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What makes Islamic banks different? A multivariate approach

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ABSTRACT

Using data from 8615 banks (including 123 Islamic banks) in 124 developed and developing countries for the period between 2006 and 2012, we examine the financial characteristics that distinguish between conventional and Islamic banks. As banks' financial characteristics are multi-faceted concepts, our indicators are constructed using principal component analysis. We find that Islamic banks are more capitalized, more liquid and more profitable, but have more volatile earnings compared to US and European banks. However, similarities in terms of liquidity and earnings volatility are more noticeable when the sample is limited to banks operating in countries where both systems coexist. Finally, we find that higher capital makes the returns of Islamic banks more volatile, while higher liquidity decreases the profitability of conventional banks.

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1. Introduction

Since the 2007–2009 financial crisis, many banking institutions have been bankrupted and many regulatory reforms have been imposed. The subprime crisis not only uncovered the potential weaknesses of the conventional banking system but also seemed to reveal the strength of Islamic banks (Mollah and Zaman, 2015). This is evidenced by the fact that Islamic banks were more stable during the global crisis and did not encounter any losses or solvency problems, unlike their conventional counterparts.¹ Even though *Sharia'a* compliant financial institutions account for only 1.5% of global financial system assets (Abedifar et al., 2013; Beck et al., 2013), they showed a substantial annual growth rate of 20% in 2012 (Faye et al., 2013). In addition, the Islamic banking system's total assets were \$1.334 trillion in 2011 (Ernst and Young, 2012) and are expected to reach more than \$3.4 trillion in 2018 (Ernst and Young, 2013). Khan (2010) argues that in the period between 1998 and 2005, Islamic banks' assets grew by 111%, while those of their conventional counterparts only grew by 6%.

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E-mail addresses: mohammad.bitar@concordia.ca (M. Bitar), philippe.madies@iae-grenoble.fr (P. Madiès).¹ Although there was no direct impact on Islamic banks at the beginning of the subprime crisis, these banks were indirectly affected when a second wave of financial distress hit the real economy (Bourkhis and Nabi, 2013). Hasan and Dridi (2010) argue that the Islamic banks' business model (lower leverage and higher capital ratios) helped them to resist the crisis in 2008, while poor risk management was behind the decline of their profitability in 2009.

In view of their importance, it is quite interesting that only a limited number of studies have examined the financial characteristics of Islamic banks. Several previous empirical works studied the financial soundness of Islamic banks. However, these studies often reported mixed results. A good example is the study by [Beck et al. \(2013\)](#). Employing a sample of 510 banks (including 88 Islamic banks) from 22 countries, the authors find that Islamic banks are more capitalized but less cost-efficient compared to their conventional counterparts. Another example is the paper by [Abedifar et al. \(2013\)](#), which reports no significant difference between Islamic and conventional banks in terms of insolvency and charging higher rates to customers for offering *Sharia'a* compliant products. They also show that Islamic banks have lower credit risk than their conventional peers. This was followed by [Johnes et al. \(2014\)](#), who find that Islamic banks are less efficient than conventional banks, suggesting that compliance with *Sharia'a* law reduces the efficiency of this industry but that the competent and skilled managers of Islamic banks make up for this disadvantage. Finally, [Mollah and Zaman \(2015\)](#) use several profitability indicators and report no significant difference between the two banking systems.

However, the studies mentioned above rely solely on ratios analysis. Banking institutions are complex organizations because they rely on a large portfolio of activities. Thus, simple ratios analysis cannot capture the complete picture of financial characteristics for both bank types. In addition, the assumption underlying financial ratios that banks engage in excessive risk-taking and profit maximization cannot be applied in the same way to Islamic banks, where the most important objectives are improving the social welfare of the community, alleviating poverty and promoting sustainable economic growth.

Alternatively, a few studies – including the present one – consider a multi-faceted concept for bank financial characteristics instead of one-dimensional measures. While a few empirical studies use principal component analysis (PCA) to study the conventional banking sector's financial characteristics, there is no study that uses PCA to examine the reasons that make Islamic banks different from conventional banks. This work is based on a three-stage approach to fill this gap in the literature.

In the first stage of our analysis, we apply PCA on twenty indicators of bank financial characteristics. We use data provided by Bankscope and annual reports for 8615 banks (including 123 Islamic banks) in 124 developed and developing countries for the period between 2006 and 2012. The results of the PCA indicate that capital, volatility of returns, liquidity and profitability are the most informative characteristics for the banks' financial position.

In the second stage of our analysis, we use logit and probit regressions to examine the financial characteristics of Islamic and conventional banks, taking into consideration bank level control variables and different subsamples. The findings suggest that banks with higher capital, liquidity and profitability and more volatile earnings are more likely to be Islamic ones.

In the third stage of our analysis, we add more bank and country level control variables, employ ordinary least squares and quantile regressions and find that our results confirm the logit and probit results. We also compare small and large Islamic banks, and banks during the subprime crisis period. Our results show some significant differences between large and small Islamic banks and conventional banks. If anything, Islamic banks were more capitalized and more profitable during the subprime crisis. Furthermore, we show that Islamic banks' reactions to higher capital, liquidity, profitability and volatility components are different to those of conventional banks.

The rest of this paper is organized as follows. Section 2 reviews the literature. Section 3 describes the data and the methodology. Section 4 introduces the PCA results and compares conventional and Islamic banks' financial characteristics using parametric and non-parametric approaches. The last section concludes.

2. A brief survey of the financial characteristics of conventional and Islamic banks

The conventional banking literature mainly uses one-dimensional accounting measures to examine the financial position of banking institutions. For instance, research on bank capital requirements often employs the equity to assets ratio, the capital adequacy ratio or the tier 1 capital ratio. The same logic applies to risk, for which authors might use the Z-score, the loan loss reserves to gross loans or the standard deviation of return on asset or net interest margin. However, the results of these studies are often contradictory. This could explain why the literature results are not unified when it comes to subjects such as banking regulation, stability, performance and efficiency. In addition, accounting indicators are based on bank balance sheets and often exposed to measurement errors due to differences in countries' accounting standards and on-/off-balance sheet issues. In contrast to most previous research, several studies use PCA to construct multidimensional measures to capture conventional bank financial characteristics instead of traditional accounting ratios. For example, [Canbas et al. \(2005\)](#) examine the default probability of Turkish commercial banks using PCA on a sample of 40 banks for the period between 1994 and 2001. Their results show that capital adequacy, income expenses and liquidity ratios are the most important dimensions in explaining the total variation of Turkish banks' internal structures. In line with this, [Shih et al. \(2007\)](#) perform PCA to measure the financial intermediation of the Chinese banking sector. The authors show that insolvency risk, liquidity risk, credit risk and profitability represent more than 64% of the total variance of the financial ratios employed in PCA. More recently, [Klomp and De Haan \(2012\)](#) employ PCA with factor analysis (FA) to study the impact of banking regulation on bank risk. Using a sample of 200 banks from twenty-one OECD countries, their results indicate that deriving factors and components are strongly favored when dealing with multi-faceted concepts such as risk and regulation. Finally, [Klomp and De Haan \(2014\)](#) also use PCA and FA to examine the effect of institutional quality on the relationship between banking regulation and risk for 370 banks in seventy emerging and developing countries. Their findings suggest that capital

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