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Bank Risk-Taking and Legal Origin: What Do We Know about Dual Banking Economies?

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Abstract: This paper investigates the relationship between legal origin and banks' risk-taking behavior. We employ GMM to study a sample of both Islamic and conventional banks from 14 dual banking economies from 2005–2018. Our findings can be summarized as follows: (a) bank risk-taking and legal origin are negatively related in our sample countries, (b) Islamic banks are more stable in English law (common) countries, and (c) bank regulations have a differential effect on Islamic and the conventional banks. Our overall findings align with the dark side of the legal framework, indicating a robust legal framework to encourage bank risk-taking. The results have several implications for shareholders, regulators, and other key stakeholders.

Keywords: bank risk-taking; legal origin; Islamic banks; dual banking economies

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1. Introduction

The intricacies between law and finance have been a subject of immense debate and examination. The literature has garnered significant attention from various stakeholders such as policymakers, academicians, industry players, and various other parties. Most of this literature has investigated the quality of institutions in the context of investor protection. The extant literature has highlighted the legal origin as the leading cause of global variations in the firms' ownership and capital structure. For instance, why do Italian firms rarely prefer to go public (Pagano et al. 1998), why the financial system of France is predominantly bank-based (Edwards and Fischer 1996), why does a voting premium exist (Levy 1983; Zingales 1994, 1995), why do the firms in Russia face considerable obstacles in gaining access to external finance (Boycko et al. 1993), why the ownership structure of firms in the US and the UK are significantly dispersed (Berle and Means 1932)? The country's legal origin can somehow explain the answer to all these questions. In other words, the variations in the ownership and the financing decision are associated with the legal origin. Consequently, the legal origin can shed light on the global variations in corporate governance (Gromb 1993; Bebchuk 1994).

The advent of law and finance literature is one of the important strands in the broader context of finance literature. As rightly pointed out by Graff (2002), *law and finance literature is an ambitious attempt to combine insights from the theory of corporate finance, institutional economics, legal and economic history as well as the recent studies on the determinants of economic growth into an encompassing theory, thereby filling important gaps of our understanding of the ultimate causes and linkages underlying modern economic development* (p. 4).

The literature argues that the legal origin or a system that a country adopts (generally inherited from the colonial past) is a crucial link to understanding and explaining the

variations in the level of financial development in a country. The extant literature on law and finance is that the common law is more conducive, and it provides favorable conditions for financial markets and economies. On the other hand, civil law is not so beneficial.

Parallel to this debate, we have seen a meteoric rise in the development of Islamic finance. The industry, with its superior performance, especially during the Global Financial Crisis (GFC), has managed to appeal to countries outside the Muslim world. With its resilience and stable growth, it has made strong inroads into Muslim minority countries like the UK, Germany, etc. Islamic banks are considered unique and very different from their conventional counterparts with different contracts (risk-sharing or partnership contracts) and the prohibition to invest in certain sectors. The empirical evidence presented in the extant literature highlight differences between the two systems. For instance, Islamic banks have been argued to be more resilient during a crisis Hasan and Dridi (2011), better capitalized and having a higher asset quality (Beck et al. 2013b), less prone to withdrawal risk (Farooq and Zaheer 2015), countercyclical in their lending (Ibrahim 2016), more stable (Kabir and Worthington 2017), and able to provide higher financing during a crisis (Ibrahim and Rizvi 2018). The extant literature provides enough empirical evidence for Islamic banks to claim uniqueness. Moreover, the evidence also provides the advocates of Islamic finance to present it as an alternative financial system.

The prime focus of this paper is to investigate the dynamic linkage between legal origin and bank risk-taking. In line with the law and finance literature and the power theory of credit, we extend the extant literature by examining the link between bank risk-taking and the country's legal institutions. Based on the dark side of the strong legal framework, the banks are expected to take more risks given their strong legal protection (Houston et al. 2010). Therefore, a priori, we expect the banks in common law countries to lend more. It is often empirically shown that the country's English common law origin provides better protection to creditors and thus encourages banks to lend more. This favorable lending environment can provide bank incentives to sanction risky loans (Acharya et al. 2011). In this regard, Qian and Strahan (2007) examined data on individual bank loans for evidence of how differences in legal systems affect the terms of bank loans. The study found that stronger creditor rights are associated with lower interest rates and longer maturities. However, they also report that loans in countries of English legal origin carry higher rates.

In other words, we hypothesize that the legal origin is a vital link that can explain cross-country differences in bank risk-taking. Therefore, we expect bank risk-taking to be a positive function of legal origin. The explanation of the positive association between legal origin and bank risk-taking is that the more robust legal framework increases the competition for the banking sector by providing alternative sources of funds to corporates (Ashraf 2017).

The paper is closely related to the work of Ashraf (2017), Cole and Turk (2007), and Houston et al. (2010), but we extend their work by including the Islamic banks in the sample. This is an essential contribution as Islamic banks are gaining systemic importance, especially in the Organization of Islamic Cooperation (OIC) region. Therefore, it is necessary to understand the dynamic interaction of legal origin and banks' risk-taking. Moreover, it is also important to understand whether the impact of legal origin on bank risk-taking varies across conventional and Islamic banks. Apart from Grassa and Gazdar (2014), we don't know much about how legal origin interacts with the various aspects of Islamic banking, be it risk-taking, performance etc. However, the work of Grassa and Gazdar (2014) explored the impact of legal origin on Islamic financial development. In contrast, ours is a micro approach that only concentrates on the banking sector as it is the dominant sector in the Islamic financial structure. Moreover, we explore a crucial aspect—risk-taking. More recently, Bitar et al. (2021) showed the link between the capital decisions of Islamic banks and the legal index. Furthermore, the investigation using a sample of OIC countries is also a unique perspective of this paper as it is suggested that the institutions in these countries are weak (Dewandaru et al. 2014).

The findings from our dynamic modelling approach indicate that risk-taking and legal origin are significantly related in our sample countries, indicating that a country's legal origin motivates banks to take more risk irrespective of French or English origin. More importantly, Islamic banks are more stable in English origin countries. Finally, we found the bank regulations to have a differential effect on Islamic and conventional banks. For instance, the impact of regulations on Islamic bank stability is positive, whereas it is negative in the case of conventional banks. Our overall findings align with the dark side of the legal framework, indicating a robust legal framework to encourage bank risk-taking. Our overall findings are generally in line with Houston et al. (2010), whereas Islamic banking realigns with Ibrahim and Rizvi (2018).

These results pass various robustness parameters, including alternate proxy of risk-taking and different methodological approaches. These are significant results, and they enhance our understanding of how legal origin shapes bank risk-taking in dual banking economies.

We contribute to the literature in several ways. First, we add to the extant literature on the determinants of bank risk-taking. Most of the existing literature generally investigated the link between bank risk-taking with bank-level variables, bank regulations (Velliscig et al. 2022; Fratzscher et al. 2016; Barth et al. 2004), competition structure (Goetz 2018; Fu et al. 2014; Beck et al. 2013b), and several key macro-economic factors (Brei et al. 2020; Ali and Daly 2010). In other words, this study adds to the limited literature on bank risk-taking and the legal framework (see inter alia, Ashraf 2017; Fang et al. 2014; Cole and Turk 2007). This paper extends the extant literature by investigating the link between bank risk-taking and legal origin across different banking business models, that is, conventional banks vis-à-vis Islamic banks. Second, we extend the Islamic finance literature in general and Islamic banking in particular. Although a significant stream of literature has investigated Islamic banking stability (Rizkiah et al. 2021; Risfandy et al. 2020; Azmi et al. 2019), surprisingly no study has investigated the link between the stability of Islamic banks and legal origin so far. Third, we add to the growing literature in the OIC countries that have not investigated the link between legal origin or institutions with that of banking stability. OIC countries are unique in many senses. First, the governance structure of these countries is argued to be weaker as compared to non-OIC countries (Dewandaru et al. 2014). Second, many Islamic banks are present in this group of countries as compared to non-OIC and hence it is crucial to examine whether the legal origins would have a differential impact on the Islamic banks as compared to their conventional counterparts owing to the differences mentioned above between the business models of two banks.

The rest of the paper is organized as follows. The next section discusses data and methodology, followed by results and discussion. In the last section, we conclude the paper along with certain implications.

2. Data and Econometric Approach

2.1. Data

We take banks in dual banking economies as our sample of study for the period of 2007–2018. The bank-level data is sourced from Fitch Connect whereas the country-level data on the macro-economic situation of the country is sourced from the World Bank data catalogue. Since our main objective is to explore the impact of legal origin, we sourced the information on the country's legal origin from the dataset La Porta et al. (2008). To avoid any discrepancies in the dataset, we further applied a few filters to the banking dataset. Firstly, we used unconsolidated financial information to avoid duplication in the dataset otherwise we used consolidated data. Secondly, we limit the information on banking to at least 4 years and banks with less than 4 years of the data were dropped from the dataset, this was to avoid an extreme imbalance in the dataset. Lastly, the dataset was limited to countries with a significant share of Islamic banking in the total banking share of the country. This leads us to our final dataset, consisting of 15 dual banking economies (namely, Bahrain, Bangladesh, Indonesia, Jordan, Kuwait, Lebanon, Malaysia, Pakistan,

Oman, Qatar, Saudi Arabia, Tunisia, Turkey, and the United Arab Emirates), where six countries were of British origin and eight countries were of French origin. The final dataset consisted of 336 banks in total, where 280 banks were conventional banks and 56 were Islamic banks.

2.2. Variables

For the proxy for banks' risk taking, we employ an accounting-based measure of a banks' risk i.e., the Z-score. The proxy has been widely used in the literature on banks' risk-taking/stability (Abedifar et al. 2013; Albaity et al. 2019; Čihák and Hesse 2010; Köhler 2015; Leroy and Lucotte 2017; Toader et al. 2018; Zheng et al. 2017). The Zscore is defined as the amount of distance from default before the entire equity is exhausted (Beck et al. 2013a; Goetz 2018; Kabir et al. 2015). The Zscore is also named among the most compelling measures of banks' default. Using a three-year rolling window to calculate the standard deviation in return on assets (sdROA), Zscore is estimated as below where ETA is the equity ratio, ROA denotes the return on assets of the bank:

$$\text{Zscore} = (\text{ETA} + \text{ROA})/\text{sdROA} \quad (1)$$

We used a dummy variable to differentiate the legal origin of the country, the data was sourced from the dataset compiled and used by La Porta et al. (2008). The understudy dual banking countries belonged to two different legal origins, namely the British Origin and the French origin. We used the dummy variable (Legor_uk) to equal to one if the country's legal origin was British and zero otherwise.

To confirm the validity of the model and to add reliability to our findings, we control for different bank-specific factors that may impact the banks stability. Since the study explored banks in different countries, we also included country-level macro variables to control for cross-country heterogeneity. Efficiency was considered one of the main factors that might impact banks' risk. Managing each loan was indeed a cost to a bank, especially if it was a non-performing loan, managers started extra operations which led to increased cost and an increase in cost inefficiency. We proxied the cost inefficiency with the ratio of the operating expense to the banks total assets (Chaibi and Ftiti 2015; Khan et al. 2017). Banks with higher profits were expected to be more resistant to risks, and they were expected to be linked with higher growth opportunities for banks (Gulati et al. 2019; Xie et al. 2019). Additionally, banks with a higher profitability ratio were likely to invest in riskier investment avenues. We controlled for this behaviour of banks with the return on assets (ROA) (Azmi et al. 2019). The literature also suggested that bigger banks could always go the extra mile when it came to taking risks, which could lead to their instability. We used banks total assets to control for bank size (LnTA). Additionally, it was expected that bigger banks were more stable as compared to smaller banks (Čihák and Hesse 2010; Ibrahim and Rizvi 2017; Kim et al. 2016; Liu et al. 2012). To look out for banks' lending behavior, we use gross loans to total assets (GLTA). Income diversification is believed to have a significant contribution to determining banks' stability. The literature is still debating the conclusion of income diversification on banks' risk, where it could lead to greater risk or greater stability (Ghosh 2015; Lepetit et al. 2008; Sun et al. 2017). We proxied the banks income diversification (NONIT) with the ratio of non-interest income to total income.

We also controled for banks' business models. The banks included in the dataset operate under two different models, that is conventional banking and Islamic banking. To control for this difference, we employed a dummy which took the value of one if the bank was following the Islamic model and zero otherwise (Islamic_Dumm). We further looked out for cross-country macro differences. To control for such differences, we used the GDP growth rate and the inflation rate that was expected to affect the risk of banks. Using an equally weighted average of four regulatory measures, we also controled for the difference in the regulatory environment of different countries. These variables are the power of supervisory agencies, capital requirements indices, private monitoring, and

the level of restrictions on banks' activities as suggested by (Alam 2014) from the World Bank's database.

2.3. Methodology

Considering the nature of the dataset, we employed the Generalized Method of Moments (GMM), which has been used by many researchers (Azmi et al. 2019; Ali et al. 2021). The reasons behind preferring GMM over the traditional panel estimators are the significantly higher number of cross-sections than the time-series units (N > T). Furthermore, the dataset also has cross-country variation and the GMM estimators also look out for simultaneity, which works best when there are endogeneity issues in the model. We employed the GMM system of Blundell and Bond (1998) to correct the biases in the difference of the GMM system of Arellano and Bond (1991), where the instruments used in the estimation are derived from the lag values of the explanatory variables. The lagged values may become poor instruments if the error terms are correlated. Also, the dependent variable in the model is dynamic in nature, where current values may be determined by the passed values. The explanatory variables may also correlate with the error terms of the model. Additionally, since the data is bank-level data, the existence of heteroscedasticity is very likely. This could be improved with the use of a two-step system GMM, while looking after the issues of endogeneity, serial correlation, and heteroscedasticity.

$$Zscor_{it} = \lambda_0 + \lambda_1 Zscor_{ijt-1} + \lambda_2 Legor_{it} + \lambda_3 BSP_{ijt} + \varepsilon_{iit} \quad (2)$$

$$Zscor_{it} = \lambda_0 + \lambda_1 Zscor_{ijt-1} + \lambda_2 Legor_{it} + \lambda_3 BSP_{ijt} + \lambda_4 Islamic_{ijt} + \lambda_5 Macr_{jt} + \varepsilon_{iit} \quad (3)$$

$$Zscor_{it} = \lambda_0 + \lambda_1 Zscor_{ijt-1} + \lambda_2 Legor_{it} + \lambda_3 BSP_{ijt} + \lambda_4 Islamic_{ijt} + \lambda_5 Macr_{jt} + \lambda_6 Islamic * Legor_{it} + \lambda_7 Macr_{jt} + \varepsilon_{iit} \quad (4)$$

$$Zscor_{it} = \lambda_0 + \lambda_1 Zscor_{ijt-1} + \lambda_2 Legor_{it} + \lambda\ _3 BSP_{ijt} + \lambda_4 Islamic_{ijt} + \lambda_5 Macr_{jt} + \lambda_6 Islamic * Legor_{it} + \lambda_7 Islamic * Reg_{it} + \lambda_8 Legor_{it} * Reg_{it} + \lambda_9 Islamic * Legor_{it} * Reg_{it} + \varepsilon_{iit} \quad (5)$$

In the above models, j confirms the bank, t indicates the year, and i denotes the country. $Zscor_{jt}$ denotes the Zscore, the proxy for banks risk, $Zscore_{ijt-1}$ denotes the one-period lag for banks' risk, and $Legor_{it}$ indicates the legal origins of the country. BSP_{it} shows the potential bank-specific determinants. Islamic represents the dummy variables if the bank is Islamic. Lastly, $Macr_{jt}$ is a vector of country-level variables, the regulations, the GDP growth rate, and inflation rate (Reg, gdpgrowth, Inflation) and ε_{it} indicates the residuals of the model.

3. Descriptive Statistics

Descriptive statistics of variables related to our full sample are presented in Table 1. Out of bank specific variables, ROA and total assets had the highest level of standard deviation, showing the different sizes of banks in our sample. Regulations have a lower level of deviation, showing less of a difference in regulatory controls among the sample countries. The deviations of our control variables, i.e., inflation and GDP growth were relatively high, showing diverse economies in our sample. Our descriptive statistics don't change after dividing the sample in conventional and Islamic banks as shown in Tables 2 and 3. We further divided our sample as per the legal origin of the respective countries, i.e., common law countries are following laws originating from the UK and civil law following countries are following rulings originating from France. The descriptive statistics are reported in Tables 4 and 5. Regulations wise, countries following laws originating from France have a slightly higher standard deviation as compared to the countries following the common law. The average ROA of banks from Civil law countries is higher as compared to common law countries. The average Zscore and the deviation in ROA is also higher for the banks following a French legal origin, showing higher levels of risk.

Table 1. Descriptive Statistics (Full Sample).

Variable	Obs	Mean	Std. Dev.	Min	Max
lnzscore	3169	3.01352	0.85814	−2.4807	5.7543
INEFF	3330	0.02311	0.01597	0.00155	0.40414
ROA	3208	1.25174	2.23934	−47.15	35.1
lnTA	3330	8.12666	1.65259	2.60638	12.3141
NONIT	3330	0.01328	0.01439	−0.068	0.40402
GLTA	3330	0.59462	0.18052	0.00435	1.26291
gdpgrowth	3330	4.85783	3.06536	−7.0761	26.1702
inflation	3251	5.2816	3.60769	−4.8633	20.2861
Reg	3330	0.77043	0.09463	0.56614	0.93019

Table 2. Descriptive Statistics (Conventional).

Variable	Obs	Mean	Std. Dev.	Min	Max
lnzscore	2658	3.04924	0.86996	−2.4807	5.7543
INEFF	2793	0.02343	0.0164	0.00348	0.40414
ROA	2684	1.30723	2.06924	−47.15	25.47
lnTA	2793	8.11879	1.69808	2.60638	12.3141
NONIT	2793	0.01368	0.01474	−0.0376	0.40402
GLTA	2793	0.5875	0.18314	0.00435	1.09365
gdpgrowth	2793	4.86745	3.02437	−7.0761	26.1702
inflation	2724	5.48296	3.56764	−4.8633	20.2861
Reg	2793	0.77555	0.09506	0.56614	0.93019

Table 3. Descriptive Statistics (Islamic Banks).

Variable	Obs	Mean	Std. Dev.	Min	Max
Lnzscore	511	2.8277	0.76825	0.33846	5.13062
INEFF	537	0.02142	0.01335	0.00155	0.09731
ROA	524	0.9675	2.94738	−30.06	35.1
lnTA	537	8.1676	1.39292	4.19067	11.4241
NONIT	537	0.01121	0.01225	−0.068	0.1272
GLTA	537	0.63161	0.16143	0.03097	1.26291
gdpgrowth	537	4.80778	3.27281	−7.0761	26.1702
Inflation	527	4.24079	3.63763	−4.8633	20.2861
Reg	537	0.74377	0.08772	0.56614	0.93019

Table 4. Descriptive Statistics (Banks in Countries with French origin).

Variable	Obs	Mean	Std. Dev.	Min	Max
Lnzscore	1470	3.12944	0.82237	−2.4807	5.7543
INEFF	1543	0.02608	0.01845	0.00348	0.40414
ROA	1480	1.43526	2.187	−47.15	25.47
lnTA	1543	8.02992	1.72934	2.60638	12.3141
NONIT	1543	0.01298	0.01726	−0.0376	0.40402
GLTA	1543	0.60744	0.18961	0.01099	1.09365
gdpgrowth	1543	4.95048	3.74723	−7.0761	26.1702
Inflation	1504	5.53999	3.2591	−4.8633	15.0501
Reg	1543	0.78042	0.10267	0.56614	0.93019

Table 5. Descriptive Statistics (Banks in Countries with UK origin).

Variable	Obs	Mean	Std. Dev.	Min	Max
Lnzscore	1699	2.91322	0.87587	−1.9654	5.64517
INEFF	1787	0.02055	0.01292	0.00155	0.30153
ROA	1728	1.09455	2.27208	−30.06	35.1
lnTA	1787	8.2102	1.57905	4.01828	12.1126
NONIT	1787	0.01355	0.01135	−0.068	0.13507
GLTA	1787	0.58354	0.17158	0.00435	1.26291
gdpgrowth	1787	4.77783	2.31888	−5.2429	9.99686
Inflation	1747	5.05915	3.86994	−0.8348	20.2861
Reg	1787	0.7618	0.08619	0.63415	0.90064

Table 6 shows the dummy variable legor_uk created for countries with respect to their legal origin. It takes the value one if the country follows law originating from the UK and zero if the country is following French originating law. Table 7 presents the correlation matrix of the variables. We do not see a high correlation among any of our variables.

Table 6. Legal Origin Dummy.

Country	Code	legor_uk
United Arab Emirates	ARE	1
Bangladesh	BGD	1
Bahrain	BHR	1
Indonesia	IDN	0
Jordan	JOR	0
Kuwait	KWT	0
Lebanon	LBN	0
Malaysia	MYS	1
Oman	OMN	0
Pakistan	PAK	1
Qatar	QAT	0
Saudi Arabia	SAU	1
Tunisia	TUN	0
Turkey	TUR	0

Table 7. Correlation Matrix.

	lnzscore	INEFF	ROA	lnTA	NONIT	GLTA	gdpgrowth	Inflation	Reg
lnzscore	1								
INEFF	−0.133 ***	1							
ROA	0.215 ***	−0.164 ***	1						
lnTA	0.0885 ***	−0.370 ***	0.106 ***	1					
NONIT	−0.112 ***	0.340 ***	0.365 ***	−0.133 ***	1				
GLTA	−0.144 ***	−0.0170	0.0796 ***	0.103 ***	−0.0496 **	1			
Gdpgrowth	0.0252	−0.00757	0.112 ***	−0.0748 ***	0.0323	0.0257	1		
inflation	−0.152 ***	0.314 ***	0.0485 **	−0.246 ***	0.134 ***	0.0558 **	0.152 ***	1	
Reg	−0.0699 ***	0.333 ***	0.0694 ***	−0.179 ***	0.0956 ***	−0.0500 **	0.193 ***	0.504 ***	1

** $p < 0.05$, *** $p < 0.01$.

4. Findings and Analyses

We present results from our basic model with its extensions in Table 8 using the GMM. In the first model, we restrict the model to only bank level variables. In the second model, we introduce the other macro variables (bank regulation, GDP growth, and inflation) along with the Islamic banking dummy. In the third model, we introduce the interaction of the Islamic banking dummy and the legal origin. In the fourth and the final model, we include the interaction of the Islamic banking dummy and banking regulation as well as the interaction of the Islamic banking dummy, banking regulation, and legal origin.

Table 8. Banks' risk-taking and legal origin.

	M1	M2	M3	M4
L.lnzscore	0.9406 ***	0.9479 ***	0.9443 ***	0.8569 ***
	[0.000]	[0.000]	[0.000]	[0.000]
legor_uk	−0.0230	−0.0026	−0.0203	−4.8658 ***
	[0.456]	[0.935]	[0.533]	[0.000]
INEFF	6.2692 *	6.9391 **	7.2321 **	2.4817
	[0.060]	[0.025]	[0.019]	[0.177]
ROA	0.0484 *	0.0732 ***	0.0730 ***	0.0695 ***
	[0.073]	[0.008]	[0.009]	[0.001]
lnTA	0.1069 ***	0.1132 ***	0.1114 ***	0.1074 ***
	[0.000]	[0.000]	[0.001]	[0.002]
NONIT	6.0392 ***	4.2529 *	4.2567 *	1.4250
	[0.004]	[0.057]	[0.056]	[0.452]
GLTA	0.2715	0.1099	0.1134	−0.3144 *
	[0.127]	[0.511]	[0.497]	[0.066]
Reg		−0.1789	−0.1836	−3.1676 ***
		[0.284]	[0.275]	[0.002]
gdpgrowth		−0.0018	−0.0017	−0.0038
		[0.453]	[0.482]	[0.127]
inflation		−0.0018	−0.0022	0.0000
		[0.416]	[0.328]	[0.995]
Islamic_Dumm		−0.0220	−0.1314 **	−20.5337 *
		[0.521]	[0.029]	[0.071]
Islamic_Dumm*legor_uk			0.1450 *	28.6088 **
			[0.051]	[0.022]
Islamic_Dumm*Reg				27.2953 *
				[0.070]
legor_uk*Reg				6.2291 ***
				[0.000]
Islamic_Dumm*legor_uk*Reg				−38.2051 **
				[0.022]
Constant	−1.1456 ***	−0.9984 ***	−0.9672 ***	2.0776 **
	[0.000]	[0.004]	[0.004]	[0.023]
Instruments	43.0000	47.0000	48.0000	59.0000
Overall	329.0000	329.0000	329.0000	329.0000
AR (1)	0.0057	0.0061	0.0061	0.0073
AR (2)	0.1371	0.1775	0.1772	0.3814
Sargan Test (p-Val)	0.0732	0.0847	0.0850	0.8975
Hansen Test (p-Val)	0.1120	0.0878	0.0914	0.1374

p-Values are in parantheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

The significant lagged dependent variable indicates persistence in bank risk taking. Moreover, it also justifies our choice of dynamic modelling. Furthermore, the insignificant *p*-values of AR(2), Hansen, and the Sargan test indicate that the model satisfies the diagnostic requirements.

The coefficient of legal origin dummy is insignificant indicating that the cross-country variation in the bank risk taking cannot be explained by the legal origin of that country. However, a significant constant term and the insignificant coefficient of legal origin dummy do indicate that the legal origin (both French origin and English origin) lowers the bank's stability. In other words, the findings indicate that the irrespective of whether a country follows a French law or an English law, it induces banks to take more risk. Our findings may be interpreted in light of the dark side of legal institutions put forth by Houston et al. (2010). In other words, legal institutions of a country in providing adequate protection to both the parties may encourage banks to take more risk.

As far as other explanatory variables are concerned, we can see that bank profitability (ROA), bank size (proxied by log of total asset), cost efficiency (proxied total cost to income ratio), and bank diversification (proxied by non-interest income to total income) all tend

to have a positive impact on Z-score, meaning decreasing the bank's risk. This is in line with the studies like Azmi et al. (2019) and Ali et al. (2021). Surprisingly, the total financing ratio (GLTA) seems to have no impact on bank risk. All our results remain similar in our second model. In our second model, we have added some additional country-level control variables like regulations in a country, GDP growth, and inflation. We have also added an Islamic bank dummy to see whether the conventional banks and the Islamic banks are different with respect to risk taking. The insignificant Islamic banking dummy indicates that the level of bank stability of both Islamic as well as conventional banks is same.

As mentioned above, in the third model, we have interacted the legal origin dummy with the Islamic banking dummy. The interaction term is significant and positive, indicating that Islamic banks are more stable in English law countries as compared to conventional banks. These are interesting findings, indicating that English law provides a more conducive environment for Islamic banks, especially from a stability perspective.

This could be due the nature of the contracts (risk sharing and partnership contracts) used by Islamic banks, which require higher creditor protection and that is where English law becomes more conducive to the operations of Islamic banks. In other words, these findings indicate that banks are more stable in countries with superior creditor protection, such as English law. The findings are broadly in line with the power theory of credit, which postulates that the lenders will be more stable in an environment where they can easily force repayment of instalments by borrowers. These explanations are generally credited to the work of Townsend (1979), Aghion and Bolton (1992), and Hart and Moore (1994, 1998).[1]

In the fourth model, we have added two more interaction terms, i.e., interaction between legal origin and regulations and a triple interaction between an Islamic bank dummy, regulation, and legal origin. The results indicate that bank regulations have a differential effect on Islamic and conventional banks. For instance, the impact of regulations on Islamic bank stability is positive, whereas it is negative in the case of conventional banks. This again indicates that strong banking regulations are a prerequisite for Islamic banks to be more stable. These results can be interpreted in line with the reporting of Ibrahim and Rizvi (2018), who have empirically shown that banking regulations are positively linked with Islamic banks' financing growth. In other words, the findings of Ibrahim and Rizvi (2018) suggest that conducive regulations make Islamic banks more stable. As far as conventional banks are concerned, the results are in line with Alam (2014) as they also reported a differential effect of bank regulation on risk taking. In the case of conventional banks, they argue that tighter restrictions, through regulations, on bank activities will limit profitable opportunities and hence force them to indulge in risk taking activities.

Overall results from Table 8 have economic significance as well. For instance, in three of the four models, the coefficient of constant term -0.967 to -1.14 indicates the adverse effect of legal origins on bank stability. On the other hand, a 1% increase in ROA is expected to increase stability by 4.8% to 7.32%. Similarly, size effect reveals that the 1% increase in size leads to stability in the range of 0.10% to 0.11%. Similarly, bank diversification improves stability in the range of 1.42% to 6.04%. In other words, these results are not only statistically significant but also reveal strong economic significance. Regarding comparative stability, the negative and the significant Islamic bank dummies (two out of three models) indicate that Islamic banks are less stable. Based on the findings of different models, the estimations reveal that Islamic bank stability is lower by 0.13 to 20.53 points as compared to their conventional counterparts.

To check the credence of our results, we conducted robustness checks by using an alternate proxy of risk-taking and a different methodological approach. We report our robustness results in Table 9. We find our results to be consistent across different proxies of risk-taking and methodologies.

Table 9. Robustness: Banks' risk-taking and legal origin.

	M1	M2	M3	M4
L.lnzscore	0.6199 ***	0.6069 ***	0.6060 ***	0.5513 ***
	[0.000]	[0.000]	[0.000]	[0.000]
legor_uk	0.0144	0.0606	0.0324	10.6195 ***
	[0.901]	[0.580]	[0.777]	[0.006]
INEFF	27.5200 ***	25.1593 ***	25.7983 ***	20.3303 **
	[0.004]	[0.005]	[0.004]	[0.028]
ROA	0.2577 ***	0.2908 ***	0.2853 ***	0.2715 ***
	[0.004]	[0.001]	[0.001]	[0.000]
lnTA	0.4004 ***	0.3231 ***	0.3003 ***	0.3817 ***
	[0.000]	[0.001]	[0.002]	[0.001]
NONIT	−8.4539	−11.9092	−13.2126	−21.9027 ***
	[0.316]	[0.155]	[0.114]	[0.000]
GLTA	1.2990 *	1.4387 **	1.4258 **	2.3816 ***
	[0.058]	[0.032]	[0.033]	[0.000]
Reg		−0.5733	−0.6225	1.7756
		[0.308]	[0.261]	[0.504]
Gdpgrowth		0.0092	0.0097	−0.0006
		[0.181]	[0.150]	[0.947]
Inflation		−0.0298 ***	−0.0315 ***	−0.0097
		[0.001]	[0.001]	[0.488]
Islamic_Dumm		−0.0754	−0.3378	28.1222
		[0.541]	[0.104]	[0.311]
Islamic_Dumm*legor_uk			0.3384	−61.2646 *
			[0.186]	[0.052]
Islamic_Dumm*Reg				−34.8283
				[0.347]
legor_uk*Reg				−13.6549 ***
				[0.008]
Islamic_Dumm*legor_uk*Reg				79.2761 *
				[0.070]
Constant	−3.6513 ***	−2.4745 **	−2.2056 *	−5.0542 **
	[0.002]	[0.047]	[0.068]	[0.028]
Instruments	42.0000	46.0000	47.0000	58.0000
Overall	321.0000	321.0000	321.0000	321.0000
AR (1)	0.0000	0.0000	0.0000	0.0000
AR (2)	0.5342	0.6200	0.6342	0.7519
Sargan Test (p-Val)	0.0327	0.0270	0.0184	0.8386
Hansen Test (p-Val)	0.0779	0.0843	0.0725	0.0991

p-Values are in parantheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

5. Conclusions

The global financial crisis has motivated a plethora of research, focussing on understanding the risk-taking behaviour of commercial banks (Ashraf 2017). Extending the bank risk-taking literature, we focus on the legal origin of a country to explain cross-country variation in the bank's risk-taking behaviour. More precisely, in this paper, we study the impact of different legal origins on different types of banks (Islamic or conventional) in dual banking countries. For this purpose, we employ GMM on a panel data set of 280 banks from 14 countries. We find that a bank's risk-taking and legal origin are positively related in our sample countries. Moreover, the association is similar across English as well as French law. In other words, in our sample countries, we find that the legal origin—irrespective of whether it is French or English—encourages higher risk taking amongst commercial banks. Further analysis indicates that Islamic banks are more stable in English origin countries. Last but not least, we found bank regulations to have a differential effect on Islamic and conventional banks. For instance, the impact of regulations on Islamic bank stability was positive, whereas it was negative in the case of conventional banks.

Our study is relevant for shareholders and supranational regulators of banks. This study will help the shareholders/directors of banks who are deciding on countries they should expand into. Second, regulators of Islamic like IFSB could take a lead from this study to come up with different regulations for countries according to their respective legal origin as it impacts the risk-taking behavior of banks.

6. Limitations and Future Research

There are several shortcomings of this paper. First, we did not use the corporate governance variables to examine how governance at the bank level interacts with other exogeneous variables to drive stability. Some of the recent studies, especially in the Islamic finance literature, have used governance variables in the context of Islamic banking stability (Berger et al. 2021 and Mollah et al. 2021). Future research can take note of this, and it should control for the variations in corporate governance, especially in the context of the stability of Islamic banks in relation to their conventional counterparts. This is important as the governance structure of Islamic banks are different from conventional banks because of the presence of a Shariah Supervisory Board (SSB). The board is entrusted to ensure Shariah compliance of the processes and the procedures of Islamic banks. Second, future research could also make a distinction between listed and unlisted banks. This is important as they (listed and unlisted) are supposed to comply with different regulatory requirements. For instance, the listed banks are not just required to comply with central bank regulations but also regulations laid down by securities commissions. This gets further complicated in the case of listed Islamic banks as they are required to be compliant with stock screening criteria. Finally, future research could use market-based measures of stability such as distance to default as opposed to just using book-based measures.

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Notes

[1] Refer to Cole and Turk (2007) for more detailed discussion.

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