



## On the optimality of bank competition policy



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### ABSTRACT

This study examines whether the effect of market structure on financial stability is persistent, subject to current regulation and supervision policies. The methodology of Sala-I-Martin (1997) is employed over a sample of 2450 banks operating within the EU-27 during the period 2003–2010. The results show a potential trade-off between market power and soundness, and how possible it is to regulate this trade-off above 21% markups. Financial stability appears more pronounced in markets of less concentration, where policies lean towards limited restrictions on non-interest income, official intervention in bank management and book transparency. Regulation and competition can act as substitute or complementary policies vis-à-vis a more stable financial system with less competition distortions.

### 1. Introduction

Deregulation has paved the way for the intensification of competitive conditions, amid which financial institutions struggle to survive, thus increasing the potential incidence of financial crises. Systemic risk is high, especially for incumbent banks whose market share is large enough to imply negative externalities on national economies cases where cross-border activity is significant. However, heterogeneity in financial markets, information asymmetries and disintegration of public policy does not foster a level-playing field for a global institutional reform.

Yet, the finance community has witnessed the slow response of European authorities to raise the problem of bank recapitalization due to institutional deficiencies, fears of panic in markets and ill-designed risk-weighted assets that necessitated the need for capital (expressed as percentage of total assets); in contrast, US banks took action immediately to address the level of capital shortage in question. A tighter labour market also disabled European banks to achieve efficiency through cutting costs, among others (Hoshi & Kashyap, 2015).

Moreover, harsher conditions of plummeting loan supply to the European private sector, and different definitions of skyrocketing impaired and non-performing loans have prevailed under a disintegrated regulatory structure at national level, as opposed to the US Federal system. Considering the latter, NPLs are considered in US as stated/restructured impaired loans and other loans being > 90 days past due

and nonaccrual loans, while ECB defines NPLs as loans up to 90 days past due only; however, European Banking Authority (EBA) follows a stricter definition of NPLs, accounting of impaired loans with 90 days deferred payments, forborne loans, and performing loans to debtors which are not performing on other loans (contagion effect).

Discrepancies are also obvious with respect to the macroeconomic and political environment. The reaction of Europe to the crisis has been internal devaluation and fiscal austerity away from expansionary monetary practices that took place in US. In fact, policy rates of US monetary authorities hit zero levels in 2009, with a lagging-behind Europe that followed the same policy after 5 years. A sense of policy uncertainty and political instability in Europe constitutes a feedback circuit, when national governments are changing to put an end to the ongoing crisis, but failures and institutional deadlocks keep up the vicious circle.

In the light of the global financial crisis, capital regulation has been deficient, as stress tests in 2010 disregarded losses on sovereign bonds until the rude awakening of a bailout call in Cyprus. In addition, ineffective market discipline due to too-big-to-fail policies and deficient risk evaluations of credit ratings agencies are coupled with supervisory authorities with jurisdiction on the non-shadow banking sector. This study has a clear focus on the European Union, utilising a sample that represents 51% of population in the EU-15 and 36% of population in the EU-12 in terms of bank assets.<sup>1</sup>

The mandate for an integrated competition policy in financial

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<sup>1</sup> The EU-12 constitutes a group of the following countries: Cyprus, Czech R., Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia following the 2004-enlargement of the European Union. Bulgaria and Romania joined in 2007 as part of the same fifth enlargement.

intermediation is sine qua non, amid an ongoing financial crisis that calls for a framework of precautionary rules and resolution mechanisms in European financial markets. Thus, the dynamics and optimality conditions of banking sector competition, in association with the evergreen topic of financial stability remain an open era for research.

Martinez-Miera and Repullo (2010) have shed light on the non-linear relationship between market power and stability. In a static and dynamic Cournot model they proxy the level of competition with the number of banks operating in a market. That disregards the pricing conduct of financial institutions in markets that demonstrate contestability, asymmetric distribution of bank assets within markets, concentration and the evolving process of financial integration in Europe through M & As, cross-border activity and operation via branches and subsidiaries. They also make the crucial and restrictive assumption that banks have no capital and fund their assets through insured deposits. Hence, is such relationship evident under capital requirements and other regulations?

Hakenes and Schnabel (2011) argue that bank regulation on income diversification may have an impact on the U-shaped relationship between competition and risk through imperfect correlation of loan defaults in competitive markets. It is unclear, though, whether such bearing is evident in concentrated markets.

From a macroprudential perspective, Beck, De Jonghe, and Schepens (2013) analyse differentials of the time-varying conditional correlation in competition-stability trade-off with some interesting results that overlook, though, whether the direct impact of competition and regulation on risk is robust. Correlation between two variables appears as an incomplete measure for the investigation of such relationship. Correlation fits only the linear part by construction, as linearity itself affects conditional correlation, which is sensitive to the distance from the mean and volatility of both series. Even if correlations are not regime switching, the analysis is sensitive to the year-specific distribution and the estimation error of both series.

From a methodological standpoint, economic theory falls short of giving rules for proper specification of empirical modelling when inconclusive evidence stems from parameter heterogeneity and model uncertainty. Economists provide empirical results, which come under scrutiny for their validity over different samples and economic modelling. Divergent conclusions are also sensitive to the methodology and control vector employed. An innovative idea that resolves the issue is the Extreme Bounds Analysis (EBA) as proposed by Leamer and Leonard (1983), which concludes about the sensitivity of parameter estimates across different specifications of a carefully selected information set. However, the main drawback in a multiregression framework is that if one coefficient changes sign, the variable is labelled as fragile, even if 99.99% of the regressors have the same sign. Hence, instead of this 'extreme' test, labeling each variable as robust or fragile, the analysis assigns a level of confidence to  $\beta$ -estimates focusing on the distribution of each regressor (Sala-i-Martin, 1997).<sup>2</sup> The results presented herein after turn out persistent across all specifications, thus I opt to report the output that appears representative, topical for the crisis debate and conducive to the construction of the bounds.

The analysis provides a unified framework that stresses the significance and magnitude of the potential impact of pricing conduct and market concentration subject to various institutional variables that enter directly or as an interaction with market structure conditions. Along with a battery of robustness checks, the results show the optimal degree of bank competition and, in particular, the effects of market structure under different regimes of regulation, supervision<sup>3</sup> and corporate governance addressing both cross-country and bank-level heterogeneity in the context of preserving European bank solvency.

<sup>2</sup> I would like to thank an anonymous reviewer for a relevant comment that proposed the underlying methodology in the revised version of the paper.

<sup>3</sup> See appendix A.1 for detailed description (Barth et al., 2013).

The remainder of the paper reviews the related literature (Section 2), describes the employed methodology (Section 3), followed by stability determinants (Section 4) and sample data (Section 5). Section 6 analyses the results (Section 6), with some alternative risk measures in Section 7, while Section 8 concludes.

## 2. Literature review

The analysis stems from the seminal contribution of Keeley (1990), who proposes the 'franchise (charter) value' paradigm. That is, in the event of the emergence of greater competitive pressures, the diminishing market power of banks squeezes profit margins, banks take refuge in riskier projects in order to recoup their lost returns. In contrast, monopolistic markets may promote more prudent behaviour by banks, by reducing their risk-taking appetite amid conditions of more profit-making opportunities and larger capital cushions (Beck, 2008; Berger, Klapper, & Turk Ariss, 2009; Schaeck & Cihák, 2013).

At the same time, a considerable source of instability stems from the liability side. Banks strive to improve franchise value and profitability through riskier asset allocation given that, in hard times of insolvency and banks runs, deposit insurance schemes are stand-by to intervene (Mishkin, 1999). Hence, it is deemed essential for the authorities to impose restrictions on deposit competition to discourage 'gambling for resurrection' (Cole, McKenzie, & White, 1995). In competitive markets, high depositors' trust may endogenously affect the failure probability of a bank through higher mark-ups and market shares. The incentive then to screen borrowers is limited in the absence of potential diversification gains to exploit (Matutes & Vives, 1996). In the developing Eastern Europe, even monopolistic markets dominated by large state-owned banks, are associated with financial fragility (Uhde & Heimeshoff, 2009).

However, concentration in lower competitive environments might drive to stability if the preservation of long-term relationships makes banks exploit private and exclusive information about the intertemporal liquidity needs of their customers (Smith, 1984). A relative market power may contribute to stability in the presence of well-diversified portfolios and scale economies of few large banks (Diamond, 1984). The size, therefore, in concentrated markets does matter and is conducive to fewer episodes of bank insolvency (Allen & Gale, 2000; Beck, Demirguc-Kunt, & Levine, 2006).

The second strand of the literature examining the competition-stability nexus emanates from Stiglitz and Weiss (1981), who argue that monopolistic market structures are to be blamed for higher charges on loans and thereby heightened future defaults. According to Boyd and De Nicolò (2005), as monopolistic structures increase loan rates, borrowers with riskier projects dominate the market. Thus, the probability of default is conditional on banks' pricing conduct in the loans markets.

When base loan rates on investment volumes irrespective of the level of credit rationing, competition leads to lower default risk (Koskela & Stenbacka, 2000). Caminal and Matutes (2002) corroborate the results of Petersen and Rajan (1995) that monopolistic markets bearing the costs of monitoring tend to be more susceptible to risky loans and thereby subsequent failures. By contrast, with insufficient credit rationing in competitive markets, banks mitigate risk-taking through a) limited loan provision to firms with unknown credibility (Zarutskie, 2006) and b) lower corruption in lending (Barth, Lin, Lin, & Song, 2009). Nicolo and Lucchetta (2009) argue that efficiency, portfolio quality and diversification gains are higher in competitive markets. Indeed, the level of competition attributed to the operational efficiency of banks tends to reduce risk-taking (Schaeck et al., 2009).

Allen and Gale (2004) conclude that it is Pareto optimal, though socially undesirable, to have instability in cases of a) perfect competition and complete markets, b) agency problems due to the incentive to acquire greater market share and the 'last bank standing effect' (Perotti & Suarez, 2002)<sup>4</sup> and c) many banks occupying the same locations and lacking innovation (Schumpeterian competition).

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