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The Determinants of Liquidity: A Comparison of Islamic and Conventional Banks Covering the COVID-19 Period

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Abstract: Banking and risk are synonymous concepts. The risk concepts for both conventional and Islamic banks are broadly similar, and liquidity risk is among the most important risks that all banks are exposed to. The management process of liquidity risk, which arises when banks do not have enough assets to meet their liabilities at maturity, may differ in conventional and Islamic banks. This study aims to present a comparative analysis of the liquidity determinants of conventional and Islamic banks operating in Turkey. Using the data of 3 Islamic and 17 conventional banks for the period between 2011Q1-2022Q2, the analysis, which also aims to see the short and long-term effects, concludes that the determinants of liquidity risk for conventional and Islamic banks are largely similar. However, the liquidity of Islamic banks is more sensitive to bank-specific variables. The findings showed that Islamic banks, which cannot use all of the conventional liquidity management tools in the liquidity management process for different reasons, have to hold higher liquid assets than conventional banks in the short term, even if they are balanced in the long term.

Keyword: Islamic Bank, Liquidity Risk, Panel Data Analysis, Liquidity Coverage Ratio, COVID-19 Period Liquidity

JEL Classification: G21, G29, G32, G33

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Introduction

Liquidity represents a financial institution's ability to fulfill its short-term obligations. More often it is associated with asset-liability duration mismatch as depository institutions tend to borrow short and lend long. Altough this duration gap persists naturally it causes severe liquidity problems especially during times of financial turmoil and distress that are characterized by sudden deposit outflows and spikes in non-performing loans (Holmstrom and Tirole, 2000; Jedidia ve Hamza, 2014; Deep and Schafer 2004; Berger and Bouwman, 2006; Saunders and Corunet, 2006; Brunnermeier, 2009; Yang ve Xu, 2009). Therefore, liquidity risk has always been monitored closely by all market participants and has been regulated formally by both national banking authorities and international committees such as BASEL.

Depository institutions including both conventional and Islamic banks face a common dilemma regarding managing liquidity risk. Banks hold excess reserves to be able to make their daily transactions. Nevertheless, when banks hold more cash than they need they have to bear the forgone interest earnings while they have to borrow when they are short of reserves. Therefore, Central Banks act as the lenders of the last resorts to assure that the payment system operates efficiently without any market imperfections or failures. However, Islamic banks more often experience difficulty in terms of excessing liquidity as payment or receivement of interest is forbidden by its holy teachings. Recent novel practices such as the issuance of sukuk bonds (Bello, Hasan and Saiti, 2017; Can and Bocuoglu, 2022) and Qard – al – Hasan based monetary policies (Selim and Hassan, 2020; Aderemi, and Ishak, 2023; Mojahedi Moakhar, Esavi and Khademalizadeh, 2023) have empowered the balance sheet of Islamic banks.

As briefly outlined above, the management and regulating of liqudity is crucial for both conventional and Islamic banks. These banking systems display similarities regarding both how they acquire funds and how they utilize them. Also, they are prone to similar market risks though the differences in how they operate affect their management of liquidity. As a result, studies that compare these dual banking systems in terms of their liquidity structures have recently emerged in the international literature. However, the number of studies in that respect is very limited in the domestic literature. Türkiye with its well-established conventional banking system has also experienced a rise in the number of participating banks with the launch of new state-run depository institutions which makes it a notable case to conduct such comparative studies. Moreover, we expect that the predicted magnitudes of the coefficients for Islamic banks should be higher than their conventional counterparts as the variety of liquid financial instruments available for Islamic

banks are relatively scarce. Therefore, we aim to contribute to the existing literature by showing that Islamic banks are more sensitive to changes in the determinants of liquidity parameters.In that respect, We aim to compare the determinants of liquiditiy between Turkish Islamic and conventional banks using quarterly data during the 2011Q2 – 2022Q2 period. Also the effect of COVID-19 on both banking systems is going to be investigated and compared in this study which to knowledge will be novel in the existing literature.

Literature Review

The liquidity risk of depository institutions is more often calculated using a financial ratio. Therefore, many studies were devoted to the assessment of liquidity risk where different measures of liquidity such as the ratio of liquid assets to total assets (Anam et al., 2012; Iqbal, 2012; Muharam and Kurnia, 2012; Mohammad, 2016; Riahi, 2019; Effendi and Malinda, 2018), liquid assets to short term liabilities (Ferrouhi, 2014; Zolkifli, Hamid and Janor, 2015; Wójcik-Mazur and Szajt, 2015; Mohamad, 2016; Aisyah, Marian and Fatihah 2019; Boukhatem and Djelassi, 2020) and recently liquidity coverage ratio (De Waal vd, 2013; Cucinelli, 2013; Hassan vd, 2019; Riahi, 2019; Aisyah, Marian and Fatihah 2019; Altahtamouni and Alyousef, 2021) were taken into account.

On the other hand the major strand of literature in the relevant field is conducted to reveal the determinants of liquidity risk. Bank-specific ratios including return on assets (Lee vd., 2013; Boukhatem and Djelassi, 2020) return on equity (Muharam and Kurnia, 2012; Aisyah, Marian and Fatihah, 2019), total loans–total deposits, (Samad and Hassan, 2006; Singh and Sharma, 2016; Altahtamouni and Alyousef, 2021), total loans –total assets (Demirgüç and Huzinga, 2000; Berger and Bouwman, 2006; Vodova, 2011; Muntenau, 2012; Otero González vd. 2017; Riahi, 2019; Altahtamouni ve Alyousef, 2021), non-performing loans – total loans (Vodova, 2011; Muntenau, 2012; Laurine, 2013; Aisyah, Marian and Fatihah, 2019), net interest margin (Muharam and Kurnia, 2012; Moussa, 2015), bank size (Dinger, 2009; Boukhatem and Djelassi, 2020) and capital adequacy (Berger and Bouwman, 2006; Mohamad, 2016; Boukhatem ve Djelassi, 2020; Altahtamouni and Alyousef, 2021) were widely considered as core determinants of bank liquidity.

Moreover, when the relevant literature is reviewed it can be seen that liquidity risk for both conventional and Islamic banks has been investigated by using similar ratios and macroeconomic variables. Also, many studies (Waemustafa and Sukri, 2016; Efendi and Disman, 2017; Toh and Jia, 2021; Musa, Musova, Natorin, La-

zaroiu and Boďa, 2021; Mohammad, Asutay, Dixon, and Platonova, 2020; Hassan, Khan and Paltrinieri, 2019; Mohammad, Asutayi Dixon and Platanova, 2020; Smaoui, Mimouni, Miniaoui and Tamimi, 2020; Haddad, El Ammari and Bouri, 2020, Sukmana and kholid, 2013; Abdel Megeid, 2017) compared the determinants of liquidity between Islamic and conventional banks for various countries. In that respect, some studies (Haddad, El Ammari and Bouri, 2020; Sukmana and Kholid, 2013; Bitar, Madiès, and Taramasco, 2017) found that Islamic banks perform better when compared to conventional banks while other studies (Abdel Megeid, 2017; Mohammad, Asutay, Dixon, and Platonova, 2020; Abdo, Noman and Hanifa, 2022) concluded the opposite. On the other hand, some other studies (Musa, Musova, Natorin, Lazaroiu, and Boďa, 2021; Mohammad, Al-Znaimat, Aldaas and Tahtamouni, 2020) argued whether the liquidity of both banking systems was determined by the same macroeconomic and financial factors. In line with our expectations some studies (Effendi and Disman, 2017; Musa, Musova, Natorin, Lazaroiu, and Boďa, 2021) found no relationship between net interest margin and Islamic bank liquidity.

As precisely outlined above, many stuides compared different aspects of the liquidity determinants in both types of banking systems. However, to our knowledge only a very limited number of studies (Incekara and Çetinkaya, 2019) exist in Turkish domestic literature that contrast these dual banking systems in terms of their determinants of liquidity. Moreover, we aim to contribute to the existing literature by showing that Islamic banks are more sensitive to the changes in the determinants of liquidity as Shariah-compatible instruments are relatively insufficient (Abdo, Noman and Hanifa, 2023) which restricts the type of liquid assets that can be seen in their balance sheets -the major difference in between these dual banking systems- although they have access to instruments such as Shariah-compliant central bank facilities, Murabaha, Mudaraha, Sukuk and Wadiah. Therefore, Islamic banks should be more liquid than their conventional counterparts to overcome the shortages in available financial instruments as the majority of the very short-term funds that can be easily utilized by conventional banks bear interest that is forbidden by the holy teachings of Islam.

Data and Method

Basically, it is aimed to conduct the study in the longest period interval that can be common for both participation and deposit banks. The fact that there is no missing data for the samples within the specified period allows common calculations to be made for both bank groups. While it is possible to increase the period by going back in the relevant data period for deposit banks, the same is not the case for

participation banks. For these reasons, the data obtained from the financial statements published in the quarterly period between 2011Q1 and 2022Q2, which are considered to contain the most reliable data, were used for the study. Within the scope of the research, the dependent and independent variables that determine liquidity risk for banks have been tried to be determined. The variable set used to identify the determinants of liquidity risk in many studies in the literature is also used here. However, in order to reveal the determinants of non-bank liquidity, in addition to different macroeconomic aggregates, some other variables that are expected to explain the liquidity adequacy in banks have been added to the existing variable set. In this context, 3 participation and 17 deposit banks operating in Turkey are included in the sample, while banks with a limited number of branches (single branch) and service channels that were missing in the dataset in the relevant period are excluded. The variables in the model are calculated using the publicly disclosed quarterly financial statements of banks. Similarly, CBRT/EVDS and TURKSTAT databases are used for non-bank variables.

The definitions, descriptions, measurement units and expected signs of dependent and independent variables are provided in Table 1.

Table 1

Definitions of Variables

Variable	Definition	Unit of Measurement	Expected Sign	Source
LATA (dependent)		ratio		TBB*
ALCKR		ratio	-	TBB
KRMEV		ratio	-	TBB
MEVAK		ratio	-	TBB
OZAK		ratio	+	TBB
ENF	Inflation rate		-/+	TCMB**
INT	Central Bank Policy Interest Rate		-/+	TCMB
RP	Real Monetary Base	Billions (TL)	-/+	TCMB
D01	COVID 19 Dummy		-/+	

* and ** stand for The Banks Association of Türkiye and Cenral Bank of Türkiye respectively.

As it can be seen from Table 1, we used 4 bank specific and 4 cross-invariant macro economic independent variables to estimate our models where LATA is the dependent variable. Also the descriptive statistics of the variables for both conventional and Islamic banks are provided in Table 2.

Table 2

Descriptive Statistics of Variables

		LATA	ALCKR	KRMEV	MEVAK	OZAK	ENF	INT	RP
Mean	IB*	0.255008	0.035896	0.958629	0.698921	0.082801	3.720069	11.58261	100.1905
	CB**	0.228188	0.041272	1.057517	0.615165	0.102366			
Median	IB	0.245069	0.027753	0.962382	0.704082	0.083254	2.619000	9.155000	90.38741
	CB	0.222498	0.038784	1.062489	0.606577	0.104137			
Maximum	IB	0.489342	0.080126	1.322611	0.855484	0.126151	28.28672	25.50000	182.3031
	CB	0.505925	0.120250	1.619342	0.836740	0.185704			
Minimum	IB	0.123535	0.016369	0.581628	0.526641	0.040830	-0.18595	5.110000	65.30084
	CB	0.049282	0.007466	0.468233	0.414148	0.048268			
Std. Dev.	IB	0.064011	0.015931	0.175114	0.019321	0.019321	4.630267	5.404606	30.17460
	CB	0.082059	0.019494	0.163935	0.070130	0.022871			
Jarque Berra	IB	56.44901	18.43461	0.928403	3.387818	0.802778	10096.66	162.0725	181.1577
	CB	44.31412	116.6341	57.25319	43.71479	4.169196			
Observations	IB	138	138	138	138	138	138	138	138
	CB	782	782	782	782	782	782	782	782

* and ** stand for Islamic banks and conventional banks respectively. Statistics for macro economic variables are same for all bank types as they are cross-invariant.

The stationarity of series were investigated in the first step of our analysis so as to prevent the prevalance of spurious regressions and also to select the right econometric models. It is well documented in the literature that the approriate unit root tests can only be selected after cross sectional dependence diagnosis. Therefore we also deployed Breusch and Pagan LM (1980), Pesaran Scaled LM (2004) and Pesa-

ran CD (2004) cross sectional dependence tests prior to our stationarity analysis. The results strongly supported the existence of cross sectional dependence in our models hence we used second generation panel unit root tests proposed by Pesaran (2007) also known as CIPS tests. The macro economic variables were cross invariant therefore we used Im, Shin and Pesaran (2003) first generation panel unit root tests for stationarity analysis.

Furthermore, PMG panel ARDL estimations as introtuced by Pesaran, Shin and Smith (1999) were made as variables were stationary on different levels. As it is well known even in the existence of different orders of integration -such as I(0) and/or I(1)- panel ARDL models provide consistent both short and lung run coefficients unless series are integrated of order I(2). Also, panel ARDL model assumes heterogeneity of coefficients in the short-run and homogeneity in the long-run. Hence this assumption is suitable for our data set as banks tend to have different financial and operational practices in the short run though macro economic conditions and strict banking regulations might dominate data in the long run. On the other hand we also conducted Kao (1999) co-integration test for robustness.

In line with these assumptions Equation 1 as proposed by Pesaran et al. (1999) can be written in panel ARDL form as:

$$\Delta lata_{it} = \mu_i + \gamma_{1i}\, lata_{i,t-1} + \gamma_{2i}\, alckr_{i,t-1} + \gamma_{3i}\, krmev_{i,t-1} + \gamma_{4i}\, mevak_{i,t-1} + \gamma_{5i}\, ozak_{i,t-1} + \gamma_{6i}\, enf_{i,t-1} + \gamma_{7i}\, int_{i,t-1} + \gamma_{8i}\, rp_{i,t-1} + \gamma_{9i}\, d01_{i,t-1} \sum_{j=1}^{p-1} \delta_{1ij} \Delta\, lata_{i,t-j} + \sum_{j=0}^{q-1} \delta_{2ij}\, \Delta alckr_{i,t-j} + \sum_{j=0}^{q-1} \delta_{3ij}\, \Delta krmev_{i,t-j} + \sum_{j=0}^{q-1} \delta_{4ij}\, \Delta mevak_{i,t-j} + \sum_{j=0}^{q-1} \delta_{5ij}\, \Delta ozak_{i,t-j} + \sum_{j=0}^{q-1} \delta_{6ij}\, \Delta enf_{i,t-j} + \sum_{j=0}^{q-1} \delta_{7ij}\, \Delta int_{i,t-j} + \sum_{j=0}^{q-1} \delta_{8ij}\, \Delta rp_{i,t-j} + \sum_{j=0}^{q-1} \delta_{8ij}\, \Delta d01_{i,t-j} + \epsilon_{it} \quad (1)$$

Where to show long run, to denote short run coefficients, and represent intercept and error term and reflects the first difference operator. The lag orders (p,q) are identified according to the AIC Akaike Information Criteria. Moreover, eq. 1 can be specified as an error correction model according to Pesaran et al. (2001) as follows:

$$lata_{it} = \alpha_i + \sum_{j=1}^{p-1} \omega_{1ij}\, \Delta lata_{i,t-j} + \sum_{j=0}^{q-1} \omega_{2ij}\, \Delta alckr_{i,t-j} + \sum_{j=0}^{q-1} \omega_{3ij}\, \Delta krmev_{i,t-j} + \sum_{j=0}^{q-1} \omega_{4ij}\, \Delta mevak_{i,t-j} + \sum_{j=0}^{q-1} \omega_{5ij}\, \Delta ozak_{i,t-j} + \sum_{j=0}^{q-1} \omega_{6ij}\, \Delta enf_{i,t-j} + \sum_{j=0}^{q-1} \omega_{7ij}\, \Delta int_{i,t-j} + \sum_{j=0}^{q-1} \omega_{8ij}\, \Delta rp_{i,t-j} + \sum_{j=0}^{q-1} \omega_{9ij}\, \Delta d01_{i,t-j} + \emptyset_i ECT_{i,t-1} + \varepsilon_{it} \quad (2)$$

Where to are short run coefficients, is the error correction term and is the coefficient of speed of adjustment. As it is well known should be between (0-1) and must have a negative sign so as to assure the convergence of model to its long run equilibrium.

Results

We used 8 independent variables in our models to reveal the determinants of liquidity in conventional and Islamic banks. As the presence of linear dependence might create multicollinearity in our analysis, we checked the correlation coefficients of variables to begin with.

Table 3

Correlation Matrix of Variables for Islamic Banks

Correlation Probability	LATA	ALCKR	KRMEV	MEVAK	OZAK	ENF	INT	RP	D01
LATA	1.000000 -----								
ALCKR	-0.192656 0.0236	1.000000 -----							
KRMEV	-0.300556 0.0003	-0.057774 0.5009	1.000000 -----						
MEVAK	0.081747 0.3405	-0.046584 0.5874	-0.890366 0.0000	1.000000 -----					
OZAK	-0.327109 0.0001	-0.220369 0.0094	0.726242 0.0000	-0.497795 0.0000	1.000000 -----				
ENF	0.550284 0.0000	0.099290 0.2466	-0.455689 0.0000	0.363260 0.0000	-0.457109 0.0000	1.000000 -----			
INT	-0.010387 0.9038	0.458582 0.0000	-0.365943 0.0000	0.166741 0.0506	-0.482296 0.0000	0.290808 0.0005	1.000000 -----		
RP	0.280765 0.0009	0.240039 0.0046	-0.624253 0.0000	0.490514 0.0000	-0.634211 0.0000	0.552002 0.0000	0.322624 0.0001	1.000000 -----	
D01	0.338943 0.0000	0.129831 0.1291	-0.636132 0.0000	0.486626 0.0000	-0.652624 0.0000	0.583773 0.0000	0.356147 0.0000	0.840459 0.0000	1.000000 -----

Table 4

Correlation Matrix of Variables for Conventional Banks

Correlation Probability	LATA	ALCKR	KRMEV	MEVAK	OZAK	ENF	INT	RP	D01
LATA	1.000000 -----								
ALCKR	-0.192656 0.0236	1.000000 -----							
KRMEV	-0.300556 0.0003	-0.057774 0.5009	1.000000 -----						
MEVAK	0.081747 0.3405	-0.046584 0.5874	-0.456753 0.0000	1.000000 -----					
OZAK	-0.327109 0.0001	-0.220369 0.0094	0.726242 0.0000	-0.497795 0.0000	1.000000 -----				
ENF	0.550284 0.0000	0.099290 0.2466	-0.455689 0.0000	0.363260 0.0000	-0.457109 0.0000	1.000000 -----			
INT	-0.010387 0.9038	0.458582 0.0000	-0.365943 0.0000	0.166741 0.0506	-0.482296 0.0000	0.290808 0.0005	1.000000 -----		
RP	0.280765 0.0009	0.240039 0.0046	-0.624253 0.0000	0.490514 0.0000	-0.634211 0.0000	0.552002 0.0000	0.322624 0.0001	1.000000 -----	
D01	0.338943 0.0000	0.129831 0.1291	-0.636132 0.0000	0.486626 0.0000	-0.652624 0.0000	0.583773 0.0000	0.356147 0.0000	0.27498 0.0000	1.000000 -----

As it can be seen from Tables 3 and 4 that none of the variables neither for Islamic Banks nor for conventional banks have a coefficient above 0.80 which rules out the possibility of multicollinearity.

In the next step of our analysis we conducted unit root tests. Tables 5, 6 and 7 provide detailed information about the stationarity of series used in our models. The results reveal that for Islamic banks ALCKR, KRMEV, LATA and OZAK are all stationary on their own levels with .01 significance whereas MEVAK series have unit root. Likewise the same variables are stationary respectively on their own levels with OZAK also non-stationary for conventional banks. It can also be seen that INT does not have unit root on its level while both ENF and RP become stationary on their first differences. Therefore, panel ARDL models which can be constructed irrespective of the orders of integrations of variables are suitable for our data set as mentioned earlier.

Table 5

CIPS Test Results for Islamic Banks

	Constant		Constant and Trend	
Variable	**t-statistic**	**p-value**	**t-statistic**	**p-value**
ALCKR	-2.88561	<0.01	-2.83320	<0.10
KRMEV	-3.06550	<0.01	-1.98246	>=0.10
LATA	-2.97701	<0.01	-3.91627	<0.01
MEVAK	-1.44547	>=0.10	-3.80626	<0.01
OZAK	-2.60433	<0.01	-3.00730	<0.05

Table 6

CIPS Test Results for Conventional Banks

	Constant		Constant and Trend	
Variable	**t-statistic**	**p-value**	**t-statistic**	**p-value**
ALCKR	-2.59513	<0.01	-2.77152	<0.05
KRMEV	-2.46650	<0.01	-2.73758	<0.10
LATA	-2.88198	<0.01	-3.05628	<0.01
MEVAK	-2.38255	<0.05	-3.40758	<0.01
OZAK	-2.08449	>=0.10	-2.73353	<0.10

Table 7

Im, Pesaran Shin Test Results for Macro Economic Variables

Level	**1st Difference**							
	Constant		**Constant and trend**		**Constant**		**Constant and Trend**	
Variable	t-statistic	p-value	t-statistic	p-value	t-statistic	p-value	t-statistic	p-value
ENF	1.51958	0.9357	0.97090	0.8342	-7.34443	0.0000	-7.13290	0.0000
INT	-2.44815	0.0072	-3.64101	0.0001	-	-	-	-
RP	2.10400	0.9823	-1.01430	0.1552	-7.37359	0.0000	-8.26800	0.0000

Prior to the construction of error correction based ARDL models we also tested the co-integration condition among variables for robust long run statistical infer-

ences. Table 8 presents that for both Islamic and conventional banks, series were co-integrated at .01 significance level.

Table 8.

KAO Co-Integration Tests

ADF	Residual variance	HAC variance	T - stat
Conventional Banks	0.000523	0.000426	-5.022299***
Islamic Banks	0.000891	0.000430	-5.798232***

The coefficeients of the variables estimated by using panel ARDL models are presented below in Table 9.

Conventional Banks			Islamic Banks		
Variable	**Coefficient**	**T stat**	**Variable**	**Coefficient**	**T stat**
Long Run			Long Run		
ALCKR	-1.187	-1.988**	ALCKR	-3.157	-1.936*
KRMEV	-0.686	-4.915***	KRMEV	-0.636	-2.266**
MEVAK	-0.632	-2.597***	MEVAK	-2.013	-3.784***
OZAK	0.375	0.558941	OZAK	4.127	2.618***
ENF	-0.007	-2.600***	ENF	0.009	3.106***
INT	-0.003	-1.785*	INT	-0.001	-0.768
RP	-0.003	-4.057***	RP	0.001	1.802*
D01	0.338	3.792***	D01	0.219	2.055**
Short Run			Short Run		
COINTEQ01	-0.087703	-7.680***	COINTEQ01	-0.246	-2.495**
D(LATA(-1))	-0.109851	-3.302***	D(LATA(-1))	-0.138	-0.941
D(ALCKR)	0.077225	0.314	D(ALCKR)	0.181	0.244
D(KRMEV)	-0.398981	-10.261***	D(KRMEV)	-0.473	-3.806***
D(MEVAK)	-0.719159	-9.826***	D(MEVAK)	-0.156	-0.319
D(OZAK)	-0.177886	-1.241	D(OZAK)	-2.229	-1.578***
D(ENF)	0.000327	1.330	D(ENF)	0.0004	0.726
D(INT)	-0.000170	-0.851	D(INT)	-0.005	-2.681***
D(RP)	1.12E-05	0.116	D(RP)	-0.0002	-1.258
D(D01)	-0.018423	-3.291***	D(D01)	-0.034	-1.168
C	0.151916	7.371***	C	0.453	2.465**

As it can be seen from Table 9 that speed of adjustment coefficients for both Islamic and conventional banks have negative signs and both lie within 0-1 (-0.24 and -0.08 respectively) which shows the models converge to their long run equilibrium. Nevertheless the speed of adjustment is higher for Islamic banks when compared to conventional banks. In the long run ALCKR, KRMEV, MEVAK have negative and OZAK have positive signs and are all significant for both type of banks besides OZAK is insignificant for conventional banks. Also the magnitudes of the coefficients are higher for Islamic banks when compared to conventional banks. Therefore it can be said that liquidity of Islamic banks are more sensitive to the changes in bank specific ratios. The signs of ENF and RP are negative for conventional banks and positive for Islamic banks. In practice, an expansionary monetary policy might affect liquidity in different ways. More often, depository institutions lend more as access to funds supplied by central banks become easier which in turn detoriorates bank liquidity. Though Islamic banks do not have the same opportunity to access those funds as they bear interest. As a consequence at times of monetary ease Islamic banks seem to be more prudent and take a more conservative lending policy. The sign of INT is negative both for Islamic and conventional banks as expected. As the cost of holding excess reserves increases, banks hold less liquid assets. Also there is no relationship with INT and liquidity for Islamic banks as any interest bearing activity is forbidden by the holy teachings of Islam. The signs of COVID -19 dummies are positive and significant (at 0.01 and 0.05 level respectively) for both conventional and Islamic banks. This might be the result of unconventional strict regulations imposed on banks by monetary authorities which might have led banks to be more liquid during global COVID-19 pandemia. Though the sign in the short run for conventional banks is negative and significant at .01 level which also shows that the first shock detoriorated bank liquidity as demand for cash led to a significant deposit outflow. KRMEV and MEVAK has negative signs at .01 level for conventional banks in the short run where only the former variable is significant and also have negative sign for Islamic banks.

Conclusion

In this study, we aim to compare the determinants of liquidity between Islamic and conventional banks to fill the gap in the local literature. Although both banking systems have differences in the way they obtain and use funds, they face similar risks when it comes to liquidity. However, the prohibition of interest in Islamic contracts on which the instruments used in liquidity management are based, the lack of tools and mechanisms to hedge against risk, the differences of conventional money markets in

terms of compatibility with Islamic law, and the lack of institutions and instruments that are the last recourse in case of liquidity shortage in accordance with Islamic law make Islamic banks more susceptible to liquidity risk. Although Basel III after the global crisis emphasized the necessity of financial instruments and products with low market and credit risk, low volatility and high market liquidity in the management of liquidity risk of financial institutions, it can be stated that the Islamic banking sector is still far behind the ideal. However, the biggest disparity lies in their access to short-term funds provided by the central bank on the basis of overnight interest payments. Although many of the determinants of liquidity in conventional and Islamic banks are similar, the results of our study support the fact that the liquidity of Islamic banks is more sensitive to bank-specific ratios, in line with our expectations. In other words, Islamic banks, which cannot utilize all conventional liquidity management tools, have to act prudently and be more conservative when it comes to liquidity management. This leads Islamic banks to hold more liquid assets than conventional banks at the expense of generating lower income, even if the average difference is very small in the long run. Recently, new tools and practices have been introduced by all relevant institutions and organizations both in Turkey and abroad to strengthen the liquidity management process of Islamic banks. However, considering the current situation in the conventional system and the requirements of the liquidity management process, it is possible to say that Islamic banks are still lagging behind the desired level.

The findings of our study are in line with the relevant literature as discussed more in depth in the previous sections. Similar to our results bank specific ratios KRMEV and ALCKR had also negative signs in previous studies (Cucinelli, 2013; Ganic, 2014; Işık and Belke, 2017; Akkaya and Azimli, 2018) and OZAK had positive signs (Ferrouili and Lehadiri, 2014, Kocaman, Babuşcu and Hazar, 2018). Nevertheless contrary to a couple of recent studies (Karim, Shetu ve Razia, 2021; Gürçay ve Dağıdır – Çakan, 2022; Wierbowska, 2022) dummy for COVID -19 had positive signs both for Islamic and conventional banks at .01 and .05 siginificance. This infact was due to the strict regulations imposed on depository instutuions by Banking Supervisory and Regulatory Board so as to withstand a likely bank run in the early stages of global pandemic. Moreover, consistent with our expectations we found that Islamic banks are more sensitive to changes in bank specific ratios when compared to their conventional counterparts which we think is the most notable contribution of our study to the relevant field. Therefore Islamic banks should be more prudent to changes in market conditions and remain more liquid as the variety of non-interest bearing instruments that can be held are remarkably limited.

In the studies, many policy recommendations have been made to improve the liquidity management of Islamic banks. Establishment of organized money markets that will provide fast, continuous and sufficient liquidity when necessary, restructuring of existing institutions or establishment of new liquidity institutions within the scope of the authority of last resort, development of money and capital markets in terms of product and service diversity are among the frequently emphasized suggestions. In addition to all these suggestions, in order to create a more effective liquidity management process in Islamic banks the following tolls could also be taken into account:
- In the Islamic banking sector, where short-term funds and demand funds are high in volume and the average maturity is low, methods other than traditional fund collection models are needed to meet short-term fund demands. In this context, new products based on contracts such as Wakalah, Forward Ijara, Waad, Murabaha, Musharakah, Mudaraba, etc., which are important in terms of resource diversification, can be developed within the scope of liquidity management through various contracts where fiqh principles are observed.
- The development of Islamic capital markets, which are important in terms of liquidity management, and in this context, the Sukuk product and the development of the Sukuk market can be encouraged. New practices can be put on the agenda under the leadership of public institutions to ensure the development of second-hand markets that include Islamic money and capital market products that are suitable from a fiqh perspective.
- It is important for Islamic banks to have a liquidity institution that will provide fast, continuous and sufficient liquidity access to national and international liquidity. Both integration with international institutions tasked with providing liquidity and the existence of a liquidity institution to be established under the Ministry of Finance and Treasury and the CBRT can be an alternative for Islamic banks in case of liquidity needs. The development of the existing Takaruz (karz) tranactions, both among Islamic banks themselves and between Islamic banks and the central bank and other liquidity institutions, can be encouraged.
Finally, the most important limitation of this study is the difference in the number of observations used for both types of banks, as we use data for 17 conventional banks and only 3 Islamic banks. Moreover, further studies focusing on the volatility of liquidity measures could be conducted to assess the liquidity risk of different banking systems.

Conclusion

In this study, we aim to compare the determinants of liquidity between Islamic and conventional banks to fill the gap in the local literature. Although both banking systems have differences in the way they obtain and use funds, they face similar risks when it comes to liquidity. However, the prohibition of interest in Islamic contracts on which the instruments used in liquidity management are based, the lack of tools and mechanisms to hedge against risk, the differences between conventional money markets in terms of compatibility with Islamic law, and the lack of institutions and instruments that are the last recourse in case of liquidity shortage in accordance with Islamic law make Islamic banks more susceptible to liquidity risk. Although Basel III after the global crisis emphasized the necessity of financial instruments and products with low market and credit risk, low volatility and high market liquidity in the management of liquidity risk of financial institutions, it can be stated that the Islamic banking sector is still far behind the ideal. However, the biggest disparity lies in their access to short-term funds provided by the central bank based on overnight interest payments. Although many of the determinants of liquidity in conventional and Islamic banks are similar, the results of our study support the fact that the liquidity of Islamic banks is more sensitive to bank-specific ratios, in line with our expectations. In other words, Islamic banks, which cannot utilize all conventional liquidity management tools, have to act prudently and be more conservative when it comes to liquidity management. This leads Islamic banks to hold more liquid assets than conventional banks at the expense of generating lower income, even if the average difference is very small in the long run. Recently, new tools and practices have been introduced by all relevant institutions and organizations both in Turkey and abroad to strengthen the liquidity management process of Islamic banks. However, considering the current situation in the conventional system and the requirements of the liquidity management process, it is possible to say that Islamic banks are still lagging behind the desired level.

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