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Bank competition and financial stability in Asia Pacific

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ABSTRACT

Analysis of the tradeoff between competition and financial stability has been at the center of academic and policy debate for over two decades and especially since the 2007–2008 global financial crises. Here we use information on 14 Asia Pacific economies from 2003 to 2010 to investigate the influence of bank competition, concentration, regulation and national institutions on individual bank fragility as measured by the probability of bankruptcy and the bank's Z-score. The results suggest that greater concentration fosters financial fragility and that lower pricing power also induces bank risk exposure after controlling for a variety of macroeconomic, bank-specific, regulatory and institutional factors. In terms of regulations and institutions, the results show that tougher entry restrictions may benefit bank stability, whereas stronger deposit insurance schemes are associated with greater bank fragility.

1. Introduction

The impact of bank competition on financial stability has been a focus of academic and policy debate over the last two decades and particularly since the 2007–2008 global financial crises (Beck, 2008; Carletti, 2008; Careletti, 2010; Acharya and Richardson, 2009; Beck et al., 2010; OECD, 2011). Under the traditional competition-fragility view, banks cannot earn monopoly rents in competitive markets and this results in lower profits, capital ratios and charter values. This makes banks less able to withstand demand- or supply-side shocks and encourages excessive risk-taking (Marcus, 1984; Keeley, 1990). Alternatively, the competition-stability view suggests that competition leads to greater stability. A less competitive banking market may lead to more risk-taking if the big banks are deemed too important to fail and as such obtain implicit (or explicit) subsidies via government safety nets (Mishkin, 1999). In addition, banks with more market power tend to charge higher loan rates, which may induce borrowers to assume greater risk leading to greater default. In competitive banking markets loan rates are lower, Too-Big-To-Fail issues and safety net subsidies are smaller, and this results in a positive link between bank competition and stability (Boyd and De Nicoló, 2005). It could also be the case, as noted by Martinez-Miera and Repullo (2010) that bank competition and stability are linked in a non-linear manner, and in a similar vein Berger et al. (2009) argue that competition and concentration may coexist and can simultaneously induce stability or fragility.

As noted above, recent studies on the causes of the credit crunch have highlighted deregulation and excessive competition as factors that led to financial sector meltdowns in the US and the UK (Llewellyn, 2007; Brunnermeier, 2009; Milne, 2009; OECD, 2011). Moreover, it is of interest to assess whether the relationship between banking competition and financial stability has been affected after the outbreak of the recent financial crisis. While a substantial literature has emerged addressing this critical issue,[2] to our knowledge, the problem has been inadequately covered for banks operating across the Asia Pacific region.[3] Against this backdrop our paper investigates the impact of bank competition on financial

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[2] Beck (2008) and Carletti (2008, 2010) provide excellent surveys of the literature.
[3] Soedarmon et al. (2011) and Liu et al. (2012) estimate the competition-stability nexus for banks in 12 Asian economies and four South East Asian countries, respectively. In addition, a small number of cross-country empirical studies include several Asia Pacific economies into their large sample sets in testing this relationship. See, for example, Beck et al. (2006a), Boyd et al. (2006), Evrensel (2008), Berger et al. (2009), Schaeck et al. (2009), Behr et al. (2010), Turk Ariss (2010), and Anginer et al. (2012).

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stability for 14 Asia Pacific economies over the period from 2003 to 2010 and extends the previous empirical literature in several respects.[4]

First, previous studies have focused on using Z-scores or evidence of a real bank crisis as measures of banking sector risk/stability. Here we extend the analysis by employing the probability of bankruptcy as an indicator of individual bank fragility.[5] A real banking crisis can be an accurate indicator of banking sector stability, but its significance may be distorted for the following reasons: (1) banking crises are defined and announced differently across countries; (2) regulators may be less inclined to report bank insolvencies because they may imply regulatory failure; and finally (3) regulators are reluctant to announce the failures of banks that play a key role within the system because they wish to avoid contagion effects (Uhde and Heimeshoff, 2009). The probability of bankruptcy, computed using the Black and Scholes (1973) and Merton (1974) contingent claims approaches provide a more appealing alternative. Compared to the use of accounting-based models (e.g., Z-score), this market-based measure of stability has the following advantages: (1) in efficient markets, stock prices reflect all available information; (2) market variables are unlikely to be influenced by firm's accounting policies; and (3) market prices reflect future expected cash flows and thus should be more appropriate for use for prediction purposes.

Second, according to the structure-conduct-performance proposition, competition and concentration are inversely related; a more concentrated market will feature a lower degree of competition. However, criticisms of this view have led to a shift away from the presumption that structure is the most important determinant of the level of competition. Instead, proponents of what is now known as the New Industrial Organization (NIO) literature, such as Schmalensee (1982), argue that the strategies (conduct) of individual firms are equally, if not more, important than concentration, in explaining competitive conditions. Also, the related emergence of the theory of contestability (Baumol, 1982; Baumol et al., 1982) has spawned a variety of non-structural indicators of competition aimed at identifying firm conduct.[6] In our study we include both structural and non-structural measures of competition to examine the concentration, competition and stability nexus in Asia Pacific banking.[7]

Thirdly, we incorporate both regulatory and institutional environmental factors in our models and also highlight the impact of the global turmoil on individual risk exposure in the region. Following Berger et al. (2009), we adopt an instrumental variable technique with a Generalized Method of Moments (GMM) estimator to address potential endogeneity problems between bank competition and risk. We also include a series of sensitivity analyses using different model specifications.

Overall our results suggest that greater concentration fosters financial fragility, whereas lower pricing power also induces bank risk exposure after controlling for macroeconomic, bank-specific, regulatory and institutional factors. This finding supports the neutral view of the competition-stability relationship. It also implies that some banks in the region are able to attain greater discretion in price-setting to boost profits and reduce insolvency risk through channels other than increased concentration, such as product differentiation. Furthermore, there is evidence that larger banks are more likely to fail than their smaller counterparts. In addition, our results indicate that tougher entry restrictions may benefit bank stability, whereas stronger deposit insurance schemes appear to create greater bank fragility.

The remainder of the paper is organized as follows. Section 2 provides a review of the literature on competition and stability in banking. Section 3 introduces the econometric methodology. Section 4 describes the data used in the econometric tests. Section 5 presents the empirical results and Section 6 are the conclusions.

2. Literature review

Under the traditional competition-fragility hypothesis, competitive and/or less concentrated banking systems are more fragile. The "charter/franchise value" of banking, as modeled by Marcus (1984), and Keeley (1990), suggests that competition drives banks to undertake risk-taking strategies due to the contraction of the latter's franchise value. These models show that a higher charter or franchise value arising from increased market power may deter excessive risk-taking by the bank's management. Because higher franchise value results in greater opportunity costs during bankruptcy, bank managers and shareholders may become more reluctant to engage in risky activities improving bank asset quality.

Diamond (1984), Ramakrishnan and Thakor (1984), Boyd and Prescott (1986), Williamson (1986), and others show that more concentrated banking systems are composed of larger banks and that larger banks can capitalize on economies of scale and scope and better diversify their portfolios. Smith (1984) argues that banking relationships may endure for longer periods in less competitive environments if the information on the probability distribution of depositors' liquidity needs is private. Hence, greater concentration and less competition could reduce liability risk and lead to greater stability in banking. Boot and Greenbaum (1993) and Allen and Gale (2000, 2004) suggest that in a more competitive environment, banks earn less informational rent from their relationships with borrowers, which reduces their incentives to properly screen borrowers and increases the risk of fragility.

Competition can impact stability through contagion. Using a model of financial contagion in the interbank market Allen and Gale (2000) suggest that under perfect competition, all banks are price takers and none have an incentive to provide liquidity to troubled banks. As a result, troubled banks eventually fail with negative repercussions for the entire sector. Similarly, Saez and Shi (2004) argue that banks can cooperate, act strategically and help other banks to cope with temporary liquidity shortages in a market characterized by imperfect competition. Allen and Gale (2000) also find that a concentrated banking system with a small number of large institutions is more stable because banks are easier to monitor, less burdened by supervision, and therefore more resilient to shocks. Boot and Thakor (2000) suggest that larger banks tend to engage in "credit reputation/rating" because making fewer high-quality credit investments can increase the return of individual investments and thereby encourage financial

[4] See, for example, De Nicoló et al. (2003), Beck et al. (2006a), Boyd et al. (2006), Yeyati and Micco (2007), Berger et al. (2009), Schaeck and Cihak (2008), Schaeck et al. (2009), Uhde and Heimeshoff (2009), Behr et al. (2010), Turk Ariss (2010), Agoraki et al. (2011), Soedarmon et al. (2011), and Liu et al. (2012).

[5] The Z-score is also used in this study to determine the robustness of our results.

[6] These include measures of competition between oligopolists such as Iwata (1974) and those that test for competitive behavior in contestable markets, Bresnahan (1982, 1989), Lau (1982) and Panzar and Rosse (1987). These indicators have been developed from (static) theory of the firm models under equilibrium conditions and mainly use some form of price mark-up over a competitive benchmark, such as price over marginal cost for the Lerner index and price over marginal revenue for the Bresnahan (1982) measure. The main exception is the Panzar and Rosse (1987) indicator that measures the relationship between changes in factor input prices and revenues earned by firms. See also Koetter et al. (2012) for recent studies using adjusted-Lerner

[7] The structural approach focuses on market structure measures such as market shares, concentration ratios for the largest sets of firms, and a Hirschman–Herfindahl index. Structural indicators measure actual market shares but do not allow inferences regarding the competitive behavior of banks. Non-structural measures are used to quantify bank pricing behavior. They include the Lerner index and the Panzar Rosse H-statistic (Berger et al., 2004).