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The determinants of bank net interest margins: A panel evidence from South Asian countries

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ABSTRACT

This paper studies the determinants of net interest margins of banks (NIMs) in four South Asian countries (Bangladesh, India, Nepal and Pakistan) in the period 1997–2012 using panel data of 230 banks. The study is in line of Ho–Saunders (1981) dealership model and its later expansions but extended the model by adding new variable the relative size of the banks and also classifying the determinants of interest margins as bank specific, industry specific and macroeconomic specific variables. We found that liquidity and equity positions, required reserve and operating expenses to total asset ratios affect net interest margins positively while relative size of the banks, market power and economic growth affect inversely.

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1. Introduction

Existence of net interest margins (NIMs) or spread is the fundamental factor of banking as the financial Intermediary business. Spread is the difference between the weighted average of yields on assets (interest revenue) and liabilities (interest expense)—also called the bankers' mark-up (Allen, 1988). However a very high or low and volatile spread can cause severe bank management problem and can create distrust among the stakeholders of the banking business. There may be a strong relationship between the higher spreads and higher default rate. Again from bankers' perspective, there may be trustworthy causes to charge higher margins as the wealth maximizer candidate in the economy. From the societal perspective, the higher the interest margins, the lower will be the social welfare. So, regularly updating our knowledge on interest margin determinants is valuable for number of reasons including monitoring changing trends in bank efficiency through time and evaluating whether bank margins are providing effective price signals to market players (Hawtrey and Liang, 2008).

In line of the Ho and Saunders' (1981) dealership model of banking where the banks receive deposits funds at random intervals, and subsequently, utilize these funds to satisfy stochastically received loan request has been studied for many years by different scholars in extended formats. Allen's (1988) studies on portfolio effects on spreads and Saunders–Schumacher's (2000) considerations for regulatory components, a market structure component and a risk premium component to determine the net interest margins of bank are notable. Angbazo (1997) studied the dealership model in single stage, considering

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the credit risk and also interest rate risk. [Maudos and Fernandez de Guevara \(2004\)](#) extended the dealership model viewing banks as the firm considering the operating expenses explicitly into account.

[Kunt and Huizinga \(1999\)](#) found that a larger ratio of bank assets to gross domestic product and a lower market concentration ratio lead to lower margins, controlling for differences in the bank activity, leverage and the macroeconomic environment in their 80 cross-country sample study. [Bernanke et al. \(1999\)](#) in their dynamic general equilibrium model to clear the credit market frictions in business fluctuations and [Gertler and Kiyotaki \(2011\)](#) in their macroeconomic paper on financial intermediation and credit policy in business cycle analysis also discussed about the effect of net worth of banking firms and default probability and their impact on margin determination.

In this paper, we tested the dealership model and its later extensions of bank interest margin determinants in case of four South Asian countries that is Bangladesh, India, Nepal and Pakistan, using fixed effect panel of 230 banks data for the period of 1997 to 2012. We viewed each country's banking sector in terms of a single representative agent and interested in margin determination on national basis. We studied the explanatory variables of interest margins classifying as bank specific, industry specific and macroeconomics specific and incorporated new bank specific variable the relative size of the bank which we found significantly and inversely affect net interest margins of banks. In our empirical model, we included 15 deterministic variables which seems a populous model of interest margin determinants in terms of number of variables. Selection of our sample was also notable on the ground that most of our sample countries (Bangladesh, India and Pakistan) were under the rule of British colony for around two hundred years. Central banks of the respective countries regulate the Banking systems and formulate policies for the smooth functioning of the schedule commercial banks. In the sample countries both nationalized and private commercial banks along with foreign, specialized, regional and cooperative commercial banks are operating their banking business. For details, in Bangladesh, 4 nationalized and 39 private commercial banks are operating their banking business. Whereas in India, Nepal and Pakistan the number of nationalized commercial banks is 27, 5 and 7, while the private commercial banks are 93, 30 and 66, respectively. We got the opportunity to study those countries' banking systems all—together considering likely regulatory, social and economic environments. The similarities of the countries gave us opportunity to test our theoretical model empirically using fixed effect panel regression. We also ran country-wise fixed effect panel regression and presented in the paper along the base line regression result. In the near past we found similar studies¹ on developed and developing countries of USA, Europe, Australia and Latin America but in case of South Asia, this study is a unique addition to the literature of the determinants of bank net interest margins.

The rest of the paper has been organized as follows: in Section 2, we presented relevant literature on the determinants of net interest margins. In Section 3 the empirical approach of our study and in Section 4 the sample description has been outlined. In Section 5 the result and finally in Section 6 we presented the conclusion and policy implications of our study.

2. The literature on determinants of net interest margins

Starting point of bank net interest margins determinants can be attributed to the dealership model of [Ho and Saunders \(1981\)](#) as an extension of the hedging hypothesis and the expected utility approach. In their landmark initiative, they proposed the two stage model of interest margin determination. In stage one; they argued the existence of 'pure spread' as the price of providing immediacy of services in face of the uncertainty generated by asynchronous deposit supplies and loan demands. In stage two; they attempted to measure the amount of pure spread by considering number of imperfections and regulatory restrictions. According to the model, pure spread is the difference between the bank lending rate (P_L) and the deposit rate (P_D). As there exists transaction uncertainty, banks set their interest rates as a margin relative to the interest rate of the money market (p). These happens as,

$$P_D = p - a \quad \text{and} \quad P_L = p + b$$

where a and b are the margins for the provision of immediacy services. Thus, as the risk averse, utility maximizer, bank's pure spread (S) could be determined as follows:

$$S = P_L - P_D = a + b \tag{1}$$

[Lerner \(1981\)](#) criticized the dealership model that it failed to recognize the bank as a firm having a certain production function associated with provision of the intermediation services. The presence of cost inefficiencies associated with the production process across banks can have a distortionary effect on the margin. The extension of the basic dealership model by [Maudos and Fernandez de Guevara \(2004\)](#) responded to this criticism by explicitly incorporating the role of operating costs and providing a detailed description of the link between riskiness and the margin in their one stage model of interest margin determinants which covered the data of 5 European countries to prove the model empirically.

[Allen \(1988\)](#) expanded the dealership model from a structure with one kind of loan and deposit to loans and deposits with many maturities that is the 'portfolio effect' apparent to margin determination. [Angbazo \(1997\)](#) studied the net interest margins of commercial banks reflect both default and interest rate risk premia. The study also showed that banks with more

¹ [Kunt and Huizinga \(1999\)](#) studied 80 developed and developing countries, [Saunders and Schumacher's \(2000\)](#) studies included USA and six EU countries, [Maudos and Fernandez de Guevara \(2004\)](#) studied 5 European countries. Also [Afanisief et al. \(2002\)](#) and [Williams \(2007\)](#) studied determinants of net interest margins on Brazilian and Australian banks respectively among others.

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