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ARE ISLAMIC BANKS SUFFERING FROM A MODEL MISFIT? A COMPARISON WITH COOPERATIVE BANKS

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ABSTRACT

For the first time, this study investigates whether, in mimicking conventional banks, Islamic banks have become less stable than their theoretical equivalent: cooperative banks in Europe. Theoretically, the prohibition of interest should have pushed Islamic banks towards mutuality and profit-sharing, which have been argued as stabilising. In practice, however, banks are pushed for growth under a debt-driven commercial banking model, which is not only antithetical to the Shariah but is also destabilising. This may explain why empirical findings are still divergent in Islamic banking stability studies. Our study employs the generalised method of moments (GMM) system to compare the stability of 37 Islamic banks against 1,536 cooperative banks in Europe during the 2008 crisis and post-non-crisis years. Interestingly, we found consistent and significant evidence that Islamic banks are less stable than cooperative banks in both macroeconomic conditions. This has significant policy implications, the most important of which is to steer reform efforts away from refurbishing Islamic commercial banks and towards building an entirely new Islamic cooperative bank, based on the model in Europe.

Keywords: Islamic, Commercial, Cooperative, Banking, Stability.
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I. INTRODUCTION

1.1. Background

Financial stability has become critical in a crisis-plagued world. Since the 2008 financial crisis, regulatory reforms have largely been directed at commercial banks, which are known to exacerbate credit booms and go bust (Bank for International Settlements, 2010). Scholarly studies on Islamic banking, a growing segment within the commercial banking sector, are increasing but several issues remain. Firstly, the comparison within Islamic banking studies is with commercial banks, which does not seem to consider the dichotomy between Islamic banking theory and practice. While, theoretically, the interest prohibition is behind the drive towards mutuality and partnership in finance – which are argued to be stabilising – in practice, Islamic banks are trapped within the profit-maximising mode of commercial banks through fixed-rate products that resemble interest-based deposits and financing.

This paradox seems to have led to the second issue of divergent findings on Islamic banking stability. While some studies have located evidence of a stabilising effect, of late, there has been an increase in contrary findings in well-reputed journals. Some studies show no significant differences between Islamic and commercial banks. For the first time in stability studies, this paper argues that a more accurate comparison would be with cooperative banks, with whom Islamic banks share similar theoretical foundations. Both emphasise cooperation, solidarity, and social welfare.

Scholars such as Siddiqi (2006), Ariff (2014) and Mansour *et al*. (2015) note a widening dichotomy between Islamic banking theory and practice. In theory, Islamic banks are supposed to embody Shariah ideals such as mutuality, levels of participation, the sharing of profits and losses, and social welfare. These could have translated into the banks' structure regarding a mutual or benevolent ownership and business model that emphasises a well-rounded range of objectives, as well as profit seeking. In practice, however, there is significant evidence that, globally, Islamic banks are becoming assimilated with interest-based commercial banks (Azmat *et al*., 2015; Chong & Liu, 2009; Khan, 2010). This is most likely the result of being pushed for growth under the commercial banking model. Being shareholder driven, both base their operations on sound business principles and profit maximisation. Social welfare comes lower in the list of priorities.

When the stability of Islamic banks was compared with their conventional peers, this may have led to conflicting empirical results. While a significant number concur with the notion that Islamic banks are more stable (Abedifar *et al*., 2013; Beck *et al*., 2013b; Ibrahim & Rizvi, 2018), recently, an increasing number of works use advanced econometric techniques such as discrete-time duration modelling and market-based risk measures; this found evidence to the contrary (Abedifar *et al*., 2017; Alandejani *et al*., 2017; Kabir *et al*., 2015). There is concern that often, divergent results are within the studies themselves.

The lower stability of Islamic banks is likely because not only do they fervently mimic the debt-based model of commercial banks, which is, itself, destabilising, but Islamic banks are also hampered by Shariah constraints, which prevent a laissez-faire use of interest- or speculation-linked products such as repurchase agreements (repos) and derivatives. These benefit conventional banks.

1.2. Objective

Taking the cue from scholars such as Siddiqi (2006), Chapra (1985) and El-Gamal (2006a and 2006b), who suggested mutuality in the ownership of Islamic banks, this study aims to close the gap between theory and practice in Islamic banking by investigating whether the mutual-based model of cooperative banks in Europe is a better fit for the Shariah values that should underpin Islamic banking. Most significantly, the literature on cooperative banking sheds light on how this model overcomes the problems of moral hazard and adverse selection brought by the steep information asymmetry of PLS contracts, thereby increasing stability.

In Europe, there is an increasing, although still a minority, view that the more diversified structure of its financial systems, including mutual institutions such as cooperative and savings banks, helped them recover from the crises better than other countries (Goglio & Alexopoulus, 2014; Groeneveld, 2014a). The cooperative business model, which is different from commercial banking as explained in Table 1, has been theoretically argued to lend itself well to stability. Its mutual nature aligns the interests of various stakeholders from owners to depositors and borrowers. Conflicts of interest are, thus, minimised, although not eliminated.

Table 1.
Cooperative vs Commercial Banks

Features	Cooperative	Commercial Bank
Owned by	Members who are also depositors and borrowers	Shareholders who are not directly involved in the business
Classification	Stakeholder banks	Shareholder banks
Core business	Deposits and lending (D/L)	While D/L is also core, large commercial banks also sell risky investment products such as structured deposits
Business goals	• Dual-bottom line – financial and social objectives • Accumulate capital for intergenerational endowment • Provide services e.g. lending which may be at below market rates	• Profit-maximisation is central to the business model • Increasing return on equity and market capitalisation for shareholders • Provide products and services that are profitable
Business horizon	Long-term	Short-term
Regulated by	Members mainly, also central bank and regulatory institutions such as Basel	Central bank and regulatory institutions

Source: Author, TIAS School for Business and Society of Tilburg University. (2015). Governance of European Cooperative Banks: Overview, Issues and Recommendations.

Long-termism is also common among stakeholders, perhaps because in Europe, cooperative banks are like community banks in the way they nurture lifelong relationships with customers and align their business goals to society's economic endeavours. Cooperative banks are also known to keep to a conservative business model based on retail banking, which is likely forced on management by

owners and customers. Commercial banks, however, are known for their short-termism (Kay, 2016).

These features seem to have ensured their longevity, with many cooperative banks surviving since the mid-1800s. Coincidentally, they also embody more of the Shariah ideals of mutuality, partnership, and social well-being. Although cooperative banks charge interest, the founding objective has always been for the rates to be reasonable enough to enable those rejected by profit-driven commercial banks to receive financing. Their mutual nature, with a hint of benevolence, seems to have contributed to their stability.

This study, thus, seeks to determine, for the first time, whether Islamic banks are suffering from a business model misfit by comparing their stability against cooperative banks in Europe. The latter may be a more feasible implementation of the PLS-based model, which has been theoretically argued to lead to stability.

This study, thus, compares the stability of Islamic banks from five major Islamic finance countries with cooperative banks in Europe during the 2008 crisis and post-non-crisis years (2010–2015). The two periods serve as a test of their performance during a time of instability followed by relative stability. The years between 2010 to 2015 are interesting in the fact that the abnormal has become normal with an almost decade of protracted recovery characterised by lacklustre economic growth, tepid inflation, high unemployment, and stagnating wages (Solomon, 2014). It would, thus, be interesting to compare the stability of Islamic banks with that of cooperative banks during such a period.

This study contributes to the literature in three ways. Firstly, it advances the arguments of the few scholars who state that, theoretically, the Islamic banking model is closer to that of cooperative banks (Chapra, 1985; El-Gamal, 2006a, 2006b; Siddiqi, 2006). It does this by being the first to draw parallels between Islamic banks and cooperative banks in Europe, given their Shariah links.

Secondly, and more significantly, this study is the first to link this argument with the stability puzzle in Islamic banking. It notes that, theoretically, Islamic banks are argued to be more stable than their conventional peers due to features such as mutuality and profit-sharing. Empirically, however, the evidence is mixed.

Thirdly, in terms of technique, this study is among the few in both Islamic and cooperative banking stability studies to use a system generalised method of moments (GMM), an advanced econometric method. It is particularly advantageous in studies with endogeneity problems, including ours, given the inclusion of the lagged dependent variable, the Z-score, which is our stability indicator in the equation. This study, thus, pushes the frontier by employing an advanced econometric technique to solve a puzzle regarding the significant policy implications on the development of Islamic banking.

Interestingly, as per the hypothesis, we found that Islamic banks have been significantly and consistently less stable than cooperative banks in Europe during both the 2008 crisis and the non-crisis years that followed.

The rest of this study is structured as follows. Section Two reviews the literature while Section Three describes the empirical model and methodology. Section Four discusses the empirical results and Section Five concludes.

II. LITERATURE REVIEW

2.1. Background Theory

Early Islamic economists such as Muhammad Umer Chapra (1985) and Nejatullah Siddiqi (1983a, 1985) agree on the socio-economic approach of Islamic finance, in which the exploitations of *riba* are eradicated through a PLS system; being more 'just' indicates that it is also more stable . According to these economists, the PLS model would be dynamically stable as variable returns on both sides of the balance sheets allow banks to pass all shock effects from their financing, for example, to customers via returns on investment deposits. The stabilising feature is, thus, in-built compared to conventional banks, which, due to fixed returns on their assets and liabilities, have had to rely on other stabilising mechanisms such as liquidity and capital buffers.

These same scholars took the concept of PLS further by enjoining cooperation and mutuality in the ownership of Islamic banks. They state that a mutual-based structure is a better fit for the Shariah goals of participation, prudence, long-termism and, therefore, banking stability. Recent thinkers such as El-Gamal (2006a, 2006b) argue that the mutual-based banking model is a more effective way of meeting the Shariah prohibitions of *riba* and *gharar* (uncertainty), which serve not only to ensure fairness in transactions but also prudential regulation and risk management. El-Gamal, however, does not discuss in sufficient depth the considerations for a mutual-based Islamic bank. Most recently, al-Muharrami and Hardy (2013) have noted the similarities between a cooperative bank and an ideal Islamic bank. They reckon that, although Islamic banking is consistent with mutual ownership, currently, the extent of mutuality, if any, is only in the products; however, in cooperative banking, the enjoined stakes go all the way back to the ownership structure.

In reality though, Islamic banks have taken the cue from a theoretical model developed by Baqir as-Sadr, an Iraqi scholar. Although he is in agreement with Islamic economists on the need for a PLS-based bank, as-Sadr is more accommodating, due to the omnipresence of conventional banking. Together with the ingenuity of Sami Homoud, an Islamic finance scholar, a conventional banker of 22 years, the way was paved for the legalistic approach, which allowed Islamic banks to replicate the debt-based model of their conventional counterparts.

Empirically, therefore, the stability of Islamic banks remains a contested issue (Table 2). While, in theory, the model is synonymous with profit sharing and mutuality, in reality, the practice increasingly mimics conventional banking, also reflecting its tendencies for profit-maximisation and desensitisation to social welfare (El-Gamal, 2006b; Gulzar, 2016; Hegazy, 2006; Kuran, 1995). While some studies found evidence of a stabilising effect, more recently, an increasing number of studies in well-reputed journals have findings to the contrary.

Table 2.
Divergence of Results on Stability of Islamic versus Commercial Banks

More Stable	Less Stable	No Significant Difference
Darrat (1988)	Hussain and Al-Ajmi (2012)	Abedifar *et al.* (2013)
Bashir *et al.* (1993)	Beck *et al.* (2013b)	Beck *et al.* (2013b)
Čihak and Hesse (2010)	Mobarek and Kalonov (2014)	Bourkhis and Nabi (2013)
Abedifar *et al.* (2013)	Kabir *et al.* (2015)	Kabir *et al.* (2015)
Beck *et al.* (2013b)	Ashraf *et al.* (2016)	
Farooq and Zaheer (2015)	Abedifar *et al.* (2017)	
Ibrahim (2016)	Alandejani *et al.* (2017)	
Pappas *et al.* (2017)	Alqahtani *et al.* (2017)	
Sorwar *et al.* (2016)		
Ibrahim and Rizvi (2018)		

Source: Author compilation

Abedifar *et al.* (2013) for example, have almost 120 Islamic banks in their sample; these banks had lower credit risk than conventional banks during the period 1999–2009. More recently, Ibrahim (2016), in his study of 37 banks in Malaysia, found that the cyclicality of bank lending applies only to conventional banks. The 16 Islamic banks in the sample managed to continue extending financing despite the declines between 2001 and 2013. Sorwar *et al.* (2016) used estimates of the expected shortfall (ES), which incorporates losses beyond the Value-at-Risk (VaR) measure, and discovered that Islamic banks were less risky than conventional banks, especially during the 2008 crisis.

Recently, however, there have been an increasing number of findings to the contrary. Alandejani *et al.* (2017) employed a discrete-time duration model, a sophisticated econometric technique, and discovered that between 1995 and 2011, GCC-based Islamic banks survived for a shorter time period and had a higher incidence rate of failure than conventional banks. Ashraf *et al.* (2016) also discovered that, based on the random effect estimation method, GCC-based Islamic banks are less stable than their conventional counterparts.

The 2008 crisis prompted a slew of studies on banking stability. Recent ones by Mobarek and Kalonov (2014) and Alqahtani *et al.* (2017) questioned earlier claims that Islamic banks successfully rode out the crisis. Mobarek and Kalonov (2014) determined that their superior stability persisted only up to 2007. Thereafter, their mean Z-score seemed to decline drastically. Several studies by Beck *et al.* (2013b), Bourkhis and Nabi (2013) and Kabir *et al.* (2015) also found no significant differences in the stability of Islamic versus conventional banks during and outside of the 2008 global financial crisis (GFC).

Against these divergent findings, the storyline is more coherent for cooperative banks. Although largely ignored by policymakers and academia, there is overwhelming empirical evidence within the limited studies conducted for this type of bank that support the idea that they have superior stability.

Theoretically, academics such as Kalmi (2007) and Butzbach and von Mettenheim (2015a) explain the competitive advantages of cooperative banks over their commercial counterparts through different layers of the firm's theories, modern banking theory, and the new-age alternative banking theory. They argue that the mutual nature of cooperative banks aligns the interests of various

stakeholders, thus reducing these conflicts of interest. Cooperative banks can lower the agency costs between a bank's stakeholders more effectively than a commercial bank. Because borrowers are also depositors and members in a cooperative bank, there are fewer chances of borrowers absconding with the money or taking unnecessary business risks. Furthermore, borrowers are severely restricted by relationship-based lending in cooperative banks and the peer pressure among members and in the local community (Ghatak, 2000; Valnek, 1999).

Butzbach and von Mettenheim (2015b) also argue that it is possible to sketch a new theory of alternative banking by building on unchartered developments within the modern banking theory, specifically the theory of inter-temporal risk smoothing. The concept refers to banks' ability to accumulate capital during good times and use it within the hard times, thereby granting them a comparative advantage (Allen & Gale, 1997; Ayadi *et al.*, 2010). Cooperative banks are suited to this function because they can quickly accumulate deposits during hard times based on the trust earned through a long history of serving low-income households in the community and banks' stable governance, social mandates, and prudent behaviour. This then allows cooperative banks to favourably adjust their lending rates to customers, thereby smoothing the inter-temporal risk (Altunbas *et al.*, 2001; Ayadi *et al.*, 2010; Groeneveld, 2014b).

These narratives are supported in the limited empirical studies conducted on cooperative banks (Table 3). Chiaramonte *et al.* (2013), in their analysis of over 15,000 banks, which include commercial, cooperative and savings banks from 26 OECD countries between 2001 and 2010, found that a significant market share of cooperatives helped to stabilise financial systems during the 2008 crisis although the role was reduced during periods of stability. Hesse and Čihák (2007) also discovered, through their analysis of the z-scores of a similar sample of over 15,000 banks during the period 1994–2004, that cooperative banks are more stable than commercial banks. This is evident through their lower volatility of returns, which offset their lower profitability and capitalisation. Some studies indicate that the lending pattern of cooperative banks is less procyclical than that of commercial banks, thereby smoothing the effects of the business cycles. Meriläinen (2016) for example, found that, although the 2008 crisis and the sovereign debt crisis hit the lending growth of banks in Western Europe, the shocks were partially absorbed by the cooperative and publicly owned savings banks, which maintained their lending growth.

Table 3.
Evidence of Cooperative Banking Stability versus Commercial Banks

More Stable	Less Stable
Hesse and Čihak (2007) Iannotta *et al.* (2007) Beck *et al.* (2009) Chiaramonte *et al.* (2013) Groeneveld (2014b) Ferri *et al.* (2014) Meriläinen (2016) Groeneveld (2017b)	Barth *et al.* (2001) Goodhart (2004) Fonteyne (2007) Hesse and Čihák (2007)

Source: Author compilation.

Given the synchronisation of theory and practice for cooperative banking and the incoherence within Islamic banking, we utilise the methodology to test whether, in mimicking conventional banks, Islamic banks have become less stable than their theoretical equivalent – cooperative banks.

III. METHODOLOGY

3.1. Data

3.1.1 Sample selection

The Islamic banks in this study are selected from five major countries, as defined by the IFSB Islamic financial services industry stability report 2016. The five countries are Malaysia, and four in the GCC, namely Saudi Arabia, Kuwait, the United Arab Emirates and Qatar[1]. This sample yields 37 Islamic banks (Table 4). The cooperative banks are from three European countries namely, Germany, Austria, and France. Given that this is the first study of its kind, a representative sample of banks is selected from European countries with diversified financial systems made up of commercial, cooperative and savings banks and a similar network of cooperative banks[2] (Table 5). This sample yields 1,536 banks.

Table 4.
Number of Islamic Banks in Study

	Islamic Banks
Malaysia	17
Saudi Arabia	4
Kuwait	5
UAE	7
Qatar	4
Total	37

Table 5.
Number of Cooperative Banks in Study

	Cooperative Banks
Germany	1,001
Austria	452
France	83
Total	1,536

We apply several criteria in the selection and treatment of banks. Firstly, given the existing problems in how some banks are classified in FitchConnect, we verified the classifications of Islamic and cooperative banks against the lists from each

[1] The Islamic banking markets of these countries are considered systemically important because the assets are more than 15% of the total domestic banking assets.

[2] Cooperative banks in Germany, Austria and France are considered to have a tighter integrated network than those of other countries such as Spain.

country's central banks and their websites. The most significant issue with this new data source is that it includes several types of banks, including cooperative and savings banks under the label 'Retail & Consumer Banks'. Therefore, they need to be filtered using either the central bank's classifications or the banks' websites and sometimes both.

Secondly, to ensure consistency, we only selected Islamic banks that are in the retail business of accepting deposits and disbursing loans, because this is the main business of cooperative banks in Europe. Other financial institutions, such as investment banks, private banks, asset management companies and non-deposit-taking finance companies, are excluded. Thirdly, in line with Islamic banking stability studies and, in particular a study by Beck *et al.* (2013b), we mainly use unconsolidated data and supplement them with consolidated data when the former is not available to avoid doubling the subsidiaries.

Fourthly, we remove banks with less than three consecutive yearly observations because this is the minimum required by the GMM system. It is worth noting that 80% of the sample banks in Austria only have five of the nine-year observations due to a sourcing constraint. A representative from FitchConnect, the source of banking data for this study, explained that Austrian annual report data is typically difficult to locate. When a viable source is identified, only the last five-year data tend to be backfilled. Thus, most of the Raiffesenbanks (cooperatives) in Austria have data only from 2011, even though they have existed since the early 1900s. While this is not ideal, it must be accepted as one of the limitations of this research. In line with Beck *et al.* (2013a), we also winsorise the variables at the 1st and 99th percent levels to reduce the impact of outliers. Finally, while most of the bank-specific variables are in ratios, those in levels such as size are extracted in US dollars for consistency.

3.1.2 Data Sources

Given this study's focus on stability during the crisis and non-crisis years, annual banking data from FitchConnect, during the period 2007–2015, were collected. For the macroeconomic variables, data from the International Monetary Fund's (IMF) World Economic Outlook database and the IMF's International Financial Statistics were used. The governance variable is computed based on the World Bank's World Governance Indicator (Table 6).

3.2. Model Development

For the first time in stability studies, our model compares the stability of Islamic banks against cooperative banks while controlling for several potentially influential factors. This equation was used to compare their stability during a period of stress (GFC) and relative stability (2010–2015):

$$Z_{i,j,t} = c + \beta_0 Z_{i,j,t-1} + \beta_1 B_{i,j,t} + \beta_2 I_{j,t} + \beta_3 M_{j,t} + \beta_4 IB + \beta_5 C_t + \beta_6 IBxC_t + \beta_7 SD + \mu_{it} \quad (1)$$

where the dependent variable is the Z-score, $Z_{i,j,t}$ for bank i in country j at time t. The lagged variable, $Z_{i,j,t-1}$ is included to factor in the persistence of bank stability,

possibly due to the capital reserves built over the previous periods (Chiaramonte *et al.*, 2013; Liu *et al.*, 2013). Controlling for the effects of extraneous factors, $B_{i,j,t}$ is a vector of bank-specific variables, $I_{j,t}$ are industry-specific variables, while $M_{j,t}$ are macroeconomic variables (Abedifar *et al.*, 2013; Chiaramonte *et al.*, 2013; Hesse & Čihák, 2007). The focus variables are in bold – the Islamic bank (IB) and crisis dummy (C_t) and their interaction ($IBXC_t$). The crisis years are defined as 2007–2009 and the non-crisis years are defined as 2010–2015. Another dummy, SD, is introduced to control the effects of the sovereign debt crisis in Europe. This dummy takes the value of 1 for the years 2010–2013 and 0 otherwise (Meriläinen, 2016). μ_{it} is the error term.

The dependent variable is a popular indicator of bank stability, the Z-score. It is popular because of its clear (inverse) relationship with the probability of a bank's insolvency. The formula is:

$$\mathrm{Z-score} = \frac{\mathrm{Roaa} + \mathrm{ETA}}{\sigma\mathrm{Roaa}} \tag{2}$$

where Roaa is the bank's return on average assets, ETA is the ratio of equity to total assets, and σRoaa is the standard deviation of the Roaa. The Z-score shows the number of standard deviations the returns would need to fall from the mean to wipe out the bank's equity. A higher Z-score, thus, indicates lower probability of insolvency and greater bank stability (Chiaramonte *et al.*, 2013; Hesse & Čihák, 2007). We use an accounting-based measure rather than a market-based one because most of the cooperative banks are not listed.

For the σRoaa, we compute the figure over the entire sample period in line with Demirgüç-Kunt *et al.* (2008), Laeven and Levine (2009), and Niu (2012), although other studies use a rolling three-year period. For the Z-score and its components, because they are highly skewed, we use the logarithms, which are normally distributed (Abedifar *et al.*, 2013). Before taking the logarithm, we add five to all of the Z-scores because several Z-scores are negative and the logarithm of a negative number is undefined (Demirgüç-Kunt *et al.*, 2008).

In line with related studies, the control variables include a number of bank-, industry-specific, and macroeconomic variables[3]. Since the size of banks can vary significantly, we use the logarithm of a bank's total assets in US dollars to control its effect on stability. The impact is uncertain. On the one hand, large banks benefit from diversification, economies of scale, and, in some cases, monopoly power (McAllister & McManus, 1993). On the other hand, diversification can be harmful if they venture into risky products and business areas of which management has little knowledge.

For the wholesale funding risk (WFR), we use the ratio and deposits from banks to total assets as its control in line with Chiaramonte *et al.* (2013). Previously, deposits from customers were thought to be a risky source of funding given the withdrawal risk but the GFC has determined that banks that are dependent on

[3] While other variables can arguably be included, the impact of omitted variables has been reduced through the use of dynamic panels.

wholesale interbank markets are more exposed to the effects of crises (Bhattacharya & Thakor, 1993; Butzbach & von Mettenheim, 2015b). Since the numerator of the ratio consists of deposits, loans and repos from banks (including central banks), a higher WFR reflects a more interconnected banking system, thus, a potential domino effect during crises (López-Espinosa *et al.*, 2012).

Other bank-related control variables include credit risk, cost efficiency and income diversity. Credit risk is proxied through the ratio of net loans to total assets, while that of cost efficiency is the cost-to-income ratio. Income diversity is included to control the effects of any deviation from an interest-based stability model. The proxy is, therefore, the ratio of non-interest income to gross revenue.

This study also includes industry-specific variables such as bank market concentration, market share of each type of bank, and governance. Bank market concentration, proxied by the Herfindahl–Hirschman index (HHI), is calculated based on the formula – a sum of squared market share of all banks – in terms of total assets in each country[4].

In line with Čihák and Hesse (2010), the controls include a governance indicator, which is an average of six measures such as political stability, corruption control, and regulatory quality. The governance indicator is included to capture the differences in countries' institutional development, which may affect banking stability.

Alongside market concentration and governance, this study also includes a share of Islamic and cooperative banks as a control. As per Hesse and Čihák (2007) and Abedifar *et al.* (2013), market share is measured as the banks' total assets over the total banking sector assets in a country per year.

The third group of variables, macroeconomic, is made up of GDP, inflation, and exchange rate depreciation. The GDP measures the impact of an economy's total activity on banking stability while the latter two accounts for the impact of macroeconomic uncertainty. The full list of variables is exhibited in Table 6.

A definition for the 2008 crisis warrants deliberation because it is among our key variables. In our study, we refer to its occurrence during the period 2007–2009; however, some researchers say 2008–2009 (Abedifar *et al.*, 2013; Meriläinen, 2016). Official timelines, by the Federal Reserve Bank of St. Louis ('The Financial Crisis – Full timeline,' n.d.) and the Bank for International Settlements (Filardo *et al.*, 2010) identify the beginning of the crisis to be in the middle or third quarter of 2007. We set the start in 2007 because this study uses annual data and involves European countries (Fiordelisi & Mare, 2014). The 2008–2009 definition is more appropriate for studies that do not involve advanced economies, because the crisis was initially confined to them. However, we also tested the results with the 2008–2009 dummy and the conclusions remained broadly unchanged.

[4] According to the US Department of Justice (DOJ), a value below 0.15 signals low concentration, while one above 0.25 suggests a high concentration. A moderately concentrated market is reflected in an index between 0.15 and 0.25. These indications of HHI values are based on the DOJ's experience with firm mergers.

Table 6.
Variable Descriptions

Variable	Brief measure	Description	Source
$Z_{i,j,t}$	Z-score for bank *i* in country *j* at time *t*	Defined as Z=(Roaa+ETA)/σRoaa, where Roaa is the return on average assets, ETA is equity to total assets, and σ is standard deviation of Roaa as proxy for return volatility	FitchConnect
$B_{i,j,t-1}$	**Bank-specific**		
	Size	Logarithm (total assets) in USD	FitchConnect
	Wholesale funding risks	Deposits from banks to total assets	
	Bank lending behaviour	Net loans to total assets	
	Efficiency	Cost–income ratio	
	Income diversity	Non-interest income to gross revenue	
$I_{j,t-1}$	**Industry-specific**		
	Bank market concentration	Herfindahl–Hirschman index	Calculated from FitchConnect data
	Share of cooperative banks	Market share of cooperative banks in a country per year	
	Share of Islamic banks	Market share of Islamic banks in a country per year	
	Governance	Average of 6 governance measures per country per year	World Bank's World Governance Indicator
$M_{j,t-1}$	**Macroeconomic**		
	Gross domestic product	Annual real GDP growth rate	IMF, World Economic Outlook database
	Inflation	Year-on-year change of the CPI index	
	Exchange rate depreciation	Year-on-year fall in the exchange rate, national currency per USD	IMF, International Financial Statistics
	Dummies		
COB	Cooperative bank dummy	Equals 1 for cooperative banks, 0 for commercial banks	
IB	Islamic bank dummy	Equals 1 for Islamic banks, 0 for commercial banks	
C_t	Crisis dummy	Equals 1 for 2007-9, 0 for 2010-5	
SD	Sovereign crisis dummy	Equals 1 for 2010-3, 0 otherwise	
μ_{it}	Error term	Residual	

Source: Author's compilation. Key variables

The non-crisis years are defined as 2010 to 2015; this is because official sources, such as the National Bureau of Economic Research – a think tank in the US that decides on the durations of economic downturns (Business Cycle Dating Committee, 2010) – declare the end of the crisis to be in 2009. The 'recovery' from 2010 onwards, however, was far from normal. These years were characterised by unusually lacklustre economic growth, tepid inflation, high unemployment, and stagnating wages (Blagrave & Furceri, 2015). We, thus, consider them to be the 'new normal' of non-crisis years.

To ease interpretations, Table 7 provides interpretations of coefficients of the key variables, in line with the cautions discussed by Brambor *et al.* (2005) about interpreting interaction terms[5]. Regarding the research objective, if the coefficients of β_4 and β_6 (A-B) are jointly significant and negative, this means that Islamic banks were less stable than cooperative banks during the 2008 crisis. For the non-crisis period, the relevant coefficient for Islamic banks is β_4 (D-E). If it is significant and positive, this means that Islamic banks were more stable than cooperative banks during the non-crisis years (Ibrahim & Rizvi, 2018). Although the two banks have different business models and aims, their heterogeneity is controlled through the selection of similarly retail-focused Islamic banks and the use of panel data.

Table 7.
Relevant Coefficients

Coefficients	Crisis	Non-crisis	Crisis vs. Non-crisis
Islamic banks (IB)	A: $c + \beta_4 + \beta_5 + \beta_6$	D: $c + \beta_4$	A-D: $\beta_5 + \beta_6$
Cooperative banks (COB)	B: $c + \beta_5$	E: c	B-E: β_5
IB vs COB	A-B: $\beta_4 + \beta_6$	D–E: β_4	

To verify the results, we performed robustness tests. We employed components of the Z-score, specifically their logarithms, as alternative dependent variables. Additionally, as an alternative measure of stability, the loan loss provisions as a percentage of gross loans was used (Abedifar *et al.*, 2013; Ibrahim & Rizvi, 2017). Finally, we regressed the Islamic banks against smaller samples of cooperative banks to bolster our findings.

3.3. Method

In terms of methodology, this study employed the two-step GMM system estimator with Windmeijer's (2005) corrected standard errors. The methodology, developed by Arellano and Bover (1995) and Blundell and Bond (1998), is particularly suitable for short and wide panels like ours. It also has other advantages. Firstly, the GMM system can produce consistent and efficient estimates despite endogeneity among

[5] Brambor et al. (2005) specifically caution that interaction models should be used whenever the hypotheses are conditional in nature. Secondly, all constituent terms of the interaction variable should be included, except in certain rare circumstances. Thirdly, the constituent terms should not be interpreted on their own. Instead, scholars should calculate the substantively meaningful marginal effects and standard errors.

the variables. This is relevant for our study because the lagged dependent variable – the Z-score – is consistently significant with coefficients greater than 0.8 in most of the regressions. Since the persistence means that current values of the Z-score are affected by past values, it should, thus, be included as an independent variable.

The inclusion of the lagged dependent variable can, however, cause endogeneity as it may be correlated with the error term, as do bank-related variables, which is a common problem in banking studies (Hossain, 2012). Static methods such as fixed- and random-effect estimators tend to produce biased and inconsistent estimates in this situation. The GMM system overcomes the endogeneity issue by conducting the regressions in both differenced and levelled forms. For the regression in differences, the instruments are lagged levels of the variables while the regression in levels has instruments with lagged differences in the corresponding variables (Blundell & Bond, 1998).

Secondly, with this technique, the list of control variables does not need to be exhaustive as the GMM system addresses the problem of omitted variable bias through the inclusion of individual-specific effects in the error term (Ibrahim & Rizvi, 2017). Thirdly, the GMM system allows the inclusion of dummy variables, which would have been differenced in the first-difference GMM to partly resolve the endogeneity issue. Despite these advantages, the GMM system is only used in a handful of stability studies involving Islamic and cooperative banks. The technique is, thus, relevant for our study, which analyses whether Islamic banks have become less stable than their theoretical equivalent – cooperative banks.

To ensure the technique was working optimally, we performed three diagnostic tests suggested by Arellano and Bond (1991) and Arellano and Bover (1995) – the Hansen test for instrument validity, the autocorrelation test, and the number of instruments being below the sample size, or in our case, the number of banks.

IV. RESULTS AND ANALYSIS

4.1. Results

4.1.1 Descriptive Statistics

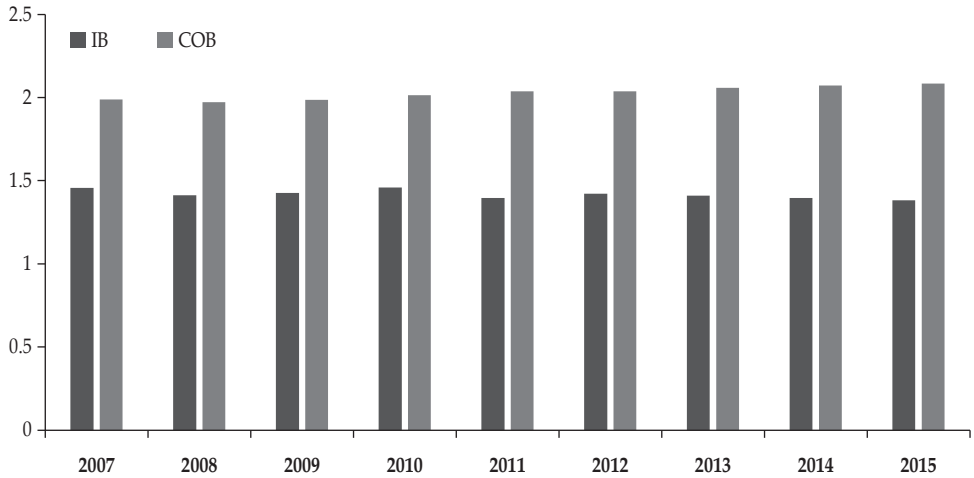
Table 8 presents descriptive statistics of the logarithm's decomposition of the Z-scores (logZ) for Islamic and cooperative banks during the crisis and non-crisis periods. It is interesting that Islamic banks recorded consistently lower logZs during the two periods, indicating lower stability than that of cooperative banks. This seems to be primarily driven by a significantly higher volatility of returns (proxied through the standard deviation of Roaa), rather than a generally lower capitalisation or returns.

Table 8.
Decomposition of LogZ for Islamic and Cooperative Banks

	LogZ		ETA %		Roaa %		Standard Deviation of Roaa	
Banks	Crisis	Non	Crisis	Non	Crisis	Non	Crisis	Non
Islamic	1.43	1.41	14.72	12.80	1.42	1.06	0.81	0.82
Cooperative	1.98	2.05	6.98	8.94	0.31	0.37	0.12	0.13

Values shown are means.

As shown in Figure 1, when these are juxtaposed, it is interesting to note that, in any given year between 2007 and 2015, Islamic banks consistently posted lower logZs than cooperative banks. However, since such direct comparisons may not be fair – considering extraneous factors such as bank size, lending/financing behaviour, and each country's pace of growth, which may have had significant effects on banks' stability – we include them as controls in our regressions.



IB = Islamic banks; COB = Cooperative banks.

Figure 1.
LogZscore by Bank Type

There seem to be no major collinearity issues in our study; Table 9 shows the correlation coefficients between the variables in our equation. Most are below 0.60. Table 10 provides descriptive statistics for the control variables.

Table 9.
Correlation Matrix for Islamic and Cooperative Banks

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. LogZ	1.00														
2. IB	-0.25*	1.00													
3. Crisis	-0.08*	0.00	1.00												
4. Size	-0.08*	0.16*	0.13*	1.00											
5. WFR	-0.07*	-0.01	0.07*	0.26*	1.00										
6. Lending	0.01	0.02*	-0.03*	0.07*	0.36*	1.00									
7. Efficiency	0.09*	-0.26*	0.09*	-0.23*	-0.24*	-0.08*	1.00								
8. Income diversity	-0.01	-0.08*	0.07*	0.14*	0.21*	0.05*	0.20*	1.00							
9. HHI	-0.28*	0.43*	0.28*	0.24*	0.19*	0.03*	-0.21*	0.17*	1.00						
10. Governance	0.22*	-0.88*	-0.03*	-0.28*	-0.16*	-0.07*	0.30*	-0.03*	-0.50*	1.00					
11. Market share	-0.17*	0.11*	-0.21*	0.19*	0.28*	0.13*	-0.09*	0.30*	0.46*	-0.28*	1.00				
12. GDP	-0.02*	0.22*	-0.38*	0.01	-0.03*	0.01	-0.11*	-0.02*	0.13*	-0.15*	-0.03*	1.00			
13. Inflation	-0.14*	0.20*	0.09*	0.01	-0.03*	-0.04*	-0.02	0.03*	0.34*	-0.20*	0.07*	0.42*	1.00		
14. XR	0.06*	-0.03*	-0.36*	-0.07*	-0.03*	0.03*	0.01	-0.02*	-0.19*	0.02*	0.12*	-0.22*	-0.58*	1.00	
15. SD	0.01	-0.00	-0.57*	-0.06*	0.00	-0.04*	-0.11*	-0.07*	-0.01	-0.08*	0.02*	0.32*	0.38*	-0.14*	1.00

*$p < 0.05$

Table 10.
Control Variable Definition and Descriptions

Bank-Specific Variables

		Malaysia, GCC		Europe	
		IBs		COBs	
Variable	**Definition**	**Mean**	**SD**	**Mean**	**SD**
Size	Logarithm (total assets) in USD	3.61	1.05	2.46	1.08
Wholesale funding risk	Deposits from banks to total assets	0.14	0.12	0.14	0.12
Lending behaviour	Net loans to total assets	60.17	13.02	57.98	13.89
Efficiency	Cost–income ratio	50.56	23.33	69.70	10.38
Income diversity	Non-interest income to gross revenue	22.15	15.19	27.23	9.79

SD=Standard deviation

Industry and Macroeconomic Variables

		Malaysia, GCC		Europe	
Variable	**Definition**	**Mean**	**SD**	**Mean**	**SD**
Bank market concentration	Herfindahl–Hirschman index	0.13	0.06	0.07	0.02
Governance	Average of 6 governance measures per country per year	0.25	0.37	1.41	0.17
Market share	Market share of Islamic or cooperative banks in a country per year	0.20	0.07	0.21	0.13
GDP %	Annual real GDP growth rate	4.97	5.33	0.94	2.17
Inflation %	Year-on-year change of the CPI index	3.61	3.61	1.64	1.02
XR depreciation	Year-on-year fall in the exchange rate, national currency per USD	0.29	4.00	1.71	8.49

SD=Standard deviation

4.2 Stability of Islamic versus Cooperative Banks

Table 11 presents the estimation results for Islamic bank stability compared to those of cooperative banks in Europe. The key variables, as mentioned, are Islamic banks (IB) and crisis dummies (2007–2009 crisis) along with their interactions. In line with their interpretations as per Table 7 and Brambor *et al.* (2005), we provide the sum of the relevant coefficients and their p-values in parentheses. The p-values are derived from testing the null hypotheses and there is no significant difference in the stability of Islamic compared to that of cooperative banks during the crisis (i.e. $\beta_4 + \beta_6 = 0$); there is also no significant difference in the stability of Islamic banks during the crisis compared to that of the non-crisis period (i.e. $\beta_5 + \beta_6 = 0$). The standard errors of other variables are reported in square brackets.

Table 11.
Stability of Islamic vs. Cooperative Banks

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	LogZ	LogZ	LogZ	LogZ	Log(ROAA/SD)	Log(ETA/SD)	LLP/GL
L.Dependent variable	0.929***	0.922***	0.966***	0.966***	0.357***	0.970***	0.090***
	[0.01]	[0.01]	[0.01]	[0.01]	[0.04]	[0.01]	[0.02]
Key variables							
IB (β_4)	-0.090***	-0.135***	-0.116***	-0.114***	-0.321***	-0.102***	1.121***
	[0.01]	[0.01]	[0.01]	[0.01]	[0.02]	[0.01]	[0.29]
2007–2009 Crisis (β_5)	-0.021***	-0.018***	-0.042***	-0.042***	-0.064***	-0.036***	0.741***
	[0.00]	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]	[0.06]
IB*Crisis (β_6)	0.005	-0.005	0.002	0.002	0.009	-0.004	0.106
	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.21]
$\beta_4+\beta_6$ [1]	-0.085***	-0.140***	-0.114***	-0.112***	-0.312***	-0.106***	1.227***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0026)
$\beta_5+\beta_6$ [2]	-0.016	-0.023	-0.040**	-0.040**	-0.055***	-0.040*	0.847***
	(0.3770)	(0.1336)	(0.0469)	(0.0484)	(0.0024)	(0.0575)	(0.0001)
Control variables							
Size	0.000	0.001	0.000	0.000	-0.009***	0.001	-0.030***
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.01]
Wholesale funding risk	-0.047***	-0.040***	-0.048***	-0.048***	-0.026	-0.046***	0.026
	[0.01]	[0.01]	[0.01]	[0.01]	[0.02]	[0.01]	[0.14]
Lending behaviour	0.000**	0.000*	0.000***	0.000***	0.001***	0.000***	-0.002**
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Efficiency	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.000***	-0.013***
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Income diversity	-0.000	0.000*	0.000***	0.000***	0.001*	0.000***	0.001
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]

Table 11.
Stability of Islamic vs. Cooperative Banks (Continued)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Bank market concentration		-0.740***	-0.099	-0.106	1.092***	-0.343***	14.430***
		[0.12]	[0.10]	[0.10]	[0.15]	[0.10]	[2.08]
Market share of Islamic or coop banks		-0.098***	-0.121***	-0.119***	-0.273***	-0.094***	0.116
		[0.01]	[0.01]	[0.01]	[0.03]	[0.01]	[0.20]
Governance		-0.072***	-0.070***	-0.069***	-0.204***	-0.063***	0.997***
		[0.01]	[0.01]	[0.01]	[0.02]	[0.01]	[0.22]
GDP %			-0.004***	-0.004***	-0.006***	-0.003***	0.073***
			[0.00]	[0.00]	[0.00]	[0.00]	[0.01]
Inflation %			-0.001	-0.001	-0.007***	0.001*	-0.163***
			[0.00]	[0.00]	[0.00]	[0.00]	[0.02]
XR depreciation			-0.000***	-0.000***	-0.001***	-0.000***	-0.001
			[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Sovereign crisis dummy				0.000	-0.015***	0.002	0.150***
				[0.00]	[0.00]	[0.00]	[0.03]
Constant	0.204***	0.365***	0.237***	0.235***	0.994***	0.217***	-1.068***
	[0.03]	[0.04]	[0.03]	[0.04]	[0.06]	[0.04]	[0.40]
Observations	9760	9760	9760	9760	9760	10311	9721
No. of instruments	44	47	50	51	51	51	51
No. of banks	1567	1567	1567	1567	1567	1568	1567
Arellano-Bond: AR(1)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Arellano-Bond: AR(2)	0.722	0.755	0.498	0.501	0.000	0.287	0.371
Hansen test (p-val)	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors in square brackets. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[1] $\beta_4 + \beta_6$ is the joint significance of IB and IB*Crisis. Parentheses show p-values

[2] $\beta_5 + \beta_6$ is the joint significance of Crisis and IB*Crisis. Parentheses show p-values

Country-effects could not be included due to collinearity with the IB dummy

Table 11 includes the results for the control variables, which are under bank-, industry-specific and macroeconomic factor groups. Regressions (1) to (4) are based on the logarithm of the Z-score as the dependent variable with the groups of control variables progressively added. In addition, regressions (4) to (7) include the SD dummy, which controls for the effects of the sovereign debt crisis in Europe.

In terms of diagnostics, while the AR(2) tests and the number of instruments confirm the validity of our specifications, the null hypotheses of the Hansen test are rejected in all the regressions. This indicates that the instruments may be correlated with the error term, potentially affecting the estimates' consistency. We are not, however, overly concerned as several studies with similarly large numbers of observations have also encountered this issue (Araújo *et al.*, 2011; Chiaramonte *et al.*, 2013). The Hansen or Sargan test of overidentifying restrictions can show weaknesses in certain circumstances (Roodman, 2006). Specifically, in their Monte Carlo simulations, Blundell and Bond (2000, p. 329) note that there is 'some tendency for these test statistics (variations of the Sargan test) to reject a valid null hypothesis too often in these experiments and this tendency is greater at higher values of the autoregressive parameter'. As per Araújo *et al.* (2011) and Chiaramonte *et al.* (2013), we performed the Wald test, which confirms the validity of our model.

Interestingly, the result shows that Islamic banks were consistently and significantly less stable than cooperative banks in Europe during the GFC and non-crisis years. This is after considering the heterogeneity of the banks and their macroeconomic environments through techniques such as panel data and system GMM. The null hypotheses of $\beta_4 + \beta_6 = 0$ are rejected in all regressions, as are the null of $\beta_4 = 0$. Their variables are consistently negative and significant at a 1% level. Notably, this finding is in line with Figure 1, which shows that, in any given year, Islamic banks record lower logZs than cooperative banks. In this regression, the conclusion is retained even after we make adjustments for explanatory factors, such as the effect of bank size, lending behaviour, and a country's growth pace on banking stability.

As for the comparative performance between the crisis and non-crisis years, both types of banks, unsurprisingly, showed lower stability during the crisis than during the non-crisis period. In most regressions, we reject the null hypothesis $\beta_5 + \beta_6 = 0$ as well as $\beta_5 = 0$. The coefficients for Islamic banks ($\beta_5 + \beta_6$) and cooperative banks (β_5) are negative in all regressions except (7), for which LLP/GL is the dependent variable. A far as the authors are aware, these findings are unprecedented, as there is no empirical comparison between Islamic and cooperative banks, despite their theoretical links.

Moving to the control variables, notably, the lagged dependent variable remained persistent, with coefficients greater than 0.8 and a 1% significance level. This confirms the effect of the past lags on the dependent variable in the equation and, thus, our choice of dynamic estimation model. Other variables record a number of robust relationships. Table 11 shows positive relationships between banking stability, lending behaviour and income diversity. However, robust, negative relationships at a 1% significance level are recorded between banking stability and wholesale funding risk, efficiency, market share of Islamic or cooperative banks, governance, GDP and the depreciation of exchange rates.

In line with expectations, the sovereign crisis dummy shows adverse impacts on bank stability through profitability and loan loss provisions.

4.2. Robustness Test

Regressions (5) to (7) in Table 11 show the results of the robustness tests. The first two employ components of the Z-score, specifically their logarithms, as alternative dependent variables, while regression (7) uses an alternative measure of stability – loan loss provisions – as a percentage of gross loans. In addition, we regressed the stability of Islamic banks against smaller samples of cooperative banks in each European country (Table 12).

The results largely support our main finding that Islamic banks were consistently and significantly less stable than cooperative banks in Europe during the GFC and non-crisis years. The reason seems to lie in their lower profitability and capitalisation and the higher loan loss provisions that other factors controlled, in comparison to cooperative banks.

Table 12
Stability of IB vs. COB by country[6]

Variable	Germany	Austria	France
L.LogZ	0.983***	0.992***	0.746***
	[0.02]	[0.02]	[0.09]
Key variables			
IB (β_4)	-0.081***	-0.027	-0.188**
	[0.03]	[0.03]	[0.08]
2007-9 Crisis (β_5)	-0.037***	-0.014*	-0.001
	[0.00]	[0.01]	[0.01]
IB*Crisis (β_6)	-0.025	0.017	-0.015
	[0.02]	[0.02]	[0.02]
$\beta_4 + \beta_6$ [1]	-0.106***	-0.01	-0.203**
	(0.0031)	(0.7562)	(0.0175)
Observations	7583	1784	849
No. of instruments	50	50	50
No. of groups	1036	485	119
Arellano-Bond: AR(1)	0.000	0.000	0.000
Arellano-Bond: AR(2)	0.703	0.200	0.338
Hansen test (p-val)	0.000	0.008	0.001

Standard errors in square brackets. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[1] $\beta_4 + \beta_6$ is the joint significance of IB and IB*Crisis. Parentheses show p-values

[2] $\beta_5 + \beta_6$ is the joint significance of Crisis and IB*Crisis. Parentheses show p-values

[6] The full set of results is available upon request

4.3. Analysis

The findings indicate that Islamic banks are less stable than cooperative banks in Europe; this is the first empirical evidence that the dichotomy between theory and practice in Islamic banking is due to the misfit of a business model. It is also worth noting that the inferior stability of Islamic banks persisted at a 1% significance level during both the crisis and non-crisis periods. This is likely to indicate that the model misfit is constraining the potential of Islamic banks, regardless of the macroeconomic environment.

As mentioned earlier, this study is the first to explicitly state several paradoxes in Islamic banking, the main one of which is that the problem could be down to its adoption of the commercial banking model with debt as the main profit generator. At its core, current 'Islamic' banking is debt-churning through the 'two-tier *murabahah* ' system. Profiting from debt is not only un-Islamic but is also destabilising. Debt, the engine of growth for commercial banks and the model looked up to by 'Islamic' banking governors and practitioners, has been blamed for the shortening cycles of booms and busts in the world today (Jha, 2013, 2014; Mian & Sufi, 2015).

This study is among few that state that theoretically, the Islamic banking model is closer to the one used by cooperative banks. Regarding the arguments put forth by scholars such as Siddiqi (2006), Chapra (1985) and El-Gamal (2006a and 2006b) we further the discussion by being the first to draw parallels between Islamic banks and European cooperative banks. Specifically, our findings may help to close the gap between theory and practice in Islamic banking through the conclusion that a mutual-based model of cooperative banks is a better fit for the Shariah values that should be underpinning Islamic banking. In doing so, we have pointed to a potentially practical way of reforming 'Islamic' banks, which are accused of being 'Islamic' in all but name (Azmat *et al.*, 2015; Khan, 2010; Foo, 2015).

In closing the gap between Islamic banking theory and practice, this study may have also solved the stability puzzle. While Islamic banks have, theoretically, been argued to be more stable than their conventional peers due to features such as mutuality and profit-sharing, the empirical evidence has been mixed. A significant number of studies have found that Islamic banks are more stable than their conventional counterparts but, of late, there is an increasing amount of research that has findings to the contrary. Some studies found no significant differences between Islamic and conventional banks, a likely testament to the formers' mimicking strategy. The issue, as mentioned, is that Islamic banks are being pushed for growth under the commercial banking model, which is an ill fit for the Shariah values that should be underpinning this form of banking. In pursuing the path of least resistance, 'Islamic' banking practitioners and governors may have unwittingly exacerbated the problem of instability, not to mention reputational damage, if a Shariah non-compliance risk is realised.

However, cooperative banking, in its embrace of Islamic-like virtues such as mutuality, customer before profits, prudence, moderation and sustainability, has fostered a long-term and risk-averse view in its stakeholders, which has led to stability. It did not escape the 2008 crisis unscathed. Larger cooperative banks, especially in Austria and France, suffered losses and had to accept state bail-outs; however, they were also among the earliest to return to profitability and settle

their debts (Ayadi *et al.*, 2010). This suggests the resilience of this banking model, which is not unlike the theoretical benefits that 'Islamic' banks should enjoy.

Although cooperative banks charge interest, which is undeniably against the Shariah, their founding objective has always been for the rates to be reasonable enough to allow financial access for those shunned by profit-driven commercial banks. Their concern for the community's wellbeing is underpinned by their mutual nature, which, as mentioned, aligns and, thus, reduces the conflicts of interest common to banking. This seems to have increased their stability while allowing them to contribute to the community. This stands in contrast to the 'contribution' of Islamic banks, which – although they purport Shariah values – have hardly increased financial access within their communities (Naceur *et al.*, 2015; El-Gamal, 2017); worse still, they have been found, in this study, to be less stable than their theoretical equivalent – cooperative banks.

This finding also indicates that comparison studies between Islamic and commercial banks may have missed the point; in practice, Islamic banks are far removed from their theoretical constructs, which are more congruous with a mutual form of banking. An appropriate comparison would, thus, be with cooperative banks in Europe.

Viewed as a whole, these results have significant policy implications, the most significant of which is to steer reform efforts away from the refurbishment of Islamic commercial banks and towards building an entirely new Islamic cooperative bank, based on the Europe model.

V. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

In a crisis-charged world, financial stability has become important for central bankers. However, Islamic banking studies are plagued by several issues. Firstly, the comparison with commercial banks disregards the dichotomy between theory and practice. Theoretically, the interest prohibition should have pushed Islamic banks towards mutuality and profit-sharing, which are argued to be stabilising. In practice, however, banks are pushed for growth under a debt-driven commercial banking model, which is not only antithetical to the Shariah values that should underpin Islamic banking, but is also destabilising. This paradox seems to have led to the second issue of divergent empirical findings in Islamic banking stability studies. For the first time, this study seeks to determine whether, in mimicking conventional banks, Islamic banks have become less stable than their theoretical equivalent – cooperative banks in Europe. Interestingly, we found empirical evidence for the hypothesis during both the 2008 crisis and the non-crisis years.

5.2. Recommendation

The main policy implication of this study is the realisation for 'Islamic' banking governors, practitioners and academics that what the reform efforts need to achieve is not a modified 'Islamic' bank based on a commercial banking model, but an entirely new Islamic cooperative bank, based on the European model, particularly that of Germany. Given its in-built inclinations towards the Shariah, it would be

much easier to produce a bank that conforms to Islamic values; this would mean a genuine refrain from interest and debt, while conforming to the current legal and financial frameworks, although some modifications would, undoubtedly, still be necessary.

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