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Intra- and extra-bank determinants of Latin American Banks' profitability

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ABSTRACT

Using data on commercial banks in seven Latin American countries from 1995 to 2012, we find evidence of several major relationships involving bank profitability, including: 1) an inverse U-shaped relationship between banks' capital ratios and profitability, 2) a positive relationship between asset diversification (e.g. security trading, hedge funds, foreign exchange, assurance, etc.) and profitability, 3) a negative relationship between revenue diversification (e.g. interests, fees, commissions, etc.) and profitability, 4) a positive relationship between market concentration and profitability, and 5) improvements in the legal and regulatory system are associated with a negative impact on banks' profitability. This paper contributes to the literature by assessing these relationships using data on Latin American banks and by estimating their models using a system GMM approach that addresses issues arising from endogenous independent variables and heterogeneity among individual banks.

1. Introduction

Over the last thirty years, Latin American banking systems have experienced a rapid and deep structural transformation. This evolution has been characterized by the desire of governments to improve efficiency through deregulation of the banking system, several periods of privatization of financial institutions, and increasingly active participation of foreign banks. Additionally, during this process of consolidation, the economies in Latin America have experienced deeper regional integration as well as financial innovation.

Notwithstanding that all of these transformations have improved the allocation of financial resources, their economic impacts have not necessarily been positive. More complex risks, such as foreign exchange rate risk, interest rate risk, and general market risk, among others, as well as the inherent risk of new financial products, lower levels of diversification, and the introduction of new market regulations might have made these economies more vulnerable to internal and external shocks. These factors in conjunction with the consolidation of the banking sector in the region (largely driven by mergers, acquisitions and takeovers of local banks by foreign institutions), have impacted the way banks earn profits (Chortareas, Garza-Garcia, & Girardone, 2011).

The profitability of banks is not just determined by the factors mentioned above but also and substantially by the different crises observed in the region during the last decades (e.g. Mexico, Venezuela, and Chile in mid-1990s, Argentina in 2001, Uruguay in 2007, among many others). According to Singh et al. (2005), despite the relatively high interest-rate spreads, profitability of credit agencies is still poor due to high operating costs and relatively high loan risks in the region's banking systems.

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Initial research on bank performance focused on the determinants of interest margins. The seminal paper by Ho and Saunders (1981) served as the theoretical framework for most further research on the drivers of bank net interest margins. The dealership model of Ho and Saunders indicates that the optimal net interest margin is a function of risk aversion, the size of the bank, the degree of interest-rate risk on deposits and loans, and the degree of market competition. This model has been widely used, extended and improved on in the literature.[1]

Similar to Ben Naceur and Omran (2011), in this paper we follow an alternative approach focused on performance analysis using net interest margins with a more eclectic one-step estimation process based on a behavioral model of the banking firm. Previous literature on the study of bank profitability also considers this pragmatic approach of analysis where the determinants of profitability are classified by internal and external factors (Bourke, 1989; Demirgüç-Kunt & Huizinga, 1999; Goddard, Molyneux, & Wilson, 2004; Molyneux & Thornton, 1992; Saona, 2011; Short, 1979).[2] The literature usually considers that the internal drivers of bank profitability are those factors controllable by management which account for intra-firm differences in commercial bank profitability, given the external environment. The external factors comprise the entire set of those that are taken for granted, that are outside of the bank's control, and are expected to affect positively and/or negatively the bank's business (Athanasoglou, Brissimis, & Delis, 2008; Olson & Zoubi, 2011; Ramlall, 2009; Sufian & Habibullah, 2009). These variables are basically determined by the legal and institutional framework, the financial system, and the peculiarities of the economic (macroeconomic) setting where the bank performs its operations (Demirgüç-Kunt, Laeven, & Levine, 2004). Athanasoglou et al. (2008) investigate the determinants of bank profitability in a single equation framework broken down into three determinants of profitability: bank-specific (which involves operating efficiency, financial risk, and the bank's size), industry-specific (which includes variables that are not the direct result of managerial decisions) and macroeconomic-specific (cyclical output and expected inflation, for instance).

In this paper, we consider the second and third group of determinants together as part of our extra-bank drivers of bank profitability (Athanasoglou et al., 2008). The general goal of this paper is to determine the effect of intra- and extra-bank drivers of profitability of banks in Argentina, Brazil, Chile, Mexico, Paraguay, Peru and Venezuela for the period of 1995 to 2012.

Concerning the internal determinants of bank performance, in terms of functional diversification, the results show that asset diversification has contributed to improved performance of the banking sector in Latin America contrary to earlier findings on revenue diversification. The results also prove that market power, driven by a highly concentrated industry, impacts positively the net interest margin of the banks. Additionally, the capital ratio shows a non-linear relation with the banks' performance. This relationship is positive for low levels of capitalization, but shows that, after a certain critical point when capitalization continues growing, bank profitability worsens. Finally, we observe that the evolution of macroeconomic conditions, a crisis in the banking sector, the development of financial markets and the regulation of financial intermediation also impact the performance of banks in the region.

This work contributes to existing literature in a variety of different ways. First, the Latin American market provides a very interesting context to be studied due to the significant liberalization of its economies during times of regional economic crises, on the one hand, and the internationalization of its banking systems, on the other hand.[3] This research aims to increase the empirical findings for Latin American banks by developing a comprehensive model of bank profitability. Most of the limitations of the current literature on Latin America are rooted in either the scope and/or the scale of their analyses. For instance, although they use samples for several countries, they study the banking profitability using bank-specific data only (Brock & Rojas Suárez, 2000) or their samples of firms suffer from lack of representativeness in order to carry out further extrapolation (Gelos, 2009). Additionally, most of this already rather scarce empirical literature is focused on the analysis of individual countries such as Colombia (Barajas, Steiner, & Salazar, 1999), Chile (Brock & Franken, 2003), Argentina (Catão, 1998), or Brazil (Afanasieff, Lhacer, & Kanane, 2002). Consequently, our study contributes to the literature by analyzing bank profitability through a more comprehensive model which includes the intra- and the extra-bank determinants.

Second, this paper improves upon the previous empirical literature on the analysis of bank performance by properly addressing problems of endogeneity and issues related to individual heterogeneity. We use the system estimator with GMM in our econometric analysis in order to deal with these problems.

The rest of this paper is structured as follows. Section 2 provides a description of the related literature and the research hypotheses. Section 3 develops the methodology applied in the empirical analysis and describes the variables used. The main results are shown in Section 4 and major conclusions are drawn in the final section.

[1] For instance, Lerner (1981) discusses critically that certain assumptions behind the model might lead to errors. Afterwards, Allen (1988) extends the Ho and Saunders model to consider the case of loan heterogeneity. In the context of European banks, Carbó Valverde and Rodríguez Fernández (2007) use a multi-output framework to show that the relationship between bank margins and market power varies significantly across bank specializations. Focused on the European Union banks, Maudos and Fernández de Guevara (2004) widen the Ho and Saunders model to take banks' operating costs explicitly into account. Additionally, Saunders and Schumacher (2000) use a multicountry setting and decompose bank margins into a regulatory component, a market structure component and a risk premium component.

[2] They also break down this classification into both financial and non-financial (off-balance sheet) statement variables.

[3] An example of this is the consolidation of the Latin American banking system driven basically by the acquisition of local banks by foreign institutions (Yeyati & Micco, 2007). The liberalization of the banking systems around the world has being characterized by the abolition of interest rate controls and of barriers to the entry of foreign banks, new domestic banks and non-bank financial intermediaries, and a reduction in state ownership and in politically directed loans, often at concessionary rates, to specific sectors (Feldmann, 2012).