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Risk, capital and financial crisis: Evidence for GCC banks ☆

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Abstract

Employing data on over 100 GCC banks for 1996–2011, we test the relation between risk and capital. Given the interlinkage between these two variables, the model employs a 3SLS estimation that takes on board this simultaneity. Consistent with the literature, risk is measured by the *Z*-score, while capital is computed as the ratio of equity to asset. The findings indicate that banks generally increase capital in response to an increase in risk, and not *vice versa*. Second, there is an uneven impact of regulatory pressure and market discipline on banks attitude toward risk and capital. Additionally, Islamic banks increased their capital as compared to conventional banks. Besides, the evidence testifies to the fact that banks with higher dependence on wholesale funds and less diversified income profile have higher risk.
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1. Introduction

The relationship between bank capital and risk-taking is one of the key issues in the banking literature. The minimum capital standards advocated by the Basel Committee which are sought to be implemented are premised on the rationale that increased capital enhances bank safety. However, this premise might often turn out to be less than relevant. By way of example, increased capital might induce a bank to assume greater risks. If this effect outweighs the buffer effect of capital, highly capitalized bank might experience a higher probability of failure. Such risk-taking behavior explains why otherwise well-capitalized banks often experience significant declines in their capital position. An offshoot of this relationship is that capital regulation alone might not be sufficient to ensure the soundness of the banking system.

Given the significance of these results, it is not surprising that several researchers have attempted to dissect the relationship between risk-taking and capitalization of banks. This literature focuses on the well-known moral hazard problems in banking. Merton (1977) shows that, given banks limited liability, they might be inclined to decrease their capital and increase risk. Other studies however, demonstrate that the relationship is not necessarily negative if factors other than the option value are considered (Besanko & Kantas, 1996; Hellmann, Murdock, & Stiglitz, 2000; Kim & Santomero, 1988).

Akin to theoretical studies, empirical studies on this issue also do not appear to have a consensus view. On the one hand, several researchers (Boyd & Graham, 1996; Furlong, 1988; Keeley, 1990) uncover a negative relationship between risk and capitalization, others (Peek & Rosengren, 1997; Sheldon, 1995) find this relationship to be the opposite. One possible reason for the lack of consensus among these various studies could be the fact that they employ alternative risk measures as dependent variables. In this process, they do not take on board

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additional factors that affect the relationship between capitalization and bank risk.

The aim of this paper is to push forward the empirical literature by examining this issue for GCC banks. In particular, we examine the relation between capital and risk for GCC banks employing an extended sample period that encompasses the recent financial crisis. Our study seeks to shed light on the association between these two variables and how it was affected during the financial crisis.

The GCC banking system provides a reasonable laboratory to examine this issue in a holistic fashion. These countries share similar economic and social characteristics and are essentially dependent on a single primary commodity for exports. On average, hydrocarbon accounts for nearly half of the region's GDP, contributes nearly 70% of these countries merchandise exports and over three-fifths of government revenues (IMF, 2013). Following the oil boom, real GDP growth in these countries averaged over 6.5% during 2003–08 as compared to less than 4% during the preceding five year period. Non-oil GDP growth improved markedly, averaging nearly 7.5% during this period (IMF, 2010a, 2010b, 2011). The economic crisis and its after-effects, including the headwinds of the Arab Spring slowed down these economies considerably, with real GDP growth dwindling to 0.3% in 2009, although growth has since turned a corner, averaging close to 6% during 2010–12 (IMF, 2013).[1] The fiscal and external positions also witnessed an upturn, providing headroom to the authorities for greater economic diversification, while allowing the surpluses to be invested for productive purposes.

Besides the interest in the research question, the paper also augments the literature in three distinct ways. First, we explore whether the behavior of well-capitalized banks differ from those that do not have adequate capital. Second, we examine how market discipline interacts with regulatory pressure to affect bank capital and risk-taking. Finally, we analyze the differential response of Islamic banks as compared to conventional banks on bank capital and risk.

As is well acknowledged, there are three entities that are primarily involved in the risk determination of a bank: the regulator, the shareholders and the management. Therefore, by categorizing banks into different groups, we are able to better understand which set of forces influence their risk-taking behavior. More specifically, for inadequately capitalized banks, it seems likely that regulatory forces will be paramount in determining their risk-taking, since they are at greater risk of failure. On the other hand, for well-capitalized banks, the managers would have greater discretion in choosing risky assets. Therefore, following the literature (Beatty & Harris, 1999; Ke, Petroni, & Saffieddine, 1999), we postulate that managers' incentives dominate for publicly traded banks. Finally, in case of Islamic banks, the interests of shareholders (as also depositors) would prevail, given the risk sharing principles embedded in their behavior. Our dataset of GCC banks contains a clear distinction along these lines and is therefore well-suited to analyze these research questions.

We contribute to the literature in a few important ways. First, to the best of our knowledge, this is one of the early studies for GCC countries to examine the interlinkage between capital and risk. Most studies that have focused on this aspect are primarily based on US economy (Shrieves & Dahl, 1992) or for other developed (Heid, Porath, & Stolz, 2004; Rime, 2001; Stolz, 2007) and emerging markets (Ghosh, Nachane, Narain, & Sahoo, 2003; Godlewski, 2005). Even cross-country studies on this aspect pertain primarily to developed markets. Judged thus, we focus on a homogenous set of countries in a region which share similar economic, social and financial characteristics. Outside of the US, evidence for Turkish banks appears to suggest that regulatory policies exerted an uneven impact on the efficiency of commercial banks during the 2002–10 period (Ozcan-Gunay, Gunay, & Gunay, 2013).

Second, our paper extends the literature on ownership and bank risk by focusing on the response of Islamic and commercial banks for an extended period. Several studies (Abedifar, Tarazi, & Molyneux, 2013; Hasan & Dridi, 2010) suggest that there are no significant differences in the stability of Islamic and conventional banks. Focusing on MENA countries, Srairi (2013) finds that Islamic banks display a lower exposure to credit risk as commercial banks. Whether and to what extent do these findings carry over the periods of crisis remains a moot question, which we empirically explore in the present exercise. Employing an expanded cross-national database, Imam and Kpodar (2013) uncover that per capita income and greater integration with Middle East economies as major factors that explain the rise of Islamic banking around the globe.

Our paper also contributes to the literature that examines the relevance of funding structure for bank risk. The pre-crisis literature opined in favor of market funding, arguing that the 'market discipline' embedded in such funding coupled with its relatively low cost could enable banks to fund their asset expansion in a swift and cost-effective manner (Calomiris & Kahn, 1991). The recent financial crisis has however exposed the weaknesses of this argument. Huang and Ratnovski (2011) for example, show that banks that relied less on wholesale funding were able to better withstand the impact of the crisis. Demirgüc-Kunt and Huizinga (2010) found that banks' resilience on non-deposit funds increased their risk. Other studies show that banks that relied heavily on wholesale funds were more affected by the liquidity crunch, experienced a large abnormal decline in their share prices (Adrian & Shin, 2009; Raddatz, 2010). A parallel literature focuses on corporate funding costs. For instance, using data for 15 emerging markets over the period 1994–2004, Agca and Celasun (2012) report that banking sector reforms lead to lower corporate borrowing costs. This literature however, does not focus on banks, which is one of the major concerns of the paper.

[1] Much of the high growth during 2010–12 in the GCC countries can be traced to the high GDP growth of Qatar, which grew at 16.6 and 13% during 2010 and 2011, respectively. Excluding Qatar, the average growth rate of GCC during this period is around 4.7%.

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