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How does competition affect bank systemic risk?

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ABSTRACT

Using bank level measures of competition and co-dependence, we show a robust negative relationship between bank competition and systemic risk. Whereas much of the extant literature has focused on the relationship between competition and the absolute level of risk of individual banks, in this paper we examine the *correlation* in the risk taking behavior of banks. We find that greater competition encourages banks to take on more diversified risks, making the banking system less fragile to shocks. Examining the impact of the institutional and regulatory environment on bank systemic risk shows that banking systems are more fragile in countries with weak supervision and private monitoring, greater government ownership of banks, and with public policies that restrict competition. We also find that the negative effect of lack of competition can be mitigated by a strong institutional environment that allows for efficient public and private monitoring of financial institutions.

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1. Introduction

The impact of bank competition on financial fragility has always been a subject of active academic and policy debate. However public policy interest in this topic has intensified after the global financial crisis, with both academics and policymakers questioning to what extent the "dark side" of competition and the resulting financial innovations in search of higher margins were responsible for the crisis. While greater competition in the banking sector has led to greater innovation and efficiency,[1] there is

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[1] Schaeck and Cihak (2010) find a positive effect of competition on profit and cost efficiency. Lin et al. (2010) and Demirguc-Kunt et al. (2004) find that tighter regulations on bank entry and bank activities lead to higher costs of financial intermediation and lower efficiency. Turk-Ariss (2010) finds a negative association between bank market power and cost efficiency.

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still no academic consensus on whether this competition has also led to greater fragility, with conflicted theoretical predictions and mixed empirical results.

In parallel, the financial crisis has also led to a re-examination of risk assessment practices and regulation of the financial system, with a renewed interest in systemic fragility and macro-prudential regulation. This requires a focus not on the risk of individual financial institutions, but on an individual bank's contribution to the risk of the financial system as a whole. Hence, there is a growing consensus that from a regulatory perspective of ensuring systemic stability, the correlation in the risk taking behavior of banks is much more relevant than the absolute level of risk taking in any individual institution.

In this paper we address both sets of issues by re-examining the empirical relationship between competition and systemic risk. Unlike the extant literature which has focused on stand-alone bank risk, our focus in this paper is on systemic risk. Hence in addition to looking at the absolute level of risk in individual banks, we examine the *correlation* in the risk taking behavior of banks, measured as the total variation of changes in default risk of a given bank explained by changes in default risk of all other banks in a given country.

We follow Anginer and Demirguc-Kunt (2011) and use Merton's (1974) contingent claim pricing framework to measure bank default risk and its contribution to systemic risk. Using a sample of 1872 publicly traded banks in 63 countries over the period 1997–2009, we investigate the impact of bank competition, as measured by the Lerner index of bank market power on systemic risk. Our results suggest a negative relationship between competition and systemic risk, consistent with the view that greater competition encourages banks to take on more diversified risks, making the banking system less fragile to shocks. We also examine the impact of the larger institutional and regulatory environment on this relationship. Correlated risk taking behavior is higher in countries with weak supervision and private monitoring, high government ownership of banks, and in countries with public policies that restrict competition. The competition – systemic fragility relationship is also sensitive to the underlying institutional environment. We find that the negative effect of lack of competition can be mitigated by a strong institutional environment that allows for efficient public and private monitoring of financial institutions.

Our paper contributes to a large literature on the relationship between competition and stability in the financial system.[2] Economic theory is conflicted on the impact of banking structure on financial stability. On the one hand, the charter value view of competition suggests there could be significant stability costs of competition, since too much competition may lead to excessive risk taking as it reduces margins (Marcus, 1984; Keeley, 1990; Allen and Gale, 2004). Proponents of this view argue that in an environment with greater competition, the pressure on profits will make banks choose riskier portfolios, leading to greater fragility (Hellmann et al., 2000). Others argue that in a more competitive environment, banks earn lower rents, which also reduces their incentives for monitoring (Boot and Thakor, 1993; Allen and Gale, 2000).[3] Large banks can also diversify better so that banking systems dominated with a few large banks are likely to be less fragile than banking systems with many small banks (Allen and Gale, 2004). Finally, some hold that a few large banks are easier to monitor and supervise compared to competitive banking systems with a large number of small banks. These arguments are all consistent with competition leading to greater fragility.

On the other hand, lack of competition may also exacerbate bank fragility. Banks with greater market power tend to charge higher interest rates to firms, inducing them to take on greater risk, and hence increasing the fragility of the financial system as well (Boyd and De Nicolo, 2005).[4] Importantly, large banks frequently receive "too-big-to-fail" subsidies from safety net policies, distorting their risk taking incentives and destabilizing the financial system as a whole (Kane, 1989; Acharya et al., 2012).

[2] See for example literature reviews by Carletti (2008) and Degryse and Ongena (2008).

[3] Dell'Ariccia and Marquez (2004) show that more intense competition may induce banks to switch to more risky, opaque borrowers, and Hauswald and Marquez (2006) show competition makes banks acquire less information on borrowers.

[4] In extensions of Boyd and de Nicolo model that allow for imperfect correlation in loan defaults, Martinez-Miera and Repullo (2010) and Hakenes and Schnabel (2011) show that the relationship between competition and risk is U shaped. Wagner (2010) allows for risk choices to be made by borrowers as well, which overturns the Boyd and De Nicolo results. Allen and Gale (2004) also show that competition –stability relationship can be complex, where competition can also increase stability.

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