relatively small impact on the overall descriptive power of the model employed. However, the relation between these additional variables and bank's performance can be proven useful for policy decisions.

As expected the coefficient of the ratio cost to income (COST) is negative and statistically significant in all cases, showing that an increase in these expenses reduces

the profits and margins of the UK banks. Guru et al. (1999), Kosmidou and Pasiouras (2005) and Pasiouras et al. (2005) among others also found an inverse relationship between measures of costs and banks' performance in Malaysia, Greece and Australia respectively.

As in previous studies, the results concerning liquidity are mixed. The ratio liquid assets to customer and short term funding is positively related to ROAA and statistically significant contrary to our expectations. Bourke (1989) and Kosmidou and Pasiouras. (2005) also found a significant positive relationship between liquidity and bank profits. In the case of NIM, the variable has the expected sign but it becomes statistically significant only when the external indicators enter the equation. Molyneux and Thorton (1992) and Guru et al. (1999) find also a negative relationship between bank profitability and the level of liquid assets held by the bank, as did Kosmidou et al. (2004) and Pasiouras et al. (2005) for net interest margin. Therefore conclusions about the impact of UK banks' liquidity on their performance remain ambiguous and further research is required.

The impact of loan loss reserves has a positive impact on NIM and is statistically significant whether we consider bank characteristics alone or not and implies that higher risks result in higher margins. On the other hand, the relationship between this variable and ROAA is positive but not statistically significant. This is not surprisingly considering that Loan Loss Reserves is the cumulative stock of loans loss reserves that changes according to the amount of new loan provisions added each year. Provisions are subtracted from Operating Profit Before Provisions, Taxes and Extraordinary Items to arrive at Operating Profit Before Taxes and Extraordinary Items and consequently after subtracting Taxes and Extraordinary Items to Profits after Tax, the numerator of ROAA. Similar results for both ROAA and NIM were obtained by Kosmidou and Pasiouras (2005) in their study of the Greek banking system.

Capital strength is one of the main determinants of performance of UK banks as the relatively high significant coefficient of the ratio equity to assets (EQAS) shows. The ratio is positive and statistically significant for both ROAA and NIM, whether we consider include external factors or not in the regression equation. This finding is consistent with previous studies (e.g Berger, 1995; Demirguc-Kunt and Huizinga,

1999; Ben Nacuer, 2003; Kosmidou and Pasiouras 2005; Pasiouras et al., 2005) and indicates that well capitalized UK banks face lower costs of going bankrupt, which reduces their cost of funding or that they have lower needs for external funding which results in higher profitability.

Next, there is an inverse and statistically significant relationship between size and either ROAA or NIM in all cases. The negative coefficient indicates that larger banks tend to earn lower margins and profits and is consistent with those studies that found either economies of scale and scope for smaller banks or diseconomies of scale for larger institutions. Kosmidou et al. (2003) also found that small UK banks exhibit higher overall performance to larger ones over the period 1998 to 2002 using a multicriteria approach. In addition, the Financial Stability Review (2002) reports that the growth of small banks' balance sheets has typically increased over the past twelve months. Moreover, it has been suggested that most small UK-owned banks are more profitable and have high published regulatory capital ratios. Vander Vennet (1998) found evidence of economies of scale only for the smallest banks with assets under ECU 10 billion in the EU, with constant returns thereafter and diseconomies of scale for the largest banks exceeding ECU 100 billions. Similar results were obtained in other studies in European markets (e.g Rodriguez et al., 1993; Pallage, 1991), Tunisia (Ben Naceur, 2003) and Australia (Pasiouras et al., 2005).

We now turn to the effects of macroeconomic and financial structure variables. The positive and statistically significant impact of GDP growth provides support to the argument of the association between economic growth and the financial sector performance, consistent with the results of Kosmidou and Pasiouras (2005) and Hassan and Bashir (2003). The relation between inflation and bank's performance is also positive and statistically significant consistent with the results of some of the previous studies (e.g Claessens et al., 1998; Demirguc-Kunt and Huizinga, 1999). This implies that during the period of our study inflation was anticipated which gave banks the opportunity to adjust the interest rates accordingly, resulting in revenues that increased faster than costs, with a positive impact on profitability. The variables used as proxies of the relative development of the banking industry and the stock market are also positive and statistically significant to both ROAA and NIM. The positive impact of

concentration as measured by C_5 ratios reflects the oligopolistic structure of the market and supports the Structure-Conduct Performance (SCP) hypothesis and the empirical results of Demirguc-Kunt and Huizinga (1999) and Hassan and Bashir (2003). Finally, the positive and statistically significant relationship between MACPASS and performance indicates that a larger stock market relative to the banking sector increase bank profits and margins. This finding confirms the empirical results of Ben Naceur (2003) who suggested that it is possible that as stock markets enlarge, more information become available. This leads to an increase of potential number of customers to banks by making easier the process of identification and monitoring of borrowers. Consequently this increase in bank activity contributes to increased profitability.

6. Concluding Remarks

The present study investigates the impact of bank's characteristics, macroeconomic conditions and financial market structure on bank's net interest margin and profitability in the UK commercial banking industry over the period 1995-2002. An unbalanced panel data set of 224 observations provided the basis for the econometric analysis.

For the sample employed in this study, the results show that inclusion of external factors in the regression equation in addition to banks' specific characteristics had a relatively small impact on the overall descriptive power of the model.

As expected the coefficient of the ratio cost to income is negative and statistically significant in all cases. The impact of the liquidity variable on the performance measures is not conclusive and further research is required. The impact of loan loss reserves has a positive impact on NIM and is statistically significant whether we consider bank characteristics alone or not and implies that higher risks result in higher margins. Capital strength was one of the main determinants of UK banks performance providing support to the argument that well capitalized banks face lower costs of going bankrupt, which reduces their cost of funding. The relation between size and performance is significant only in the case of NIM indicating the existence of diseconomies of scale in the UK banking sector. Turning to the macroeconomic

variables, we observe that both inflation and GDPGR have a positive and significant impact on performance. Finally, the variables used as proxies of the relative development of the banking industry and the stock market are both positive and statistically significant to performance, irrelevant of the measure that we use as an independent variable.

Future research could cover a longer or different time period and include a wider range of variables. Among others, potential variables are the interest and exchange rates the money supply growth and bank's market share. The application of the statistical cost accounting method to examine the differences in the determinants of profitability between different groups of banks, such as low and high profit, small and large and domestic and foreign banks could also reveal some useful insights.

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Table 1- Variables Description

VARIABLES	DESCRIPTION
Dependent	
ROAA	The return on average total assets of the banks
NIM	The net interest income of the banks expressed as a percentage of their earning assets.
Independent	
Banks characteristics (Internals Factors)	
COST	This is the cost to income ratio. It provides information on the efficiency of the management regarding expenses relative to the revenues it generates. Higher ratios imply a less efficient management.
LIQ	This is a measure of liquidity calculated as liquid assets to customer & short term funding. Higher figures denote higher liquidity.
LOSRES	This is the ratio Loan Loss Reserves to Gross Loans. It indicates how much of the total portfolio has been provided for but not charged off and is used as a measure of bank's asset quality and risk. Given a similar charge-off policy the higher the ratio the poorer the quality and therefore the higher the risk of the loan portfolio will be.
EQAS	This is a measure of capital strength, calculated as equity to total assets. High capital-asset ratios are assumed to be indicators of low leverage and therefore lower risk.
SIZE	The accounting value of the bank's total assets.
Macroeconomic and Financial Structure (External Factors)	
GDPGR	The annual change in the Gross Domestic Product (GDP) (in constant US$ 1995)
INF	The annual inflation rate
MACPASS	The ratio stock market capitalization to total assets of the deposit money banks*. This variable serves as a proxy of financial development as well as a measure of the size of financial market and the relationship between bank and market financing. (in constant US$ 1995)
CONC	The C_5 concentration measure calculated by dividing the assets of the five largest banks with the assets of all banks operating in the market.

Notes:
The data for the calculation of internal factors and CONC were obtained from Bankscope Database. The data for the external factors were obtained from Euromonitor International Database which uses sources such as International Monetary Fund's (IMF) International Financial Statistics (IFS), International Financial Statistics and World Economic Outlook/UN/national statistics and World Bank.
*Total Assets of the deposit money banks is the summation of IFS lines 22a through 22f

Table 2 - Independent Variables Correlations

	RES	EQAS	COST	LIQ	SIZE	GDPGR	CONC	MACPASS	INF
RES	1								
EQAS	0.38484	1							
COST	-0.00998	-0.09431	1						
LIQ	0.056514	-0.14351	0.178384	1					
SIZE	-0.14643	-0.29445	-0.08798	-0.24743	1				
GDPGR	-0.05092	0.013899	0.062816	0.009121	0.012327	1			
CONC	0.12522	-0.01924	-0.03123	-0.00889	-0.06954	-0.20559	1		
MACPASS	-0.0457	0.023123	0.094964	0.048411	-0.05691	0.166851	-0.46428	1	
INF	-0.0978	0.023446	0.087488	0.038476	0.001075	0.147249	-0.76958	0.905731	1

Table 3 - Unbalanced pooled ROAA models

Independent Variables	Dependent Variable: ROAA	
COST	-0.073323 (0.0000)*	-0.074483 (0.0000)*
LIQ	0.042056 (0.0000)*	0.031325 (0.0026)*
RES	-0.004884 (0.5794)	-0.002338 (0.7856)
EQAS	0.305236 (0.0000)*	0.319330 (0.0000)*
SIZE	-0.020431 (0.0000)*	-0.009959 (0.0000)*
GDPGR		0.007941 (0.0000)*
INF		0.008667 (0.0000)*
MACPASS		0.008886 (0.0000)*
CONC		0.006142 (0.0001)*
Adjusted R^2	0.883369	0.884722
Breusch-Pagan test (LM)	15.999 ($x^2_{0.005,5} = 16.749$)	15.999 ($x^2_{0.05,5} = 16.919$)
F-statistic	152.6455 (0.0000)*	122.4442 (0.0000)*

32 Banks, period 1995-2002, No. of observations =224,
p-values in parentheses

*Significant at the 1% level

Table 4 - Unbalanced pooled NIM models

Independent Variables	Dependent Variable: NIM	
COST	-0.022988 (0.0000)*	-0.023125 (0.0000)*
LIQ	-0.03363 (0.3156)	-0.052097 (0.0000)*
RES	0.111602 (0.0000)*	0.088961 (0.0046)*
EQAS	0.522554 (0.0000)*	0.497287 (0.0000)*
SIZE	-0.042732 (0.0000)*	-0.021061 (0.0000)*
GDPGR		0.022628 (0.0000)*
INF		0.029309 (0.0000)*
MACPASS		0.0011911 (0.0000)*
CONC		0.004882 (0.0000)*
Adjusted R^2	0.918970	0.918522
Breusch-Pagan test (LM)	15.999 ($x^2_{0.005,5} = 16.749$)	15.999 ($x^2_{0.05,5} = 16.919$)
F-statistic	1123.271 (0.0000)*	342.5711 (0.0000)*

32 Banks, period 1995-2002, No. of observations =224,
p-values in parentheses

*Significant at the 1% level