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Financial supervision regimes and bank efficiency: International evidence

Chrysovalantis Gaganis [a], Fotios Pasiouras [b,c,*]

[a] Department of Economics, University of Crete, Greece
[b] Surrey Business School, University of Surrey, UK
[c] Financial Engineering Laboratory, Department of Production Engineering & Management, Technical University of Crete, Greece

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ABSTRACT

There exists a lively debate as for the appropriate architecture of the financial supervision regime, with a long list of theoretical advantages and disadvantages associated with each one of its key dimensions. The present study investigates whether and how bank profit efficiency is influenced by the central bank's involvement in financial supervision, the unification of financial authorities, and the independence of the central bank. The results show that efficiency decreases as the number of the financial sectors that are supervised by the central bank increases. Additionally, banks operating in countries with greater unification of supervisory authorities are less profit efficient. Finally, central bank independence has a negative impact on bank profit efficiency.

1. Introduction

Regulations have traditionally been a central theme in the agenda of banking research with many studies examining their impact on aspects such as bank performance, efficiency, and risk-taking. While most of these studies are of theoretical nature or country specific ones, more recently the availability of cross-country data on banking regulations and supervision allowed researchers to work with international datasets and examine how regulations work with each and under different institutional environments. Furthermore, while the early studies focus mainly on capital requirements and deposit insurance, most recent studies give particular emphasis on other aspects such as supervisory power, market discipline, and restrictions on bank activities (e.g. Barth et al., 2004; Pasiouras et al., 2009).

However, the impact of the financial supervisory regimes (e.g. unification of supervisory agencies, independence) on bank performance has received considerably less attention. This is surprising since: (i) there are different theoretical views, with arguments in favor and against each aspect of the financial supervisory regime, and (ii) the supervisory agencies are the ones that must develop and implement all the regulatory initiatives, and as such the architecture of financial supervision may have a considerable impact on the banking sector.

Up to date, only a couple of studies have focused on this topic using regression techniques (e.g. OLS, 2SLS) and dependent variables such as the return on assets and the return on equity (i.e. Barth et al., 2002, 2003). Hence, these studies focus on performance as measured by traditional financial ratios rather than on efficiency as measured by frontier techniques. Nonetheless, as mentioned in Halkos and Salamouris (2004), the use of financial ratios to measure bank performance is not without its criticisms. Berger and Humphrey (1997) and Bauer et al. (1998) mention that efficient frontier approaches seem to be superior compared to the use of traditional financial ratios from accounting statements—such as return on assets (ROA) or the cost/revenue ratio—in terms of measuring performance. Berger and Humphrey (1997) point out that the frontier approaches offer an overall objective numerical score and ranking, and an efficiency proxy together with the economic optimization mechanism. Another advantage of frontier techniques is that they take into account simultaneously all inputs and all outputs of a firm (Thanassoulis et al., 1996). While recent studies on bank efficiency have examined the impact of regulatory policies, they have ignored the architecture of the financial supervision regime.

The present study aims to close the aforementioned gap in the literature, by examining whether and how bank profit efficiency is influenced by three specific aspects of the financial supervision regime, namely: (i) the involvement of the central bank (CB),

* Corresponding author at: Surrey Business School, University of Surrey, UK.
E-mail addresses: c.gaganis@econ.soc.uoc.gr (C. Gaganis), f.pasiouras@surrey.ac.uk, pasiouras@dpem.tuc.gr (F. Pasiouras).

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(ii) financial authorities' unification, and (iii) central bank independence (CBI).

Using a sample of 3886 commercial banks operating in 78 countries over the period 2000–2006, we estimate a global best-practice frontier, while controlling for various country-specific characteristics. We find a negative association between the number of the financial sectors for which the central bank has responsibility and bank efficiency. Furthermore, the results show that a greater unification of supervisory agencies is associated with lower profit efficiency. Finally, our results show that central bank independence decreases profit efficiency. These findings are robust across various estimations.

The rest of the paper is as follows. Section 2 provides a background discussion. Section 3, presents the data and methodology. Section 4 discusses the empirical results, and Section 5 concludes.

2. Background discussion

This section provides a brief background discussion on the issues of: (i) central bank independence, (ii) the role of central banks in bank supervision, and (iii) the unification of financial supervisors. We first present the advantages and disadvantages of each approach and we then discuss relevant empirical findings.

The issue of central bank independence has received a lot of attention from both academics and practitioners. However, most of the studies focus on monetary policy, rather than bank performance, and with mixed results. For example, an extensive body of the literature argues that higher independence is associated with lower inflation rates in an economy; however, numerous recent studies challenge both the theoretical foundations of CBI and earlier empirical findings (see Berger et al., 2001 for a review of the literature). Regarding the stability and performance of banks, Barth et al. (2003) mention that a review of the research on the causes of banking and currency crises implies that the independence of supervisory authorities is crucial for well-functioning banks. For example, the authors highlight that: "*Supervisory independence allows bank supervisors to monitor the financial condition of banks in a strictly professional and consistent fashion. In addition, it allows them to elicit the appropriate level of responsiveness to the guidance, constructive criticism, and direction they give to banks*" (p. 79). Nonetheless, the empirical results of their study indicate that independence does not appear to have an impact on the return on assets. In contrast, Donzé (2007) finds that higher bank supervisor independence tends to enhance banking system soundness at any given level of economic development, and does so the more prevailing is the rule of law. Klomp and de Haan (2009) find a significant and robust negative relation between CBI and financial instability, which is mostly due to political independence. Furthermore, Barth et al. (2002) report that higher supervisory independence is associate with lower levels of non-performing loans; however, this is significant only at the 10% level and in specific estimations. Thus, it remains an open question whether the independence of supervisory authorities influences the operations of banking institutions.

The role of the central bank in the management of the financial system, and in particular whether the CB should be responsible, solely or in part for banking supervision is considered a second key issue in designing the financial supervision regime. As summarized in Barth et al. (2002, 2003) arguments in favor of the central banks supervising include the access to accurate and timely information, the ability of independent CBs to enforce actions, and the comparative advantage of CBs in recruiting and retaining the best staff. However, combining the functions of monetary policy and bank supervision under the same agency is not without its criticisms. Arguments against the CB supervising banks include a conflict of interest between monetary policy and bank supervision, reputation risk for the CB, and enhanced political pressures. Evidence from the US shows that indicators of monetary policy affect the supervisory actions of the Fed, but they do not affect the actions of the Office of the Comptroller of the Currency and the Federal Deposit Insurance Corporation (Ioannidou, 2005). Furthermore, Peek et al. (1999) find that confidential bank supervisory information could help the Board staff more accurately forecast important macroeconomic variables and is used by the Federal Open Market Committee members to guide monetary policy. However, relatively little research has focused on the impact of central bank involvement in bank supervision and performance. The results of Barth et al. (2002) show that central bank supervision: (i) has no effect on capital adequacy, profitability (i.e. ROA, ROE), and the ratio of non-interest revenues to total revenues, (ii) has a negative impact on liquidity risk (however this is not robust across the estimations), and (iii) is associated with lower bank overhead costs and higher non-performing loans. Barth et al. (2003) find a negative and significant (though only at the 10% level) relationship between the central bank being a supervisory authority and bank profitability; however, this is not robust across their regressions.

A third issue of interest is the degree of unification of powers in financial supervision. Pellegrina and Masciandaro (2007) point out that a unified supervisory structure could: (i) create synergies among different supervisory functions and expertise, (ii) eliminate duplicated controls and regulatory gaps, (iii) produce economies of scale in resource organization, and (iv) increase the effort of the supervisor, since the unified structure makes it absolutely evident where the responsibilities are. However, there are also several arguments against an integrated approach in supervision. For example, Demaestri and Guerrero (2005) provide a detailed discussion of, among others, the moral hazard problem due to implicit contracts, the "Christmas tree effect",[1] the potential for the single regulator to become a bureaucratic leviathan divorced from the industry it regulates, and an enhanced potential for regulatory capture. In general, the existing literature on the subject mainly deals with the benefits and costs of each approach; however, Masciandaro (2009) highlights that "*the quest for the optimal level of financial supervision unification cannot be pursued through a traditional cost–benefit analysis. If one proposes to compare alternative models from a social welfare standpoint, one realises that each of them offers expected benefits but also expected risks, and the final outcome is actually undetermined.*" (p. 125). Thus, there is a need for empirical studies that will explicitly link the degree of unification with bank performance. However, the existing evidence is not only scarce but it also provides conflicting results. More detailed, Barth et al. (2002), find that countries with multiple supervisors tend to have lower bank capital ratios and higher liquidity but this relationship is no longer significant when transition economies are included in the regressions. Furthermore, having one or multiple supervisors have no impact on other bank characteristics like non-performing loans, overheads or profitability. In contrast, Barth et al. (2003) find some evidence that a single-supervisor system enhances bank performance.

3. Methodology and data

3.1. Methodology

We use the Battese and Coelli (1995) model that provides estimates in a single-step, during which bank efficiency can be directly influenced by a number of firm-specific and country-specific attri-

[1] According to Demaestri and Guerrero (2005), the so-called "Christmas tree effect" refers to the case where "...*the number of heterogenous objectives to be fulfilled by an integrated agency might grow progressively in an endogenous, potentially unbounded, fashion*" (p. 52). As the authors highlight the risk that is associated with this phenomenon is the possibility for heterogenous objectives to be later introduced, even ones that could be in conflict with the main objectives of financial regulation.