

ISRG Journal of Economics, Business & Management (ISRGJEBM)



ISRG PUBLISHERS

Abbreviated Key Title: Isrg J Econ Bus Manag

ISSN: 2584-0916 (Online)

Journal homepage: <https://isrgpublishers.com/isrgjebm/>

Volume – II Issue-I (January- February) 2024

Frequency: Bimonthly



An Analysis to Identify the Factors Affecting Liquidity Risk in Domestic and Foreign Deposit Banks Operating in the Turkish Banking Sector: 2012-2022 Period

Nuray İslatince

Faculty of Business Administration Department of Accounting and Finance Anadolu University, Eskişehir, Türkiye

| **Received:** 16.01.2024 | **Accepted:** 19.01.2024 | **Published:** 23.01.2024

***Corresponding author:** Nuray İslatince

Faculty of Business Administration Department of Accounting and Finance Anadolu University, Eskişehir, Türkiye

Abstract

The banking sector is the financial institution in charge of allocating liquidity to the most profitable investments. A bank's liquid assets are essential not only to secure the bank against unforeseen difficulties but also to increase efficiency. By their very nature, banking activities expose banks to numerous financial risks. Liquidity risk, which has a significant impact on the banking system, attracts the attention of policymakers, researchers and practitioners as it can quickly lead to systemic contagion and instability in the financial system. Therefore, the aim of this study is to identify the factors affecting the liquidity risk of deposit banks operating in the Turkish banking sector through linear multiple regression analysis utilizing data for the period 2012-2022. Both macroeconomic and bank-specific variables of 27 domestic and foreign capital deposit banks are included in the analysis. Model 1 was developed to identify the factors affecting the level of liquidity risk in domestic capital banks and model 2 was developed to identify the factors affecting the level of liquidity risk in foreign capital banks and both models were identified to be strong and highly efficient. As a result, the factors affecting the liquidity risk in domestic banks are AQ, Bsize, NPL, GDP and NIM according to the level of importance. The factors affecting the liquidity risk in foreign capital banks are determined as AQ, Bsize, CAR, NPL, GDP and NIM according to their importance levels.

Keywords: Liquidity Risk, Linear Multiple Regression Analysis, Domestic Capitalized Banks, Foreign Capitalized Banks, Capital Adequacy Ratio, Net Capital Margin

Introduction

The banking sector is an essential source of financing for both national economies and businesses. The importance that countries

attach to risk management as a measure of the soundness and reliability of the banking sector and how they have a management

approach in fluctuations in the economy are of great importance. Among the financial risks that banks may encounter, the liquidity risk of the bank is one of the most important indicators to be taken into account. For banks, liquidity management has a significant importance in asset and liability management. Banks may raise maturity mismatch problems by obtaining predominantly demand or short-term funds and extending loans with longer maturities or with contracts that do not bear standard maturities. In this case, when banks convert short-term funds into long-term investments, they expose themselves to liquidity risk due to fluctuations in market perceptions. When funding costs for banks rise to high levels that can be considered a problem, assets cannot be sold at their real value, or the bank can no longer maintain credibility due to the market's suspicious attitudes regarding the bank. In this context, liquidity problems may turn into insolvency problems of unpredictable magnitude. Moreover, if a bank's financial condition is deteriorating, the value of the bank is also in a downward trend. In order to prevent such major problems, banks should manage liquidity risk effectively and carefully. The causes of financial crises in the world include the decline in the portion of capital utilized in real production, international capital movements, structural deterioration due to the wrong economic policies of countries and the problematic banking system. However, the banking sector usually has the leading role in these crises. In economic crises that can affect the whole world, the weak liquidity structure of banks, the building block of the financial system that plays an important role in integrating international markets with each other, is the main reason for the adverse effects. Liquidity is the ability of a bank to finance increases in its assets and fulfill its liabilities as they fall due without incurring unacceptable losses. In this context, it is vital for the sustainability of a bank's operations. Lack of liquidity can pose extremely serious problems even for banks that do not have problems in meeting their obligations. For this reason, managers should assess liquidity demands and keep up to date with the financing needs that may be needed in any unexpected situation, their liquidity status and take the necessary measures. The contribution of the factors affecting the liquidity of a bank to the economic stability of a country has been clarified by the financial crises. During the crisis periods, the banking sectors of many countries around the world have suffered from liquidity bottlenecks. Although banks were profitable, their failures in liquidity management were influential in the emergence of economic problems. Failure to fulfill large amounts of loan obligations or changes in interest rates can negatively affect the liquidity position of banks. Although the banking sector plays a vital role in modern market-based economies, research on the factors affecting liquidity risk is scarce in the literature. For this reason, in this study, a linear multiple regression analysis was conducted utilizing financial ratios for the period 2012-2022 to identify the factors affecting liquidity risk in domestic and foreign capital deposit banks operating in the Turkish banking sector. Both macroeconomic and bank-specific variables are included in the analysis. Financial ratios and other variables employed in the analysis are obtained from the official website of the Banks Association of Turkey istatistik@tbb.org.tr and CBRT EVDS Bank Statistics (Electronic Data Delivery System by the Central Bank of the Republic of Turkey) www.tcmb.gov.tr.

Literature

Vodova (2012) In this study, the liquidity problems of some banks during the global financial crisis are emphasized and it is stated that liquidity is of great importance for the functioning of financial

markets and the banking sector. Unconsolidated balance sheet data for the period from 2001 to 2010 obtained from the annual reports of Czech and Slovak banks were used in the analysis. The aim of this study is to comprehensively assess the liquidity positions of Czech and Slovak commercial banks over the period 2001-2010 through different liquidity ratios and to determine whether the liquidity management strategy differs by bank size. As a result, it is determined that the liquidity of Czech banks has decreased over the last decade, whereas the liquidity of Slovak banks has fluctuated very little during the period 2001-2008.

Iqbal (2012) This study investigates bank size, non-performing loan ratio (NPL), return on assets (ROA), return on equity (ROE), capital adequacy ratio (CAR) and liquidity risk of conventional and Islamic banks of Pakistan. The study is based on secondary data for the 2007-2010 period. The study reveals a significant and positive relationship between CAR, ROA, ROE and bank size and liquidity risk in both models and a negative and significant relationship with non-performing loans (NPLs) in both models.

Munteanu (2012) The objective of this study is to identify the factors affecting bank liquidity through a multiple regression model on a panel of commercial banks in Romania. The results reflect both common and different determinants for the two liquidity ratios analyzed and are consistent with previous literature on this topic.

Vodova (2013) This study aims to identify the determinants of liquidity of Hungarian commercial banks. A panel data regression analysis was conducted with data for the period 2001-2010. As a result, it is stated that bank liquidity is positively related to capital adequacy, loan interest rate and bank profitability, negatively related to bank size, interest margin and monetary aggregate and the relationship between policy interest rate, interbank interest rate, GDP growth rate and bank liquidity is uncertain.

Chikoko (2013) This paper empirically investigates the determinants of liquidity risk of Zimbabwean commercial banks after the country adopted a multi-currency exchange rate system. For this purpose, panel data regression analysis is utilized on monthly data from March 2009 to December 2012. According to the panel data regression results, capital adequacy and size have a negative significant effect on liquidity risk. It is stated that liquidity risk decreases as size increases and spreads have a positive effect on liquidity risk, there is a positive and significant relationship between non-performing loans and liquidity risk, and reserve requirement ratios and inflation are significant in explaining liquidity risk in the analyzed period.

Ayaydın and Karaaslan (2014) This study investigates the determinants of liquidity risk of banks in Turkey. In the study, 23 banks were analyzed for the period 2003-2011 through dynamic panel data (GMM) analysis. As a result of the study, a negative (positive) relationship was detected between bank liquidity risk and profitability variables. The study also reveals that the global financial crisis, foreign ownership and state-private ownership are the determinants of bank liquidity risk.

Abdul Rahman and Saeed (2015) This study investigates the critical effects of liquidity risk and examines the exposure of Malaysian banks to liquidity risk and its impact on bank performance. Three liquidity risk indicators are utilized in the study and the study period is limited to 2005-2013. As a result, it is determined that Malaysian banks do not over-lend, have reasonably liquid assets and are well capitalized. However, the

regression results revealed that not all of the liquidity risk indicators affect the performance of banks, and the loan-to-deposit ratio does not have a significant impact on changes in bank performance. The study also unearthed that the effects of liquidity risk on the performance of Malaysian banks are not unambiguous and vary depending on the performance measures employed.

Ben Moussa (2015) In this study, static panel method and panel dynamics method are utilized for 18 banks in Tunisia for the period 2000-2010 and it is determined that (financial performance, capital/total assets, operating costs/total assets, GDP growth rate, inflation rate, lagged liquidity) variables have a significant effect on bank liquidity and (size, total loans/total assets, financial costs/total loans, total deposits/total assets) variables do not have a significant effect on bank liquidity.

Romana, and Sargu (2015) The objective of this study is to analyze the determinants of liquidity risk in the universe of banks operating in Central and Eastern Europe. Bank-specific factors are taken into account and these factors are analyzed through OLS regression analysis for the period 2004-2011. As a result, the negative impact of loan portfolio impairment on the overall liquidity of the analyzed banks is revealed.

Račić, Stanišić, and Stanić (2016) The aim of this paper is to point out statistically significant empirical determinants of liquidity risk exposure for banks operating in the Republic of Serbia and to conduct a comparative analysis of the impact of these determinants on Serbian banks and banks in countries that have seceded from this country. The results indicate that increased exposure to liquidity risk in the local banking sector is associated with higher financial leverage, GDP growth, lower unemployment rate, lower balance of payments deficit and strengthening of the local currency.

Zengin and Yüksel (2016) This study analyzes the factors affecting the liquidity risk of banks in Turkey. In the analysis, 10 banks with the highest asset size according to the financial reports of the 3rd quarter of 2015 were included in the scope of the analysis. According to the model results utilizing 12 independent variables, "capital adequacy ratio" and "net interest margin" variables are determined to affect liquidity risk. It is stated that banks are more exposed to liquidity risk when capital adequacy ratio decreases and net interest margin increases. It is recommended that banks in Turkey should increase the amount of capital in order to manage liquidity risk effectively.

Avdalović, and Kalaš (2016) In this study, descriptive statistics, correlation and regression analysis were conducted to identify the determinants of liquidity of commercial banks in the Republic of Serbia with macroeconomic and bank-specific indicators for the period 2008-2014. The subject of the research is the optimization model process that reduces liquidity factors to variables with the most significant impact on the liquidity indicator. As a result, it was determined that the liquidity of banks is predominantly determined by the size of bank assets and that banks will be exposed to a greater liquidity risk with the growth of assets.

Islam, and Nasreen (2018) This study investigates the macroeconomic and bank-specific determinants of bank liquidity in Bangladesh. Liquidity is observed in terms of liquid assets to total deposits ratio and loans to deposits ratio. The analysis takes into account selected macroeconomic and bank-specific factors. Panel data of 28 banks between 2012 and 2016 are analyzed within the framework of fixed and random effects techniques. As a result,

it is determined that large-scale banks hold relatively less liquidity than small-scale banks, high-risk banks hold less liquidity, and banks that are more involved in off-balance sheet activities have less liquidity.

İncekaraa and Çetinkaya (2019) In this study, the factors affecting liquidity risk management in the Islamic and conventional banking sector in Turkey are tested with panel data regression analysis. In the analysis, quarterly financial data of a total of 6 banks, 3 participation banks and 3 conventional banks, operating between 2014-2018 were utilized. As a result, it is determined that there is a negative and statistically significant relationship between liquid assets (LA), gross domestic product (GDP) and inflation (INF) variables and liquidity risk for Islamic banks at 99% confidence level and non-performing loans have a positive and statistically significant effect on Islamic banking with 95% confidence level. The relationship between non-performing loans and liquid assets (LA) variables and liquidity risk in conventional banks is determined to be negative and statistically significant at 95% and 99% confidence levels, respectively.

Chaudhury (2021) This study investigates the impact of liquidity on banks' efficiency over the period 2007-2016. The study population is limited to five commercial banks listed on the Stock Exchange in Bangladesh. The results of the study confirm the hypothesis that liquidity and efficiency are both positively and significantly related. The study recommended that the bank's liquidity management should be based on the allocation of funds in and out of the bank to maintain profitability, solvency, liquidity and efficiency.

Karakaş and Acar (2022) This study empirically investigates the internal and macroeconomic factors affecting liquidity in Turkish commercial banks. For the period 2002-2022, liquid asset ratio, acid-test ratio and current ratio of 20 commercial banks were determined as dependent variables. Panel data analysis was conducted. In the study, there was no statistically significant relationship between foreign currency liquidity ratio and liquidity ratios. It is suggested that banks should manage their liquidity sensitively and effectively despite its profitability-reducing effect in order to preserve the trust of customers and the market, especially in times of crisis.

Elçeri and Karaaslan (2023) The aim of this study is to identify the banking sector-specific and macroeconomic factors of liquidity risk in the Turkish banking sector. The data of the study is determined for the period 2011/Q1-2022/Q3. Time series least squares estimator is adopted in the estimation of the model. As a result of the analysis, a statistically significant relationship was determined between liquidity risk and all independent variables. In addition, it was concluded that non-performing loans / Total cash loans extended, and cash loans extended / Total deposits variables increase liquidity risk in the banking sector, while return on assets ratio, Central Bank policy rate, consumer price index and gross domestic product variables decrease it.

Methodology and Data

In the study, independent sample t-test analysis was performed to examine the differences of the measurements presented in Table 1 in two groups divided into domestic or foreign capital structure of the banks. Afterwards, linear multiple regression analysis was performed to determine the factors affecting liquidity risk separately for domestic and foreign capitalized banks. In Table 2, for the two separate models prepared for domestic and foreign

capital banks; After the tests conducted according to model significance, R² explanation level, coefficient significance and the presence of multicollinearity problem, the best model that fulfills the assumptions is determined and interpreted. The analyses were finalized with the help of SPSS 25.0 package program. In the study, p values less than 0.05 were considered statistically significant ($\alpha=0,05$).

Financial ratios of deposit banks operating in the Turkish banking sector for the period 2012-2022 are utilized in the analysis. The financial ratios and other variables used in the analysis were obtained from the official website of the Banks Association of Turkey istatistik@tbb.org.tr and CBRT EVDS Bank Statistics www.tcmb.gov.tr. The deposit banks and variables included in the analysis are presented in Table 1 and Table 2 below.

Table 1. Deposit Banks Covered in the Analysis

Deposit Banks Operating in the Public and Private Turkish Banking Sector	
T.R Ziraat Bank inc.	Deutsche Bank inc.
Türkiye Halkbank inc.	Deniz Bank inc.
Türkiye Vakıfbanklar Bank corporation.	Citibank inc. kinc.
Türkiye Garanti Bank inc.	Burgan Bank inc.
Turkland Bank inc.	Bank of China Turkey inc.
Rabobank inc.	Arap Türk Bank inc.
QNB Finansbank inc.	Alternatif Bank inc.
Odea Bank inc.	Yapı ve Kredi Bank inc.
MUFG Bank Turkey inc.	Türkiye İş Bankası inc.
ING Bank	Türk Ekonomi Bank inc.
ICBC Turkey Bank inc.	Turkish Bank inc.
HSBC Bank inc. Anadolubank inc.	Akbank (CBRT)
Şekebank (CBRT)	Fibabanka inc

Table 2. Macro and Micro Variables Included in the Analysis

Variables	Notation	Description
Independent Variables		
Return on Assets	ROA	Net Profit/Total Assets
Return on Equity	ROE	Net Profit/Total Equity
Non-performing Loans	NPL	Nonperforming Loans/Total Loans
Non-Interest Income	NII	Non-Interest Income/Total Assets
Capital Adequacy Ratio	CAR	Equity/ (Total Risk Weighted Amounts) *100
Management Productivity	MP	% Change in Total Assets
Deposit Ratio	DR	Total Deposits/Total Assets

Asset Quality	AQ	Total Loans/Total Assets
Net Interest Margin	NIM	Net Interest Income)/Total Assets
Bank Size	BSize	Log (Total Assets)
Inflation	INF	Annual Inflation Rate
Gross Domestic Product	GDP	Rate of Change
Dependent Variable		
Liquidity Risk	LR	Liquid Assets/Total Assets

Findings

Table 3. Examination of Measurements according to Bank Type

	Bank Type		
	Domestic Capital X \pm s.s	Foreign Capital X \pm s.s	P
NPL	4,22+2,55	4,06 \pm 5,92	0,81
LR	23,17 \pm 7,9	30,91 \pm 16,01	0.01
ROA	2,15+7,09	1,82+2,76	0,56
ROE	13,45 \pm 12,58	11,37+17,85	0,32
BSize	4,66 \pm 0,84	4,48 \pm 0,85	0,04
CAR	17,06 \pm 3,15	27,45 \pm 49,63	0,04
NI	1,46 \pm 0,95	1,25+1,29	0,16
AQ	63,97 \pm 7,94	56,58 \pm 14,97	0,01
DR	64,87 \pm 7,09	55,34+20,53	0,01*
GDP	166,13+24,77	126,61 \pm 38,03	0,08
INF	18,01 \pm 16,84	16,88 \pm 5,73	0,42
MP	0,3 \pm 1,52	0,31 \pm 1,52	0,93
NIM	3,93 \pm 1,05	4,33+2,5	0,15

** Independent t test analysis, *Significant relationship at 0.05 level

As it can be observed in Table 3, NPL levels do not differ between domestic and foreign capitalized banks ($p=0.81$). LR levels were observed to be lower in domestic capital banks compared to foreign capital banks ($p=0.01$). ROA levels do not differ between domestic and foreign capitalized banks ($p=0.56$). ROE levels do not differ between domestic and foreign capitalized banks ($p=0.32$). BSize levels were determined to be lower in domestic capital banks compared to foreign capital banks ($p=0.04$). CAR levels were found to be lower in domestic capital banks compared to foreign capital banks ($p=0.04$). NII levels did not differ in domestic and foreign capitalized banks ($p=0.16$). DR levels were observed to be higher in banks with domestic capital than in banks with foreign capital ($p=0.01$). It was determined that the GDP and INF levels of the banks in the periods analyzed did not differ. MP levels did not differ between domestic and foreign capitalized

banks ($p=0.93$). NIM levels do not differ for domestic and foreign capitalized banks ($p=0,15$).

Table 4. Determination of Factors Affecting LR Level by Bank Type

Dependent Variable	Independent Variables				
	β	β	β	β	β
	AQ	BSIZE	NPL	GDP	NIM
Domestic Capital LR	-0,64	-0,42	-0,28	-0,27	-0,26
	p=0,01		p=0,01		
	$R^2=0,67$ -D.W.=1,91				
	$F_{model}=36,42$ ($p<0,01$)				
Dependent Variable	Independent Variables				
	β	β	β	β	β
	AQ	BSIZE	CAR	NPL	GDP
Foreign Capital LR	-0,55	-0,37	0,20	-0,15	-0,13
	p=0,01	p=0,01	p=0,01	p=0,01	p=0,01
	$R^2=0,65$ -D.W.=1,84				
	$F_{model}=41,98$ ($p<0,01$)				

** Regression Analysis was conducted.

Linear regression models were created to determine the factors affecting the LR levels in domestic and foreign capital banks. In the models, the effect of NPL, ROA, ROE, BSIZE, CAR, NII, AQ, DR, GDP, INF, MP, NIM variables on the LR level was examined. In the assumptions examined for the validity of the models, it was observed that not all variables were included in the models. In addition, while AQ, B size, NPL, GDP and NIM levels are determined as variables affecting the risk level in domestic capital banks, AQ, Bsize, NPL, GDP and CAR levels can be expressed as risk factors in foreign capital banks. Other variables were observed to have no effect. In both groups, the effect of AQ, Bsize, NPL, GDP levels is high and negative. The most important difference identified in the two models is that NIM ($\beta=-0.26$) in domestic banks and CAR ($\beta=0.20$) in foreign capitalized banks are associated with LR risk.

Model 1 Domestic Capitalized Banks

The factors affecting the LR level in domestic capital banks, which are the independent variables, consist of parameters that decrease and increase the LR level. In the model constructed to determine these parameters, it is observed that there is a significant relationship between AQ, Bsize, NPL, GDP and NIM levels. The model was observed to be significant ($F=36.42$, $p=0.01$, $p<0.05$). The percentage of explanation of the model is 67% ($R^2=0.67$), which is quite high. The coefficients (β) of AQ, B size, NPL, GDP and NIM in the model are also significant ($p=0.01$, $p<0.05$). According to the results of the Durbin Watson test conducted to examine the presence of auto-correlation in the model, there is no auto-correlation in the model (D.W.= 1.91). As a result, the model was determined to be significant.

The model obtained is as follows.

$$LR \text{ Domestic (D)} = -0,64* AQ -0,42* BSIZE -0,28*NPL -0,27*GDP-0,29*NIM$$

The factors affecting Liquidity Risk in domestic banks are AQ, Bsize, NPL, GDP and NIM according to the level of importance. However, AQ is the most influential factor and Bsize ranks first as another important factor. It can be stated that the impact of NPL, GDP and NIM levels are lower than these variables and similar among themselves. Moreover, the effect of all variables on liquidity risk is negative.

Model 2 Foreign Capitalized Banks

In the model created to determine the factors affecting the LR level in foreign capital banks, it is observed that there is a significant relationship between AQ, Bsize, NPL, GDP and CAR levels. The model was determined to be significant ($F=41.98$, $p=0.01$, $p<0.05$). The percentage of explanation of the model is 65% ($R^2=0.65$), which is quite high. The coefficients (β) of AQ, B size, NPL, GDP and CAR in the model are also significant ($p=0.01$, $p<0.05$). According to the results of the Durbin Watson test conducted to examine the presence of auto-correlation in the model, there is no auto-correlation in the model (D.W.= 1.84). As a result, the model was determined to be significant.

The model obtained is as follows.

$$LR \text{ Foreign (F)} = -0,55* AQ -0,37* BSIZE + 0,20* CAR - 0,27* NPL - 0,13*GDP$$

According to the level of importance, the factors affecting Liquidity Risk in foreign capital banks are AQ, Bsize, CAR, NPL, GDP. However, AQ is the most influential factor and B size ranks first as another important factor. It can be stated that the impact of NPL, GDP and CAR levels are lower than these variables and similar among themselves. Except for CAR level, the effect of all other variables on liquidity risk is negative. It is observed that CAR level increases liquidity risk.

Conclusion

The negative effects of liquidity problems on emerging financial crises are quite important indicators for the functioning of financial markets and the banking sector. Even if a bank is profitable in a crisis environment, it may encounter problems in managing its own funds if it has not properly identified the liquidity risk. Liquid assets of banks are critical not only for protecting the bank in case of foreseen or unexpected problems, but also for increasing its efficiency. For a country, the banking sector is responsible for allocating liquidity to the most productive investments. Banks can be effective in achieving these objectives through liquidity risk management that they adopt in accordance with global standards and taking into account local regulations. Thus, while managing liquidity risk, banks can pay sufficient attention to the bank's capital adequacy, size and the differences between deposit interest rates and lending interest rates. In this study, a linear multiple regression analysis was conducted by utilizing financial ratios for the period 2012-2022 to identify the factors affecting liquidity risk in domestic and foreign capital deposit banks operating in the Turkish banking sector. According to the model significance, R-squared value, coefficient significance and DW autocorrelation, the most significant and strongest model was determined and interpreted. In general, both models are determined to be strong and highly efficient. Only the increase in CAR level increases the liquidity risk in foreign capitalized banks, while it does not affect

the liquidity risk in domestic capitalized banks. Moreover, while increases in NPL and GDP are more effective in reducing liquidity risk in the domestic capital group, this effect is less than half in foreign capital banks. While the increase in NIM levels is a factor in reducing liquidity risk in domestic capital banks, it is not effective in foreign capital banks. Apart from this, it can be stated that the other variables subjected to the analysis are not included in both models and do not affect the LR level in both groups. As a result, it is observed that the factors affecting liquidity risk in domestic banks are AQ, Bsize, NPL, GDP and NIM according to the level of importance. The factors affecting liquidity risk in foreign capital banks are AQ, Bsize, CAR, NPL, GDP, and NIM. The most important difference identified in the two models is NIM ($\beta=-0.26$) in domestic banks and CAR ($\beta=0.20$) in foreign capital banks which are associated with LR risk.

References

1. Ayaydın H. & Karaaslan İ. (2014). "Likidite Riski Yönetimi: Türk Bankacılık Sektörü Üzerine Bir Araştırma" <https://search.trdizin.gov.tr/yayin/detay/277308/>
2. Iqbal, A. (2012). "Liquidity Risk Management: A comparative study between Conventional and Islamic banks of Pakistan" https://globaljournals.org/GJMBR_Volume12/6-Liquidity-Risk-Management.pdf
3. Ayu Effendi K. & Disman D. (2017). "Liquidity Risk: Comparison between Islamic and Conventional Banking" https://www.ersj.eu/repec/ers/papers/17_2_A_p18.pdf
4. İncekara A. & Çetinkaya H. (2019). "Liquidity Risk Management: A Comparative Analysis of Panel Data Between Islamic And Conventional Banking In Turkey" <https://www.sciencedirect.com/science/article/pii/S1877050919313079>
5. Honga H., Huang J., & Wu D. (2014). "The information content of Basel III liquidity risk measures" <https://www.sciencedirect.com/science/article/pii/S1572308914000874>
6. Chena T., & Lee C. (2020). "Spatial analysis of liquidity risk in China" <https://www.sciencedirect.com/science/article/pii/S1062940819301214>
7. Akkaya M., & Azimli T. (2018). "Türk Bankacılık Sektöründe Likidite Riski Yönetimi" <http://www.ekonomikorumlar.com.tr/files/articles/1529399263.pdf>
8. Karakaş A. & Acar M. (2022). "Ticari Bankalarda Likidite ve Kârlılık İlişkisi: Türk Bankacılık Sektörü Üzerine Bir Uygulama" <https://dergipark.org.tr/tr/pub/bddkdergisi/issue/72654/1178316>
9. Elçeri M. E., & Karaaslan İ. (2023). "Türk Bankacılık Sektöründe Likidite Riskinin Belirleyicileri: Zaman Serisi Uygulaması" <https://smartofjournal.com/files/smartjournal/59a8cffb-65dc-4949-a5c6-6c3bcb14242b.pdf>
10. Zengin S., & Yüksel S. (2016). "Likidite Riskini Etkileyen Faktörler: Türk Bankacılık Sektörü Üzerine Bir İnceleme" <https://search.proquest.com/openview/24926e36d0e50d8339e27e1af22db6ce/1?pq-origsite=gscholar&cbl=2042291>
11. Karakaş A., & Acar M. (2022). "Determinants Of Liquidity In Commercial Banks: Evidence From The Turkish Banking Sector" https://ceswp.uaic.ro/articles/CESWP2022_XIV3_KAR.pdf
12. Chen T., & Lee C. (2020). "Spatial analysis of liquidity risk in China" <https://www.sciencedirect.com/science/article/pii/S1062940819301214>
13. Berger A. N., & Bouwman C. H. S. (2007). "Bank Liquidity Creation" <https://academic.oup.com/rfs/article/22/9/3779/1571440>
14. Arif A., & Anees A. N. (2012). "Liquidity Risk And Performance Of Banking System" <https://www.emerald.com/insight/content/doi/10.1108/13581981211218342/full/html>
15. Ariffin, N. M. (2012). "Liquidity Risk Management And Financial Performance In Malaysia: Empirical Evidence From Islamic Banks" <https://www.neliti.com/publications/26309/liquidity-risk-management-and-financial-performance-in-malaysia-empirical-eviden>
16. Abdul Rahman N. A., & Saeed M. H. (2015). "An Empirical Analysis of Liquidity Risk and Performance in Malaysia Banks" https://www.researchgate.net/publication/345600858_An_Empirical_Analysis_of_Liquidity_Risk_and_Performance_in_Malaysia_Banks
17. Avdalović S. M., & Kalaš B. (2016). "Determinants of Deposit Potential as Inverse Liquidity Indicator of Commercial Banks in Serbia" https://www.researchgate.net/publication/313287988_Determinants_of_deposit_potential_as_inverse_liquidity_indicator_of_commercial_banks_in_Serbia
18. Vodová, P. (2013). "Determinants Of Commercial Banks' Liquidity In Hungary" <https://aak.slu.cz/pdfs/aak/2013/01/16.pdf>
19. Vodová, P. (2012). "Liquidity Of Czech And Slovak Commercial Banks" https://acta.mendelu.cz/artkey/actu-201207-0049_liquidity-of-czech-and-slovak-commercial-banks.php
20. Chaudhury, N. J. (2021). "Impact of liquidity on banks' productivity: A study on selected commercial banks in Bangladesh" https://www.researchgate.net/publication/346351101_Impact_of_liquidity_on_banks'_productivity_A_study_on_selected_commercial_banks_in_Bangladesh
21. Islam M. A., & Nasreen F. (2018). "Macroeconomic and Bank Specific Determinants of Liquidity of Commercial Banks in Bangladesh" https://www.researchgate.net/publication/333078736_Macroeconomic_and_Bank_Specific_Determinants_of_Liquidity_of_Commercial_Banks_in_Bangladesh
22. Račić Ž., Stanišić N., & Stanić N. (2016). "A Comparative Analysis Of The Determinants Of Liquidity Risk Exposure In The Banking Sector Of The Republic Of Serbia And Banking Sectors Of Former Socialist Countries" https://www.researchgate.net/publication/303561305_A_Comparative_Analysis_of_the_Determinants_of_Liquidity

ty_Risk_Exposure_in_the_Banking_Sector_of_the_Republic_of_Serbia_and_Banking_Sectors_of_Former_Socialist_Countries

23. IMF Working Paper, Western Hemisphere Department (2012). "The Determinants of Banks' Liquidity Buffers in Central America" <https://www.imf.org/external/pubs/ft/wp/2012/wp12301.pdf>
24. Ben Moussa, M. A. (2015). "The Determinants of Bank Liquidity: Case of Tunisia" <https://dergipark.org.tr/en/pub/ijefi/issue/31967/352122>
25. Aikaeli, J. (2006). "Determinants of Excess Liquidity in Tanzanian Commercial Banks" https://papers.ssrn.com/sol3/papers.cfm?abstract_id=971750
26. Tavana M., Abtahi A., Di Caprio D., & Poortarighc M. (2018). "An Artificial Neural Network and Bayesian Network model for liquidity risk assessment in banking" <https://www.sciencedirect.com/science/article/pii/S0925231217317939>
27. Laurine, C. (2013). "Zimbabwean Commercial Banks Liquidity Risk Determinants after Dollarisation" https://ideas.repec.org/a/spt/apfiba/v3y2013i6f3_6_6.html
28. Munteanu, I. (2012). "Bank liquidity and its determinants in Romania" <https://www.sciencedirect.com/science/article/pii/S2212567112002638>
29. Chen T., Chou H., Chang Y., & Fang H. (2015). "The effect of excess lending on bank liquidity : Evidence from China" <https://www.sciencedirect.com/science/article/pii/S1059056014001816>
30. Winston, M. (2009). "How do financial crises affect commercial bank liquidity? Evidence from Latin America and the Caribbean" <https://ideas.repec.org/p/pramprapa/21473.html>
31. Romana A., & Sargu A. C. (2015). "The Impact of Bank-specific Factors on the Commercial Banks Liquidity: Empirical Evidence from CEE Countries" <https://www.sciencedirect.com/science/article/pii/S2212567115001100>
32. Schnabl, P. (2012). "The International Transmission of Bank Liquidity Shocks: Evidence from an Emerging Market" <https://www.jstor.org/stable/23261329>
33. Leykun, F. (2016). "Determinants of Commercial Banks' Liquidity Risk: Evidence from Ethiopia" <https://core.ac.uk/download/pdf/234631569.pdf>
34. Sheefeni J. P. S., & Nyambe J. M. (2016). "Macroeconomic Determinants Of Commercial Banks' Liquidity In Namibia" <https://www.idpublications.org/Wp-Content/Uploads/2016/05/Full-Paper-Macroeconomic-Determinants-Of-Commercial-Banks%E2%80%99-Liquidity-In-Namibia.Pdf>
35. de Bandt O., Lecarpentier S., & Pouvelle C. (2020). "Determinants of Banks' Liquidity: a French Perspective on Interactions between Market and Regulatory Requirements" <https://www.banque-france.fr/system/files/2023-01/wp-782.pdf>