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Control of corruption, diversification and asset quality of Islamic and conventional banks

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Abstract

The study examines whether and how control of corruption (CC) influences asset quality of banks directly and indirectly through diversification. A review of banks in three Islamic countries (Indonesia, Malaysia, and Pakistan) from 2006 to 2012 reveals that CC has a positive effect on asset quality of Islamic banks only. In addition, diversification typically has a negative effect on asset quality, but such a negative effect weakens as CC becomes more effective, particularly for Islamic banks. Furthermore, the modifying effect of CC is particularly found in more corrupt countries (Indonesia and Pakistan) as opposed to a less corrupt country (Malaysia).

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1. Introduction

Research on Islamic banking is on the rise thanks to its unique features and ability to ride out the recent global financial crisis. Existing literature mostly focuses on the comparison between Islamic and conventional banking. However, no research to date has examined whether and how control of corruption (CC) influences asset quality of Islamic and conventional banks from the agency perspective. It is mainly for this reason that the study is conducted.[1]

The contributions of the study are two-fold. First, we examine the direct effect of CC on asset quality of banks. Since resources tend to be diverted to non-productive uses in corrupt countries, the interests of national citizens and their government are likely in conflict. High corruption subsequently implies severe agency problems at the national level. Given the established positive relationship between national and corporate governance as well as that between national- and firm- level agency problems (Doidge et al. 2007; Stulz 2005), agency problems such as adverse selection and moral hazard are likely more severe among banks in countries with high level of corruption. Considering the established positive relationship between agency costs and bank performance (Mamatzakis and Bermpei 2015), asset quality of banks should worsen when the level of corruption is higher. Hence, CC should help improve corporate governance and mitigate agency problems within the banks such that it has a positive effect on asset quality of banks.[2]

Second, we examine the indirect effect of CC on asset quality through diversification (i.e., whether and how CC influences diversification's effect on asset quality).[3] It has been well documented that diversification has a negative effect on bank performance because its accompanied agency cost outweighs the risk-diversification benefit (Laeven and Levine 2007). As mentioned previously, agency problems within the banks should be more severe in countries with high level of corruption. Agency problems associated with diversification should be no exception, meaning that any negative effect of diversification on asset quality should be reinforced by corruption. Hence, CC should weaken any negative effect of diversification on asset quality of banks.

Using three Islamic countries with a dual banking system in Asia from 2006 to 2012 as the study sample, the study results indicate that CC has a positive effect on asset quality of Islamic banks, concurring with the finding of Bougatef (2015). By contrast, CC generally has no effect on asset quality of all conventional banks examined. In addition, diversification generally has a negative effect on asset quality of Islamic and conventional banks, but CC appears to counteract such a negative effect for Islamic banks only. Furthermore, with the level of corruption considered, CC is effective in weakening any negative effect of diversification on asset quality of banks in more corrupt countries (Indonesia and Pakistan)

[1] Bougatef (2015) examines whether and how corruption influences the soundness of Islamic banks. However, it fails to consider the effect of diversification on asset quality as examined in this study. In addition, the corresponding sample is restricted to Islamic banks only. By contrast, this study includes conventional banks as the contrast sample to show whether any effects observed among Islamic banks are also found among conventional banks.

[2] Alignment of risk preferences between managers and shareholders can help mitigate agency costs (Belghitar and Clark 2015).

[3] Asset quality is selected rather than other bank performance variables primarily because ample evidence has indicated that asset quality is higher among Islamic banks than conventional banks (Beck et al. 2013; Chen et al. 2015). Given that Islamic banks are the focus of the study, it subsequently raises greater concern whether asset quality, the comparative advantage of Islamic banks, can be negatively influenced by diversification and whether any such a negative effect is aggravated by corruption prevailing in Islamic countries.

only, particularly for Islamic banks. By contrast, CC is irrelevant in this aspect for banks in a less corrupt country (Malaysia). In sum, results highlight the importance of imposing CC to achieve high asset quality or bank stability particularly in countries with high level of corruption. Given the rampant corruption in Islamic countries (Khan 2010), it is advisable to impose rigorous supervision and effective CC to mitigate agency problems within the banks and lessen any negative effect of diversification. That is, corruption should be effectively controlled to increase the asset quality of banks and help capitalize on bank diversification in Islamic countries with high level of corruption.

The study adds to the existing literature on Islamic banking and corporate governance. More specifically, given that diversification prevailing among conventional banks is increasingly common among Islamic banks, study results provide useful suggestions for Islamic banks by showing that corruption should be effectively controlled to minimize any negative effect or maximize any positive effect of diversification for such banks. In addition, our findings support the twin agency problems documented by Stulz (2005) and the overriding impact of national governance on corporate governance (Doidge et al. 2007). Future studies are recommended to explore other national-level governance variables to help improve corporate governance and asset quality of banks.

The remainder of the paper is structured as follows. Sections 2 and 3 describe the data and methodology, respectively. Section 4 reports and analyzes the results. Section 5 concludes.

2. Data

We gathered bank data of Indonesia, Malaysia, and Pakistan for the period 2006-2012 from Bankscope. These three countries are selected mainly because they are typical Islamic countries in Asia and share a dual banking system. Control of corruption (CC) index is constructed by Kaufmann et al. (2015), which measures "perceptions of the extent to which public power is exercised for private gain" and ranges from -2.5 to 2.5. Higher (lower) index values indicate lower (higher) perception of corruption or higher (lower) level of CC.

Asset quality is inversely proxied by loan loss reserve divided by gross loan (LLR). Diversification is measured by asset diversity (AD), which is derived based on the work of Laeven and Levine (2007):

$$\text{AD} = 1 - \left|\frac{net\ loans - other\ earning\ assets}{total\ earning\ assets}\right| \quad (1)$$

The value of AD ranges from zero to one. Higher values indicate higher asset diversity.

In estimating the model, we account for the effects of bank intermediation, financial leverage, bank growth opportunity, and bank size, which are measured by the ratio of deposits to liabilities (DL), the ratio of equity to assets (EA), growth in assets (GIA), and log of total assets (TA), respectively (Mercieca et al. 2007; Beck et al. 2013). To avoid the effect of outliers, all these variables are winsorized at 1% and 99% levels, except for AD.

Table 1 presents the descriptive statistics of the variables used in this study for each of the countries. There are wide variations of variables across countries. Given no specific patterns observed, further regression analysis is required to investigate the relationship of LLR with other variables. However, the level of CC is lower for Indonesia and Pakistan than for Malaysia. Specifically, the mean values of CC for Indonesia, Malaysia and Pakistan are -0.677, 0.215, and -0.976, respectively. Hence, Indonesia and Pakistan are classified as more

corrupt countries and Malaysia is classified as a less corrupt country for comparison in empirical analysis.

Table 1 Descriptive statistics for the variables used in the study

Country	Variable	Mean	Min	p25	p50	p75	Max	sd	N
Indonesia	LLR	2.801	0.142	1.291	1.888	3.023	46.087	3.860	314
	AD	0.319	0.000	0.224	0.289	0.409	0.905	0.138	314
	DL	0.892	0.097	0.872	0.930	0.963	0.991	0.127	314
	EA	13.515	-3.300	8.350	10.295	15.000	63.720	9.568	314
	GIA	26.810	-41.110	10.310	19.570	31.840	234.230	35.081	314
	Log(TA)	9.183	7.589	8.675	9.156	9.629	10.784	0.672	314
	CC	-0.677	-0.816	-0.745	-0.679	-0.583	-0.563	0.085	314
Malaysia	LLR	3.959	0.142	1.291	1.834	2.847	39.400	7.139	74
	AD	0.420	0.064	0.227	0.302	0.581	0.972	0.267	74
	DL	0.885	0.252	0.870	0.931	0.968	0.996	0.142	74
	EA	13.815	3.520	7.210	9.755	16.780	67.370	11.610	74
	GIA	17.358	-32.770	-3.870	10.665	21.610	234.230	38.523	74
	Log(TA)	9.484	8.124	9.013	9.341	10.068	10.784	0.637	74
	CC	0.215	-0.031	0.133	0.300	0.300	0.300	0.127	74
Pakistan	LLR	9.067	0.101	4.032	7.723	11.711	35.950	6.961	137
	AD	0.485	0.185	0.402	0.476	0.565	0.788	0.119	137
	DL	0.862	0.336	0.821	0.921	0.946	0.971	0.131	137
	EA	12.262	2.010	7.070	9.240	15.150	42.710	8.279	137
	GIA	20.996	-37.800	8.350	17.700	27.030	207.470	26.605	137
	Log(TA)	9.132	7.329	8.686	9.236	9.582	10.220	0.616	137
	CC	-0.976	-1.071	-1.060	-1.052	-0.803	-0.740	0.130	137
Total	LLR	4.599	0.101	1.447	2.358	5.063	46.087	5.983	525
	AD	0.377	0.000	0.243	0.343	0.484	0.972	0.174	525
	DL	0.883	0.097	0.864	0.930	0.959	0.996	0.130	525
	EA	13.230	-3.300	7.820	10.040	15.280	67.370	9.570	525
	GIA	23.961	-41.110	8.350	17.550	30.320	234.230	33.747	525
	Log(TA)	9.212	7.329	8.733	9.183	9.635	10.784	0.662	525
	CC	-0.629	-1.071	-0.816	-0.679	-0.583	0.300	0.380	525

Notes: This table presents descriptive statistics for variables used in the study, including mean, minimum value (Min), three quartiles with p25, p50, and p75 indicating the first, second (median), and third quartiles, respectively, maximum value (Max), standard deviation (sd), and number of observations (N). The ratio of loan loss reserves to gross loans (LLR) is an inverse proxy of asset quality. Asset diversity (AD) is 1-(net loans-other earning assets)/total earning assets. Control variables include DL (deposits/liabilities), EA (equity/assets), GIA (growth in assets), Log(TA) (Log (total assets)). Control of corruption (CC) index is constructed by Kaufmann et al. (2015), ranging from -2.5 to 2.5.

3. Methodology

Given that the data vary with banks and time and that past asset quality likely influences future asset quality, the dynamic panel model is estimated to reflect such data structure and adjustment process. Different specifications of the following one-step difference and system generalized method of moment (GMM) dynamic panel model are estimated.[4]

[4] The model is adjusted for heteroskedasticity to obtain robust estimators. In addition, the one-step estimator is used for inferences primarily because of its higher reliability compared with the two-step estimator (Bond 2002).

$$LLR_{i,t} = \beta_0 LLR_{i,t-1} + \beta_1 AD_{i,t} + \beta_2 CC_{i,t} + \beta_3 AD \times CC_{i,t} + \beta_4 DL_{i,t} + \beta_5 EA_{i,t} + \beta_6 GIA_{i,t} + \beta_7 \log(TA)_{i,t} + \sum_{t=2006}^{2011} \gamma_t YEAR_t + \mu_i + \nu_{i,t} \quad (2)$$

, where *LLR*, *AD*, *CC, DL*, *EA*, *GIA*, and *TA* are as defined above. *YEAR* is the dummy variable that returns a value of one if a given year is *t*, and it is included to capture year-specific effects. μ_i denotes the unobservable bank-specific effect for bank *i*, while ν_{it} is the remainder disturbance for bank *i* and year *t*.

Since financial variables are likely co-determined, all independent variables are treated as endogenous except CC and year dummy variables, which are treated as exogenous. All available lags of the dependent variable LLR and independent variables other than dummy variables are used as instruments for the transformed equation. Dummy variables are employed as standard instrument variables.

4. Results

Table 2 presents the results regarding the effect of control of corruption (CC) on asset quality and how CC modifies diversification's effect on asset quality of Islamic and conventional banks. Results for Islamic and conventional banks are presented in Columns 1-2 and Columns 3-4, respectively. The coefficient of the lag of LLR is significantly positive in all columns, indicating that the adjustment process of asset quality is not instantaneous, justifying our selection of the dynamic model. The coefficient of CC is significantly negative in Column 1, indicating that CC has a positive effect on asset quality of Islamic banks given that LLR is an inverse proxy of asset quality. By contrast, the coefficient of CC is insignificant in Column 3, indicating that CC has no effect on asset quality of conventional banks.

Table 2 Control of corruption, diversification, and asset quality of Islamic and conventional banks

Dependent variable: LLR_t	Islamic banks		Conventional banks	
Independent variable	(1)	(2)	(3)	(4)
LLR_{t-1}	0.646***	0.610***	0.696***	0.572***
	(0.055)	(0.064)	(0.088)	(0.091)
CC_t	-0.953**	1.891**	-0.771	-2.253
	(0.449)	(0.883)	(0.756)	(3.119)
AD_t		-0.496		13.103***
		(1.393)		(3.117)
$AD_t \times CC_t$		-7.153***		1.217
		(2.059)		(6.074)
DL_t	1.259	-0.731	-10.376***	-7.679**
	(0.969)	(1.147)	(3.890)	(3.652)
EA_t	0.013	0.017	-0.132***	-0.110**
	(0.040)	(0.031)	(0.044)	(0.053)
GIA_t	0.002	0.003	-0.036***	-0.033***
	(0.008)	(0.007)	(0.012)	(0.010)

$Log(TA)_t$	-0.183	0.271	-2.393**	-1.683
	(0.591)	(0.597)	(1.159)	(1.189)
N	66	66	459	459
z statistic (p-value)	0.160	0.099	0.583	0.989
Hansen's J statistic (p-value)	1.000	1.000	1.000	1.000

Notes: The ratio of loan loss reserves to gross loans (LLR) is an inverse proxy of asset quality. Asset diversity (AD) is 1-(net loans-other earning assets)/total earning assets. Control variables include DL (deposits/liabilities), EA (equity/assets), GIA (growth in assets), Log(TA) (Log (total assets)). Control of corruption (CC) index is constructed by Kaufmann et al. (2015), ranging from -2.5 to 2.5. In all columns, year dummies are included to capture year-specific effects, but results are saved for brevity. N represents the number of bank-year observations. The numbers in the parentheses are Arellano-Bond robust standard errors. The p-values are calculated for the z statistic of the Arellano-Bond test for serial correlation at order two and for Hansen's J statistic. ***, **, and * stand for 1%, 5%, and 10% levels of significance, respectively.

With AD and AD×CC introduced in the model, in Column 2 where Islamic banks are examined, the effect of AD on LLR is measured as –7.153 CC, which is generally positive given that the mean value of CC for Islamic banks is negative. Given that LLR is an inverse proxy of asset quality, this means that diversification generally has a negative effect on asset quality of Islamic banks. However, any negative effect of AD on asset quality weakens as the level of CC increases and turns positive when the level of CC is above zero. That is, CC mitigates any negative effect and enhances any positive effect of diversification on asset quality of Islamic banks. By contrast, in Column 4 where conventional banks are examined, the effect of AD on asset quality is measured as 13.103, indicating that diversification has a negative effect on asset quality of conventional banks, regardless of the level of CC.

To provide better insight into the research question, we reestimate the model based on the sample of more corrupt countries (Indonesia and Pakistan) and that of a less corrupt country (Malaysia) and results are presented in Columns 1-2 and Columns 3-4 of Table 3, respectively. The objective is to see if CC is more effective in mitigating (strengthening) any negative (positive) effect of diversification on asset quality in more corrupt countries. In Column 1 where Islamic banks in more corrupt countries are examined, the effect of AD on LLR is measured as –19.988 – 30.044 CC, which equals 0.939 and 8.154 if CC takes on its mean values for Indonesia and Pakistan (i.e., -0.693 and -0.933), respectively. Results indicate that diversification generally has a negative effect on asset quality of Islamic banks in more corrupt countries. However, such a negative effect weakens as the level of CC increases and turns positive when CC is sufficiently high (i.e., greater than -0.665). In Column 2 where conventional banks in more corrupt countries are examined, the effect of AD on LLR is measured as -20.145 CC, which is positive if CC takes on its mean value for Indonesia or Pakistan (i.e., -0.693 and -0.933). Results indicate that diversification generally has a negative effect on asset quality of conventional banks in more corrupt countries. However, such a negative effect is weakened as the level of CC increases and turns positive when CC is sufficiently high (i.e., above zero). Hence, results in Columns 1 and 2 are similar in the sense that CC weakens any negative effect and reinforces any positive effect of diversification on asset quality of both Islamic and conventional banks in more corrupt countries. However, it appears that such a modifying effect of CC is less pronounced for conventional banks in these countries, given that the coefficient of AD×CC is significant at 10% level as opposed to 1% for Islamic banks as shown in Column 1. Regarding the results for Malaysia, the coefficients of AD and AD×CC are insignificant in Columns 3 and 4, indicating no effect of diversification on asset quality of Islamic and conventional banks in a

less corrupt country, regardless of the level of CC.[5] In sum, results in Table 3 suggest the effectiveness of CC in mitigating agency problems within the banks in more corrupt countries. In addition, such a phenomenon is more pronounced among Islamic banks than conventional banks in such countries likely because Islamic banks are more opaque and have more room for improvement such that CC is more effective in reducing agency costs for such banks.[6] Furthermore, results in Table 2 appear to be driven by banks in more corrupt countries.

Table 3 Control of corruption, diversification, and asset quality of Islamic and conventional banks - sample partitioned by country groups

Dependent variable: LLR_t	Indonesia and Pakistan		Malaysia	
	Islamic	Conventional	Islamic	Conventional
Independent variable	(1)	(2)	(3)	(4)
LLR_{t-1}	0.673***	0.563***	0.529***	0.551***
	(0.153)	(0.090)	(0.023)	(0.176)
CC_t	11.037	4.573		
	(7.565)	(6.421)		
AD_t	-19.988**	-6.655	0.433	12.245
	(8.171)	(9.415)	(0.815)	(8.039)
$AD_t \times CC_t$	-30.044***	-20.145*	-3.486	-33.836
	(11.485)	(10.620)	(3.605)	(32.101)
DL_t	-1.245	-7.915***	-3.195	-14.405*
	(1.132)	(2.965)	(2.598)	(7.651)
EA_t	0.009	-0.090*	0.087**	-0.327**
	(0.046)	(0.048)	(0.039)	(0.128)
GIA_t	0.004	-0.035***	0.004	-0.033
	(0.009)	(0.012)	(0.006)	(0.022)
$Log(TA)_t$	0.474	-1.841*	-0.173	-9.548**
	(1.250)	(1.089)	(0.146)	(4.714)
N	39	412	27	47
z statistic (p-value)	0.048	0.532	0.297	0.226
Hansen's J statistic (p-value)	1.000	1.000	1.000	1.000

Notes: The ratio of loan loss reserves to gross loans (LLR) is an inverse proxy of asset quality. Asset diversity (AD) is 1-(net loans-other earning assets)/total earning assets. Control variables include DL (deposits/liabilities), EA (equity/assets), GIA (growth in assets), Log(TA) (Log (total assets)). Control of corruption (CC) index is constructed by Kaufmann et al. (2015), ranging from -2.5 to 2.5. In all columns, year dummies are included to capture year-specific effects, but results are saved for brevity. N represents the number of bank-year observations. The numbers in the parentheses are Arellano-Bond robust standard errors. The p-values are calculated for the z statistic of the Arellano-Bond test for serial correlation at order two and for Hansen's J statistic. ***, **, and * stand for 1%, 5%, and 10% levels of significance, respectively.

[5] For the sample consisting of Malaysian banks only, the coefficient of CC is unavailable because CC gets dropped in estimation due to collinearity.

[6] Islamic banks have been found to be more opaque than conventional banks in the sense that Islamic banks are more incentivized to pursue their benefits at the cost of investors under their unique profit and loss sharing (PLS) scheme (Lahrech et al. 2014). Unlike conventional banks, Islamic banks are less subject to the market discipline (Ariffin and Karim 2007).

5. Conclusion

This study examines the effect of control of corruption (CC) on asset quality and its sensitivity to diversification. A review of banks in three Islamic countries (Indonesia, Malaysia, and Pakistan) in Asia from 2006 to 2012 reveals that CC has a positive effect on asset quality of Islamic banks whereas conventional banks see no such an effect. In addition, diversification typically has a negative effect on asset quality of Islamic and conventional banks. However, CC appears to weaken the negative effect of diversification on asset quality and such a modifying effect of CC is more pronounced for Islamic banks. Furthermore, the role of CC in weakening the negative effect of diversification on asset quality is particularly found among Islamic banks in more corrupt countries (Indonesia and Pakistan) as opposed to a less corrupt country (Malaysia). In sum, study results suggest that Islamic banks in more corrupt counties have larger room for improvement and further tightening of CC is recommended to increase asset quality and financial stability for such banks.

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