

## DETERMINANTS OF BANK PROFITABILITY IN A DEVELOPING ECONOMY: EMPIRICAL EVIDENCE FROM THE PHILIPPINES

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### ABSTRACT

*The present paper seeks to examine the determinants of Philippines banks profitability during the period 1990–2005. The empirical findings suggest that all the bank-specific determinant variables have a statistically significant impact on bank profitability. The empirical findings suggest that size, credit risk, and expense preference behaviour are negatively related to banks' profitability, while non-interest income and capitalisation have a positive impact. During the period under study, the results suggest that inflation has a negative impact on bank profitability, while the impact of economic growth, money supply, and stock market capitalisation have not significantly explained the variations in the profitability of the Philippines banks.*

**Keywords:** banks, profitability, multivariate regression analysis, Philippines

### INTRODUCTION

The banking sector is the backbone of the Philippines economy and plays an important financial intermediary role. Therefore, its health is very critical to the health of the general economy at large. Given the relation between the well-being of the banking sector and the growth of the economy (Rajan & Zingales, 1998; Levine, 1998), knowledge of the underlying factors that influence the financial sector's profitability is therefore essential not only for the managers of the banks, but also for numerous stakeholders such as the central banks, bankers associations, governments,

and other financial authorities. Knowledge of these factors would be useful in helping the regulatory authorities and bank managers formulate future policies aimed at improving the profitability of the Philippines banking sector.

Over the last few years, a number of significant changes have occurred in the Philippines banking sector as a result of its adaptation to new conditions such as the deregulation of the national markets and the internationalisation of competition. At the national level, the central bank (*Bangko Sentral ng Pilipinas*) has been actively pushing for reforms to accelerate the development of the domestic capital market as an alternative funding source for the economy. The central bank has allowed the effective participation of non-bank financial institutions in capital market development with the lifting of the moratorium on the granting of licenses to investment houses and financing companies to engage in quasi-banking functions. At the regional level, the Association for the South East Asian Nations (ASEAN) through the ASEAN Free Trade Agreement (AFTA) attempts to encourage cross-border trade and competition in financial services.<sup>1</sup>

It is reasonable to assume that these developments posed great challenges to financial institutions in the Philippines as the environment in which they operated changed rapidly. This event has consequently had an impact on the determinants of profitability of Philippines banks. As Golin (2001) points out adequate earnings are required in order for banks to maintain solvency, to survive, grow, and prosper in a competitive environment.

By using the whole gamut of Philippines banks, this paper seeks to examine the performance of the Philippines banking sector over the period 1990–2005, which is characterised as a time of significant reform in the country's financial sector. While there have been extensive literatures examining the profitability of financial sectors in developed countries, empirical works on factors that influence the performance of financial institutions in developing economies are relatively scarce. Furthermore, at the present time, this type of analysis is completely missing in the literature concerning the financial sector in the Philippines.

This paper is structured as follows. The next section reviews the related studies in the literature, followed by a section that outlines the econometric

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<sup>1</sup> The Association for South East Asian Nations (ASEAN) composed of Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam.

framework. Section 4 reports the empirical findings. Finally, section 5 concludes and offers avenues for future research.

## **RELATED STUDIES**

In the literature, bank profitability, typically measured by the return on assets (ROA) and/or the return on equity (ROE) reported by a bank, is usually expressed as a function of internal and external determinants. Internal determinants are factors that are mainly influenced by a bank's management decisions and policy objectives. Such profitability determinants are the level of liquidity, provisioning policy, capital adequacy, expense management, and bank size. On the other hand, the external determinants related to both industrial and macroeconomic conditions related, are variables that reflect the economic and legal environments where the financial institution operates.

Liquidity risk, arising from the possible inability of banks to accommodate decreases in liabilities or to fund increases on the assets' side of the balance sheet, is considered an important determinant of bank profitability. The loans market, especially credit to households and firms, is risky and has a greater expected return than other bank assets, such as government securities. Thus, one would expect a positive relationship between liquidity and profitability (Bourke, 1989). It could be the case, however, that the fewer the amount of funds tied up in liquid investments the higher we might expect profitability to be (Eichengreen & Gibson, 2001).

Changes in credit risk may reflect changes in the health of a bank's loan portfolio (Cooper, Jackson & Patterson, 2003), which may affect the performance of the institution. Duca and McLaughlin (1990), among others, conclude that variations in bank profitability are largely attributable to variations in credit risk, since increased exposure to credit risk is normally associated with decreased firm profitability. This triggers discussions concerning not the volume but the quality of loans made. In this direction, Miller and Noulas (1997) suggest that the more financial institutions being more exposed to high risk loans increases the accumulation of unpaid loans and decreases the profitability.

Even though leverage (capitalisation) has been demonstrated to be important in explaining the performance of financial institutions, its impact on bank profitability is ambiguous. As lower capital ratios suggest a relatively risky position, one might expect a negative coefficient on this variable (Berger, 1995). However, it

could be the case that higher levels of equity would decrease the cost of capital, leading to a positive impact on bank profitability (Molyneux, 1993). Moreover, an increase in capital may raise expected earnings by reducing the expected costs of financial distress, including bankruptcy (Berger, 1995).

For the most part, the literature argues that reduced expenses improve the efficiency and hence raise the profitability of a financial institution, implying a negative relationship between the operating expenses ratio and profitability (Bourke, 1989). However, Molyneux and Thornton (1992) have observed a positive relationship, suggesting that high profits earned by firms may be appropriated in the form of higher payroll expenditures paid to more productive human capital.<sup>2</sup> In any case, it would be beneficial to identify the dominant effect in a developing banking environment like that found in the Philippines.

Bank size is generally used to capture potential economies or diseconomies of scale in the banking sector. This variable controls for cost differences and product and risk diversification according to the size of the financial institution. The first factor could lead to a positive relationship between size and bank profitability if there are significant economies of scale (Akhavain, Berger & Humphrey, 1997; Bourke, 1989; Molyneux & Thornton, 1992; Bikker & Hu, 2002; Goddard, Molyneux & Wilson, 2004). The second may lead to a negative one if increased diversification leads to lower credit risk and thus lower returns. Other researchers however conclude that marginal cost savings can be achieved by increasing the size of the banking firm, especially as markets develop (Berger, Hanweck & Humphrey, 1987; Boyd & Runkle, 1993; Miller & Noulas, 1997; Athanasoglou, Brissimis & Delis, 2008). Eichengreen and Gibson (2001) suggest that the effect of a growing bank's size on its profitability may be positive up to a certain limit. Beyond this point, the impact of its size could be negative due to bureaucratic and other factors. Hence, the size-profitability relationship may be expected to be non-linear.

Bank profitability is sensitive to macroeconomic conditions despite the trend in the industry towards greater geographic diversification and the greater use of financial engineering techniques to manage risk associated with business cycle forecasting. Generally, higher economic growth encourages bank to lend more and

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<sup>2</sup> A guess would be that such relationship is observed in developed banking systems, which hire high quality and therefore, high-cost staff. Hence, providing that the high-quality staff is sufficiently productive, such banks engaging in this practice will not be disadvantaged from a relative point of view.

permits them to charge higher margins and improve the quality of their assets. Neely and Wheelock (1997) use per capita income and suggest that this variable exerts a strong positive effect on bank earnings. Demircuc-Kunt and Huizinga (2001), and Bikker and Hu (2002) identifies possible cyclical movements in bank profitability i.e. the extent to which bank profits are correlated with the business cycle.<sup>3</sup> Their findings suggest that such correlation exists, although the variables used were not direct measures of the business cycle.

## **DATA AND METHODOLOGY**

We use annual bank level data of all Philippines commercial banks over the period 1990–2005. The financial statements of commercial banks operating in the Philippines banking sector over the period 1990–2005 are collected from the Bankscope database maintained by Bureau van Dijk's company. The macroeconomic variables are retrieved from IMF Financial Statistics (IFS) database. Due to the consolidation and closures of banks over the past decade, the total number of commercial banks in the sample varied from nine banks in 1990 to 24 banks in 1995 (see Appendix 1). This gives us a total of 280 bank-year observations.

### **Performance Measure**

Following Ben Naceur and Goaid (2008), Kosmidou (2008), and Abbasoglu, Aysan and Gunes (2007) among others, this study uses ROA as the dependent variable. ROA shows the profit earned per dollar of assets and most importantly, it reflects the management's ability to utilise the bank's financial and real investment resources to generate profits (Hassan & Bashir, 2003). For any bank, ROA depends on the bank's policy decisions as well as on uncontrollable factors relating to the economy and government regulations. Rivard and Thomas (1997) suggest that bank profitability is best measured by ROA in that ROA is not distorted by high equity multipliers and ROA represents a better measure of the ability of a firm to generate returns on its portfolio of assets. ROE on the other hand, reflects how effectively a bank management is in utilising its shareholders funds. Since ROA tend to be lower for

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<sup>3</sup> In a contestable market (a market where firms behave competitively due to the threat of new entrant), active firms are vulnerable to "hit and run" entry. For its existence, sunk costs must be largely absent. In the banking industry, some argue that most of the costs are fixed but not sunk, making it contestable (Whalen, 1988).

financial intermediaries, most banks heavily utilise financial leverage heavily to increase their ROE to competitive levels (Hassan & Bashir, 2003).

### **Internal Determinants**

The bank-specific variables included in the regressions are LNTA (log of total assets), LLP/TL (loans loss provisions divided by total loans), NII/TA (non-interest income divided by total assets), NIE/TA (total overhead expenses divided by total assets), and EQASS (book value of stockholders' equity as a fraction of total assets).

The LNTA variable is included in the regression as a proxy of size to capture the possible cost advantages associated with size (economies of scale). In the literature, mixed relationships are found between size and profitability, while in some cases a U-shaped relationship is observed. LNTA is also used to control for cost differences related to bank size and for the greater ability of larger bank to diversify. In essence, LNTA may have a positive effect on bank profitability if there are significant economies of scale. On the other hand, if increased diversification leads to higher risks, the variable may exhibit negative effects.

The ratio of loan loss provisions to total loans (LLP/TL) is incorporated as an independent variable in the regression analysis as a proxy of credit risk. The coefficient of LLP/TL is expected to be negative because bad loans are expected to reduce profitability. In this direction, Miller and Noulas (1997) suggest as the exposure of the financial institutions to high risk loans increases, the accumulation of unpaid loans would increase and profitability would decrease. Miller and Noulas (1997) suggest that decline in loan loss provisions are in many instances the primary catalyst for increases in profit margins. Furthermore, Thakor (1987) also suggests that the level of loan loss provisions is an indication of a bank's asset quality and signals changes in the future performance.

To recognise that financial institutions in recent years have increasingly been generating income from "off-balance sheet" business and fee income general, the ratio of non-interest income over total assets (NII/TA) is entered in the regression analysis as a proxy for non-traditional activities. Non-interest income consists of commission, service charges, and fees, guarantee fees, net profit from sale of investment securities, and foreign exchange profit. The ratio is also included in the regression model as a proxy measure of bank diversification into non-traditional activities. The variable is expected to exhibit positive relationship with bank profitability.

The ratio of overhead expenses to total assets, NIE/TA, is used to provide information on the variations of bank operating costs. The variable represents the total amount of wages and salaries as well as the costs of running branch office facilities. The relationship between the NIE/TA variable and profitability levels may be negative, as banks that are more productive and efficient aim to minimise their operating costs. Furthermore, the usage of new electronic technology, like ATMs and other automated means of delivering services, may have caused wage expenses to fall (as capital is substituted for labour).

EQASS variable is included in the regressions to examine the relationship between profitability and bank capitalisation. A strong capital structure is essential for financial institutions in developing economies, since it provides additional strength to withstand financial crises and increased safety for depositors during unstable macroeconomic conditions. Furthermore, lower capital ratios in banking imply higher leverage and risk, which therefore lead to greater borrowing costs. Thus, the profitability level should be higher for the better-capitalised bank.

### **External Determinants**

Bank profitability is sensitive to macroeconomic conditions despite the trend in the industry towards greater geographic diversification and a larger use of financial engineering techniques to manage risk associated with business cycle forecasting. Generally, higher economic growth encourages banks to lend more and permits them to charge higher margins while improving the quality of their assets. Neely and Wheelock (1997) use per capita income and suggest that this variable exerts a strong positive effect on bank earnings. Dermiguc-Kunt and Huizinga (2001) and Bikker and Hu (2002) identifies possible cyclical movements in bank profitability, i.e., the extent to which bank profits are correlated with the business cycle. Their findings suggest that such a correlation exists, although the variables used were not direct measures of the business cycle.

To measure the relationship between economic and market conditions and bank profitability, LNGDP (natural log of GDP), MSG (money supply growth), INFL (annual inflation rate), and MKTCAP (market capitalisation) are used.

The gross domestic product (GDP) is among the most commonly used macroeconomic indicators for measuring an economy's total economic activity. The GDP is expected to influence numerous factors related to the supply and demand for loans and deposits. As GDP growth slows down particularly during recessions, credit

quality deteriorates, and defaults increase, thus reducing bank returns. The coefficient of the variable is expected to be positive. Another important macroeconomic condition possibly affecting both the costs and revenues of banks is the inflation rate (INFL). Staikouras and Wood (2003) points out that inflation may have direct effects, e.g., an increase in the price of labour and indirect effects, e.g., changes in interest rates and asset prices on the profitability of banks.

Changes in the money supply may lead to changes in the nominal GDP and the price level. Although the money supply is basically determined by the central bank's policy, it may also be affected by the behaviour of households and banks. Following among others, Kosmidou (2008), the growth of the money supply (MSG) is used in this study. Mamatzakis and Remoundos (2003) used the money supply as a measure of market size and find that the variable significantly affects bank profitability.

Following among others, Dermigu-Kunt and Huizinga (1999), MKTCAP is introduced in the regression model to reflect the complementarity or substitutability between bank and stock market financing. Dermiguc-Kunt and Huizinga (1999) find that the ratio of stock market capitalisation to bank assets is negatively related to bank margins and suggested that the relatively well-developed stock markets can substitute for bank finance. We therefore expect the variable to be negatively related to bank performance.

Table 1 lists the variables used to proxy profitability and its determinants. We also include the notation and the expected effect of the determinants according to the literature. Table 2 presents the summary statistics of the dependent and the explanatory variables.

Table 1  
*Descriptive of the variables used in the regression models.*

Variable	Description	Hypothesized relationship with profitability
<b>Dependent</b>		
ROA	The return on average total assets of the bank in year $t$ .	NA
<b>Independent</b>		
<b>Internal Factors</b>		
LNTA	The natural logarithm of the accounting value of the total assets of the bank in year $t$ .	+/-
LLP/TL	Loan loss provisions/total loans. An indicator of credit risk, that how much a bank is provisioning in year $t$ relative to its total loans.	-
NII/TA	A measure of diversification and business mix, calculated as non-interest income/total assets.	+
NIE/TA	Calculated as a non-interest expense/total assets and provides information on the efficiency of the management regarding expenses relative to the assets in year $t$ . Higher ratios imply a less efficient management.	-
EQASS	A measure of bank's capital strength in year $t$ , calculated as equity/total assets. A high capital asset ratio is assumed to be indicator of low leverage and therefore lower risk.	+/-
<b>External Factors</b>		
LNGDP	Natural logarithm of gross domestic products.	+
MSG	The growth of money supply as measured by currency in circulation.	+
INFL	The annual inflation rate.	+/-
MKTCAP	The ratio of stock market capitalisation. The variable serves as a proxy of financial development.	-

*Source:* The data for internal factors are obtained from BankScope database. The data for the external factors are sourced from International Monetary Fund (IMF) International Financial Statistics (IFS).

Table 2  
*Summary statistic of dependent and explanatory variables.*

	Mean	Min	Max	Std. Dev.
<b>ROA</b>	0.0146	0.0167	0.0800	0.0183
<b>LNTA</b>	10.4387	10.5901	13.2802	1.4298
<b>LLP/TL</b>	0.0186	0.0075	1.2214	0.0783
<b>NII/TA</b>	0.0225	0.0213	0.0744	0.0110
<b>NIE/TA</b>	0.0400	0.0362	0.1840	0.0181
<b>EQASS</b>	0.1895	0.1374	1.0000	0.1807
<b>LNGDP</b>	6.7937	6.7948	7.0979	0.1586
<b>MSG</b>	0.1413	0.1232	0.2480	0.0718
<b>INFL</b>	4.4417	4.5087	4.8660	0.2695
<b>MKTCAP</b>	24.2288	24.3874	25.1137	0.5582

*Note:* The table presents the summary statistics of the variables used in the regression analysis.

### Econometric Specification

To test the relationship between bank profitability and the bank specific and macroeconomic determinants described earlier, we estimate a linear regression model in the following form:

$$y_{jt} = \delta_j + \alpha' X_{ijt} + \beta' X_{et} + \varepsilon_{jt}, \quad (1)$$

where  $j$  refers to an individual financial institution;  $t$  refers to year;  $y_{jt}$  refers to the return on assets (ROA) and is the observation of financial institution  $j$  in a particular year  $t$ ;  $X_i$  represents the internal factors (determinants) of a financial institution;  $X_e$  represents the external factors (determinants) of a financial institution;  $\varepsilon_{jt}$  is a normally distributed random variable disturbance term. We apply the least square method to a fixed effects (FE) model, where the standard errors are calculated by using White's (1980) transformation to control for cross-section heteroscedasticity. The opportunity to use a fixed effects model rather than a random effects model has been tested with the Hausman test. To check for the robustness of the results, we have also reported results from the random effects model.

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

$$\begin{aligned}
 ROA_{jt} = & \delta_0 + \alpha_1 LLP/TL_{jt} + \alpha_2 NII/TA_{jt} + \alpha_3 NIE/TA_{jt} + \alpha_4 LNTA_{jt} \\
 & + \alpha_5 EQASS_{jt} + \beta_1 LNGDP_t \\
 & + \beta_2 MSG_t + \beta_3 INFL_t + \beta_4 MKTCAP_t + \varepsilon_{jt}
 \end{aligned}
 \tag{2}$$

Table 3 provides information on the degree of correlation between the explanatory variables used in the multivariate regression analysis. The matrix shows that in general the correlation between the bank-specific variables is not strong suggesting that multicollinearity problems are either not severe or non-existent. Kennedy (2008) points out that multicollinearity is a problem when the correlation is above 0.80, which is not the case here.

Table 3  
Correlation matrix for the explanatory variables.

The notation used in the table is defined as follows: LNTA is a proxy measure of size, calculated as a natural logarithm of total bank assets; LLP/TL is a measure of bank risk calculated as the ratio of total loan loss provisions divided by total loans; NII/TA is a measure of bank diversification towards non-interest income, calculated as total non-interest income divided by total assets; NIE/TA is a proxy measure for management quality, calculated as personnel expenses divided by total assets; EQASS is a measure of capitalisation, calculated as book value of shareholders equity as a fraction of total assets; LNGDP is the natural log of the gross domestic product.

Independent variables	LNTA	LLP/TL	NII/TA	NIE/TA	EQASS	LNGDP	INFL	MSG	MKTCAP
LNTA	1.000								
LLP/TL	0.1344	1.000							
NII/TA	-0.2401	-0.1212	1.000						
NIE/TA	-0.4725	-0.1250	0.4931	1.000					
EQASS	-0.0897	-0.0472	0.0837	0.1491	1.000				
LNGDP	0.3663	0.0652	-0.3050	-0.1467	0.0428	1.000			
INFL	0.3654	0.0890	-0.3443	-0.1202	0.0771	0.9687	1.000		
MSG	-0.2338	-0.0636	0.1735	0.0375	-0.0166	-0.7171	-0.7065	1.000	
MKTCAP	0.1328	0.0165	-0.2428	-0.0193	0.1119	0.1892	0.2321	0.3483	1.000

## EMPIRICAL FINDINGS

The regression results focusing on the relationship between financial institutions' profitability and the explanatory variables are presented in Table 4. To conserve space, the full regression results, which include both bank- and time-specific fixed effects are not reported in the paper. Several general comments regarding the test results are warranted. The model performs reasonably well, with most variables

remaining stable across the various regressions tested. The explanatory power of the models is also reasonably high, as the *F*-statistics and Wald  $\chi^2$  statistics for all models are significant at the one percent level.<sup>4</sup>

Table 4  
*Multivariate regressions results.*

$$ROA_{jt} = \delta_0 + \alpha_1 LLP/TL_{jt} + \alpha_2 NII/TA_{jt} + \alpha_3 NIE/TA_{jt} + \alpha_4 LNNTA_{jt} + \alpha_5 EQASS_{jt} + \beta_1 LNGDP_t + \beta_2 MSG_t + \beta_3 INFL_t + \beta_4 MKTCAP_t + \varepsilon_{jt}$$

The dependent variable is ROA calculated as net profit divided by total assets; LNNTA is a proxy measure of size, calculated as a natural logarithm of total bank assets; LLP/TL is a measure of bank risk calculated as the ratio of total loan loss provisions divided by total loans; NII/TA is a measure of bank diversification towards non interest income, calculated as total non-interest income divided by total assets; NIE/TA is a proxy measure for management quality, calculated as personnel expenses divided by total assets; EQASS is a measure of capitalization, calculated as book value of shareholders equity as a fraction of total assets; LNGDP is natural log of gross domestic products.

	(1)	(2)	(3)	(4)
	Fixed effects	Random effects	Fixed effects	Random effects
<b>CONSTANT</b>	0.1175*** (8.91)	0.0894*** (-6.62)	-0.1398 (-0.90)	-0.1455 (-0.93)
<i>Bank Characteristics</i>				
<b>LNTA</b>	-0.0092*** (-7.96)	-0.0067*** (-6.62)	-0.0027 (-0.88)	-0.0015 (-1.02)
<b>LLP/TL</b>	-0.0704*** (-7.09)	-0.0695*** (-6.81)	-0.0639*** (-6.39)	-0.0631*** (-6.38)
<b>NII/TA</b>	0.5221*** (5.99)	0.5930*** (6.81)	0.5179*** (5.87)	0.5161*** (5.91)
<b>NIE/TA</b>	-0.5170*** (-7.23)	-0.4859*** (-7.01)	-0.4488*** (-6.02)	-0.3909*** (-5.63)
<b>EQASS</b>	0.0178*** (2.71)	0.0133** (2.13)	0.0170** (2.54)	0.0156** (2.50)

(continued on next page)

<sup>4</sup> During the period under study, the empirical findings seem to suggest that 13 out of 24 Philippines banks exhibit a negative coefficient. Interestingly, we find that most of the banks are relatively small and were taken over or closed down during the banking sector restructuring programme.

Table 4 (continued)

	(1)	(2)	(3)	(4)
	Fixed effects	Random effects	Fixed effects	Random effects
<i>Economic and Market Conditions</i>				
<b>LNGDP</b>			0.0405 (1.43)	0.0411 (1.46)
<b>MSG</b>			0.0031 (0.13)	0.0035 (0.15)
<b>INFL</b>			-0.0446** (-2.00)	-0.0477** (-2.26)
<b>MKTCAP</b>			0.0045 (1.56)	0.0046 (1.57)
$R^2$	0.1708	0.2119	0.3240	0.3423
$F$ -statistic	39.3***		24.13***	
Wald $\chi^2$		169.81***		218.18***
$\chi^2$	38.94***		3.12	
No. of observations	280	280	280	280

Notes: Values in parentheses are  $t$ -statistics. \*\*\*, \*\*, and \* indicates significance at 1, 5, and 10% levels.

Concerning the impact of bank size, LNTA is negatively related to the profitability of Philippines banks, indicating a negative relationship between bank profitability and bank size. The negative coefficient indicates that larger (smaller) banks tend to earn lower (higher) profits. This provides support to the earlier studies finding economies of scale and scope for smaller banks or diseconomies of scale for larger banks (e.g., Pasiouras & Kosmidou, 2007; Staikouras, Mamatzakis & Koutsomanoli-Filippaki, 2008). Hauner (2005) offers two potential explanations regarding how size could have a positive impact on bank performance. First, if this link relates to market power, large banks should pay less for their inputs. Second, there may be increasing returns to scale through the prioritisation of fixed costs (e.g. research or risk management) over a higher volume of services or through efficiency gains from a specialised workforce. It is interesting to note that the coefficient of the variable loses its explanatory power when other macroeconomic and financial indicators are controlled for.<sup>5</sup>

<sup>5</sup> The concentration ratio of the three largest banks' assets was at its peak during the beginning of the period under study, i.e., 94.9% in 1990. The ratio declined to reach a low of 67.3% in 1998, i.e., a year after the Asian financial crisis struck the region, before increasing dramatically and reaching 99.5% in year 2001 (Beck & Demirgüç-Kunt, 2009). A plausible reason could be attributed to the restructuring of the domestic banking sector whereby the three largest banks, that is Metropolitan Bank and Trust Company, Bank of the Philippines Island, and Banco De Oro Unibank have to absorb

As expected, the coefficient of LLP/TL entered the regression model with a negative sign and is statistically significant at the one percent level. The results suggest that Philippines banks with higher credit risk tend to exhibit lower profitability levels. The empirical findings imply that Philippines banks should focus more on credit risk management, which has been proven to be problematic in the recent past. Serious banking problems have arisen from the failure of financial institutions to recognise impaired assets and create reserves for writing off these assets. Efforts to smooth these anomalies would be significantly aided by improving the transparency of the financial system, which in turn would assist financial institutions to evaluate credit risk more effectively and to avoid problems associated with hazardous exposure.

On the other hand, the coefficient of NII/TA entered the regression model with a positive sign and is statistically significant at the five percent level in all regression models. The results imply that financial institutions, that derived a higher proportion of their income from non-interest sources such as fee-based services tend to report a higher level of profitability. The empirical findings provide support to earlier studies such as that by Canals (1993). To recap, Canals (1993) suggests that revenues generated from new business units have significantly contributed to improve bank performance. On the other hand, Stiroh and Rumble (2006) find that diversification benefits gained by US financial holding companies are offset by their increased exposure to non-interest activities, which are much more volatile but not necessarily more profitable than interest-generating activities.

NIE/TA exhibits a negative and significant impact on Philippines banks' profitability. The results imply that an increase (decrease) in these expenses reduces (increases) the profits of financial institutions operating in the Philippines. Pasiouras and Kosmidou (2007), and Kosmidou (2008), among others have also found poor expenses management to be among the main contributors to poor profitability. Indeed, efficient cost management is a prerequisite for the improved profitability of the Philippines financial sector: that is the high elasticity of profitability to this variable denotes that financial institutions have much to gain if they improve their

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the smaller banks that are in distress due to a prevailing crisis. Noteworthy is that, the empirical findings clearly suggest that the restructuring of the financial sector involving, among others, the consolidation of the domestic banking sector has resulted in banks, becoming too large and inefficient. However, the results would have to be interpreted with caution as the coefficient of the variable is only significant in the baseline regression model and loses its explanatory power when we control for macroeconomic and market conditions.

managerial practices. Furthermore, the Philippines financial system has not reached the maturity level required to derive the benefits from increased spending needed to increase financial institutions' profitability.

The level of capitalisation (EQASS) is positively related to the profitability of Philippines banks and is statistically significant at the five percent level or better in all regression models. The empirical finding is consistent with those found by Berger (1995), Demirguc-Kunt and Huizinga (1999), Staikouras and Wood (2003), Goddard et al. (2004), Pasiouras and Kosmidou (2007), and Kosmidou (2008), lending support to the argument that well-capitalised banks face lower risks of going bankrupt, thus reducing their cost of funding. A strong capital structure is essential for banks in developing economies, since it provides additional strength to withstand financial crises and offers better safety for depositors during unstable macroeconomic conditions.

The impact of macroeconomic conditions and financial industry variables on ROA is positive in all cases with the exception of the INFL. The results about the LNGDP support the argument of the association between economic growth and the performance of the financial sector. Referring to the impact of the growth in the money supply, (MSG) was entered into the regression models with the expected positive sign. However, the coefficient of the variable was not significant in any of the regression models. Consistent with the findings by Kosmidou (2008) and Staikouras et al. (2008) the empirical findings seem to suggest that the INFL is negatively related to Philippines banks' profitability implying that during the period under study, inflation is unexpected and results in a faster increase in costs than revenues. Staikouras and Wood (2003) point out that inflation may have direct effects (e.g., a rise in the price of labour). The impact of stock market capitalisation (MKT CAP) on bank profitability is not significant in all regression models, implying that during the period under study the Philippines stock market is relatively underdeveloped and thus does not offer substitution possibilities to potential borrowers.

## **CONCLUDING REMARKS AND DIRECTIONS FOR FUTURE RESEARCH**

The paper seeks to examine the factors that influence the profitability of financial institutions in a developing economy. Specifically working within the Philippines banking sector, the analysis is confined to the universe of the domestic and foreign

commercial banks that were operating in the Philippines banking sector during the period 1990–2005.

The empirical findings of this study suggest that all the bank-specific determinant variables have a statistically significant impact on the profitability of the Philippines banks. During the period under study, the results suggest that size, credit risk, and overhead expenses are negatively related to bank profitability, while non-interest income and capitalisation have a positive impact. The empirical findings seem to suggest that the rate of inflation is negatively related to Philippines banks' profitability level suggesting that during the period under study the level of inflation was unanticipated by banks. On the other hand, economic growth, the growth in the money supply, and the level of stock market capitalisation have not significantly explained the variations in the profitability of the Philippines banks.

The findings of this study have considerable policy relevance. It could be argued that the more profitable financial institution will be able to offer more new products and services. To this end, the role of technology advancement is particularly important given that a financial institution with relatively more advanced technologies may have an added advantage over its peers. The continued success of the Philippines banking sector depends on its efficiency, profitability, and competitiveness. Furthermore, in view of the increasing competition attributed to the more liberalised banking sector, bank managements as well as the policymakers will be more inclined to find ways to obtain the optimal utilisation of capacities while making the best use of their resources, so that these resources are not wasted during the production of banking products and services.

Moreover, the ability to maximise risk-adjusted returns on investment and sustaining stable and competitive returns is an important element in ensuring the competitiveness of the Philippines banking sector. Thus, from a regulatory perspective, the performance of the financial sector will be based on its efficiency and profitability. The policy direction will be directed towards enhancing the resilience and efficiency of the financial institutions with the aim of intensifying the robustness and stability of the financial sector. Thus, from the regulatory perspective, the performance of the bank will be based on their efficiency and profitability.

Future research could include more variables such as taxation and regulation indicators, exchange rates as well as indicators of the quality of the offered services. Another possible extension could be the examination of differences in the determinants of profitability between small and large or high and low profitability

banks. In terms of methodology, a statistical cost accounting and frontier techniques could also be used.

## **ACKNOWLEDGEMENTS**

We would like to thank the editor and two anonymous referees for their constructive comments and suggestions, which have significantly improved the contents of the paper. The remaining errors are our own responsibility. The analyses, opinions, and findings in this paper represent the views of the authors; they are not necessarily those of Khazanah Nasional Berhad.

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## APPENDIX 1

### Summary of the Sample Used in the Study

Bank	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Observations
Asiitrust Development Bank Inc.					√	√	√	√	√	√	√	√	√	√	√	√	12
Banco De Oro Universal Bank Inc.								√	√	√	√	√	√	√	√	√	9
Banco Filipino Savings and Mortgage Inc.			√	√	√	√	√	√	√	√	√						10
Bank of the Philippine Islands Inc.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	16
China Banking Corp. Inc.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	16
Chinatrust (Philippines) Commercial Banking Corp. Inc.								√	√	√	√	√	√	√	√	√	9

*(continued on next page)*

(continued)

<b>Bank</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>Observations</b>
Citystate Savings Bank Inc.									√	√	√	√	√	√	√	√	<b>8</b>
Citytrust Banking Corp. Inc.	√	√	√	√	√	√											<b>6</b>
Equitable PCI Bank Inc.					√	√	√	√	√	√	√	√	√	√	√	√	<b>12</b>
Export and Industry Bank Inc.	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√	<b>15</b>
Far East Bank and Trust Co. Inc.		√	√	√	√	√	√	√	√								<b>8</b>
Global Business Holdings Inc.			√	√	√	√	√	√	√	√	√						<b>10</b>
International Exchange Bank Inc.												√	√	√			<b>3</b>
Metropolitan Bank and Trust Inc.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	<b>16</b>
Philippine Bank of Communications Inc.		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	<b>15</b>

(continued on next page)

(continued)

<b>Bank</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>Observations</b>
Philippine Commercial International Bank Inc.		√	√	√	√	√	√	√	√								<b>8</b>
Philippine National Bank		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	<b>15</b>
Philippine Savings Bank Inc.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√		<b>15</b>
Philtrust Bank Inc.	√	√	√	√	√	√	√	√	√						√		<b>10</b>
Prime Media Holdings Inc.			√	√	√	√	√	√	√	√	√	√					<b>10</b>
Prudential Bank Inc.			√	√	√	√	√	√		√	√	√	√	√			<b>11</b>
Rizal Commercial Banking Inc.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	<b>16</b>
Security Bank Corp. Inc.			√	√	√	√	√	√	√	√	√	√	√	√	√	√	<b>14</b>
Union Bank of Philippines Inc.	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	<b>16</b>
<b>Observations</b>	<b>9</b>	<b>13</b>	<b>18</b>	<b>18</b>	<b>20</b>	<b>20</b>	<b>19</b>	<b>21</b>	<b>21</b>	<b>19</b>	<b>19</b>	<b>19</b>	<b>17</b>	<b>17</b>	<b>16</b>	<b>14</b>	<b>280</b>