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Systemically important banks and financial stability: The case of Latin America

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ABSTRACT

This paper addresses the issue on how bank size and market concentration affect performance and risks in 17 Latin American countries between 2001 and 2008. The objective is to evaluate whether a too-big-to-fail behavior has been present in the region. Surprisingly, we do not find evidence to support a higher fragility of large Latin American banks. Our results show that systemically important financial institutions appear to outperform others in terms of both cost and profit without the need of taking more risks. This result holds even in concentrated markets, i.e., where there are few dominant banks and many others with small size in relation to the market. A highly unequal banking market in terms of assets, however, is detrimental for the performance of smaller banks and it also decreases stability of the whole system. We conclude that regulators should deal with market concentration by reducing the size gap between large and small banks, instead of dealing specifically with systemically important banks.

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1. Introduction

Due to the singular role that market structure plays on banking systems, the recent financial literature has become very concerned in discussing the effects of concentration on efficiency and stability of banking markets (Allen and Gale, 2004; Beck et al., 2006; Boyd and de Nicoló, 2006; Fu and Heffernan, 2009; Koutsomanoli-Filippaki et al., 2009; Fang et al., 2011a). Furthermore, motivated by the recent financial crisis, there is also a growing concern regarding the evaluation of Too Big to Fail (TBTF) behavior in different banking markets. This paper addresses these concerns of the literature by estimating the impact of bank size and market concentration on the performance and financial stability of 17 Latin American (LA) countries in the period 2001–2008. The study, therefore, offers a deeper understanding on how different banking regulations with the purpose of influencing the market structure and bank size will affect LA banks in both efficiency and risk.

Latin American financial institutions have been facing a consolidation trend since the 1990s as consequence of foreign entry, privatization and other sources of M&A (Martinez Peria and Moky et al., 2004; Carvallo and Kasman, 2005). This process has changed not only performance and the quality of bank services, but also the market structure within these same systems, making some banks emerge as essential players in the region. A problem may arise from this consolidation is that these dominant banks may perceive themselves as TBTF and, thus, may take more risks since they know there is a great probability they would be rescued by the policy makers when close to bankruptcy. This basically would constitute a moral hazard problem, in which the protection of TBTF banks by the authorities reduces market discipline and increases the possibility of financial distress (Stern and Feldman, 2004). Moreover, the recent financial crisis has unveiled the relevance of TBTF banks' bankruptcy for systemic risk and it is stimulating a discussion about the identification and mitigation of risks arising from these banks (Basel

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Commitee on Banking Supervision, 2010).[1] It is well-known that TBTF banks not only may increase overall risk, but they are also too costly to bailout (Demirguc-Kunt and Huizinga, 2010a).Therefore, the literature should have a vanguard role in investigating this field so as to bring forth effective solutions for policy makers, especially on the eve of the implementation of the Basel III accord.

Besides bringing additional evidence about this essential matter for the maintenance of worldwide financial stability, this paper studies the effects of concentration and size on both performance and stability so as to explain for which reasons LA banks decide to increase their size. Even if we suppose that size harms stability, there may be also cost or profit returns to scale justifying the decision to become large. If this is the case, bank regulators would face a challenging trade-off when aiming at reducing risk derived from systemically important financial institutions (SIFIs). Additionally, developing economies banking systems' efficiency and risk patterns may differ from those of the developed countries in such a way that the scale of banks may not have reached harmful levels yet.

We divide our paper in two parts. First, with the purpose of measuring bank performance, we estimate the common cost and profit frontiers for the whole region by employing the Stochastic Frontier Analysis (SFA) by Aigner et al. (1977). Furthermore, we employ the Battese and Coelli (1995) specification model that allows us to estimate the efficiency scores and its determinants – such as market concentration, bank size and other bank specific variables – in one step. Second, we run a similar regression using the Z-score, a measure of insolvency risk, as the dependent variable to analyze what drives bank risk-taking behavior. This is the idea of "stability inefficiency" by Fang et al. (2011b). In both parts, we propose to use a modification of the Herfindahl–Hirschman Index (HHI), known as the HHI dual (employed by Chang et al., 2006), as a proxy of concentration.

Regarding the efficiency of concentrated markets, there are conflicting theories from the views of both corporate finance and industrial organization. While the common wisdom of corporate finance suggests that mergers and acquisitions improve performance (Maksimovic and Phillips, 2001; Schoar, 2002), mergers and acquisitions may also be justified by other managerial motives (DeYoung et al., 2009) such as maximization of CEO remuneration, the preference for lower competitive pressures, and to become too big to fail in the regulators' eyes. On the other hand, from the view of industrial organization, one of the issues is to test the Structure Conduct Performance (SCP) paradigm that asserts that a change in the concentration of banking system affects the way banks behave and perform. Based on this paradigm, one may conclude that more concentrated markets result in lower efforts of banks to maximize profits and minimize costs, resulting in inefficiencies, i.e., the Hicks' quiet life hypothesis (Berger and Hannan, 1998). However, Maudos and Guevara (2007) not only reject the quiet life hypothesis for the EU-15 countries over 1993–2002, but also show that the market concentration and market power have different impacts on cost efficiency.[2]

In respect of the risk side, there are also two antagonic theories. The "concentration-fragility" view suggests that concentration can in fact increase systematic risk through higher costs to borrowers (Boyd and de Nicoló, 2006). Market concentration allows banks to increase the interest rate of their loans, which will force borrowers to incur in riskier activities so as to repay these loans. Alternatively, the "concentration-stability" view points out that banking markets supervisors find it easier to monitor a concentrated market, because of the low number of banks (Beck et al., 2006).[3] In addition, banks operating in concentrated markets would have higher profits, due to lower competitive pressure, providing a buffer for adverse shocks (Hellman et al., 2000). Finally, there are those who defend that both theories may be valid simultaneously. For instance, Berger et al. (2009b) state that each theory may hold under different conditions so that they need not yield opposite predictions.

Addressing these contradictions in the literature, this paper will show that market concentration has a negative effect on cost efficiency and overall risk, but no significant impact on profit performance. Therefore, a large gap between big and small banks makes the financial system prone to instability. SIFIs, however, seem to be more profit and cost efficient, especially in concentrated markets, and they also are less risk-takers than their competitors regardless of the market structure. In other words, even though market concentration harms stability, large banks do not appear to be the cause of this negative effect. Thus, a TBTF behavior does not seem likely to be in place in LA banking markets.

We structure our paper as follows. In Section 2, we describe our methodology, defining the variables of interest and the regression approaches taken. In Section 3, we present and summarize the data sources. In Section 4, we demonstrate and discuss the empirical results on both efficiency and risk. In Section 5, we make our the final remarks regarding the outcome of this paper.

2. Methodology

2.1. Measuring efficiency and its determinants

In this section, we specify the method as well as the variables that we use to calculate bank efficiency for Latin America. We employ the Stochastic Frontier Analysis by Aigner et al. (1977) and Meeusen and van den Broeck (1977) to estimate a common frontier for all Latin American countries. It consists in the estimation of cost (profit) frontier by regressing a translog cost (profit) function, and decomposing the errors into two parts. One captures the random disturbances (v), assumed to be normally distributed, and representing measurement errors and other uncontrollable factors, i.e., $v_{it} \overset{iid}{\sim} N(0, \sigma_v^2)$. The other error term ($\upsilon$) captures technical and allocative inefficiency, both under managerial control, and it is assumed to be half-normally distributed, i.e., $\upsilon_{it} \sim N^{+}(\mu_{it}, \sigma_{\upsilon}^2)$.[4] According to the literature, the estimation of a single frontier for the whole region allows banks from different countries to be compared against the same benchmark (Berger and Humphrey, 1997; Lensink et al., 2008). Supporting this approach is the fact that most foreign banks that operate within LA countries are the same. Furthermore, domestic banks are expanding their activities over the countries,

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[1] It is not only important to avoid the moral hazard problem in the first place, but it is also vital to determine the policies to be taken should a TBTF bank does fail. The financial contagion of such event, together with the high levels of interconnectedness of the financial system, might be enough to trigger worldwide long-lasting crisis. See the Financial Stability Board (2010) report for more information.

[2] There is a growing concern in investigating if the common idea that concentrated markets leads to a less competitive market, is in fact true. Several recent studies dismiss this paradigm. For instance, Claessens and Laeven (2004) find a positive relation between concentration and competition. Furthermore, Shaffer and DiSalvo (1994) find a high degree of banking competition in a small Pennsylvania county, even though the market structure was a duopoly. On the other hand, Bikker and Haaf (2002) regress competition indicators on market concentration and they do find a negative relationship, supporting the SCP paradigm. See Berger et al. (2004) for an extensive discussion of differences in the effects of concentration and market power.

[3] An interesting fact is that both Beck et al. (2006) and Schaeck and Cihák (2010) have found that both competition and concentration appear to reduce overall bank financial fragility, where one expects that the impacts of both variables should be the opposite of each other. They both conclude that concentration measures are not sufficient to reflect market power, and that there is another factor that makes concentration and financial fragility negatively associated.

[4] Both SFA and the data envelopment analysis (DEA) have been widely used by the literature. The SFA has the advantage of dividing error into two components, while the DEA considers that all deviation is due to inefficiency, dismissing the effect of random errors, (Yildirim and Philippatos, 2007). However, the SFA has to assume a distribution to firm-specific technical efficiency related variables (Hasan and Marton, 2003).

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