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BANK FAILURE RISK: A STUDY ON SILICON VALLEY BANK, SIGNATURE BANK & SILVERGATE CAPITAL CORPORATION

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Abstract:

This study investigates whether the ratio of long-term investment to total assets, the ratio of cash on hand to total assets, and the ratio of price-to-earnings are risk indicators for bank failures. Silicon Valley Bank (SVB), Signature Bank, and Silvergate Capital Corp., which experienced bank failure, and banks that are among the 20 largest banks in the USA are analyzed with the panel data method. Analyses were made using quarterly data between 2003Q4 and 2022Q4. It is revealed that the long-term investment to total assets ratio increases the bank failure risk. The risk of bank failure varies negatively with the cash on hand to total assets ratio. Bank failure risk rises as the price-to-earnings ratio rises. In terms of revealing the factors influencing the risk of bank failure and possible consequences, it is expected that the findings obtained could contribute to the literature.

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Introduction

One of the most significant institutions in the financial system is the bank. In this regard, banks are crucial to maintaining the sustainability and stability of financial systems and financial markets. It is important to constantly monitor the efficiency, problems, and reflections of the banking system. In order to increase the functionality of the banking system and to establish preventive mechanisms, it is necessary to review and develop policies. At this stage, academic studies and the findings of these studies will be able to contribute both theoretically and practically.

It is important for the institutions that make up the banking system to fulfill their duties efficiently in terms of the continuity of the system. Like every business model, banks may encounter some problems both locally, globally, and related to the bank itself, and some of them cannot continue their existence in this process. These failure situations, which can also be called bank failure, can have both individual and widespread effects. In this respect, bank failure events should be examined with precision.

In the first quarter of 2023, bank failure events were seen in the USA. This bank failure process, which is considered an important event in terms of the banking system, started with Silvergate Capital in the USA and continued in Silicon Valley Bank and Signature Bank. The series of bank failures began with the announcement of Silvergate Capital Corporation's Intention to Stop Operations and Voluntary Liquidation of Silvergate Bank on March 8, 2023 (Silvergate, 2023), followed by the closing of Silicon Valley Bank on March 10, 2023 (FDIC, 2023a), and Signature Bank on March 12, 2023 (FDIC, 2023b). It was asked whether the impacts of the bank failure process would only be experienced in the USA or if they would also be seen in Europe and perhaps even on a global scale. It was stated in the sector comment report that the European bank balance sheet structure will limit the contagion from distressed US banks (Oxford Analytica, 2023).

It is necessary to determine which factors bring about this process in bank failure events. The occurrence of duration risk as a result of increases in FED interest rates can be thought to be among the reasons for these bank failures. Increases in borrowing rates reduce the market value of fixed-income investments and pose a risk for banks. In case the assets are invested in long-term investments, it is considered that the probability of the duration risk occurring in the mentioned market conditions may increase. Thus, in the event of an urgent increase in cash need for banks with reduced liquidity, if the amount of cash they have is low, the bank failure risk ratio may increase even more. The amount of long-term investment and cash on hand

could both be considered crucial variables in this context. In addition, it is considered that the high concentration of customers in certain sectors may have played a role in the failure of these banks.

It is thought that the perception of investors and customers about the bank may be an important factor in the process of bank failures. One of the perception indicators related to a bank can be considered the price to earns ratio. The Price Earnings Ratio, found by dividing a company's stock price by its earnings per share, is an indicator that measures how much investors are willing to pay for that stock relative to its earnings. The Price Earnings Ratio can also be evaluated as an indicator of the risk perception of the investors regarding the company. A high Price Earnings Ratio of a stock is considered an indicator of the existence of a positive perception among investors that the risk of the company not being able to meet the earnings expectations of the investors is low. However, a high price-to-earnings ratio may also mean that a higher price is paid compared to the stock's return. From this point of view, a high price-to-earnings ratio may cause a high-risk perception for the investor.

It has been thought that it is important to research the bank failure events and their effects in the USA because the event is kept up-to-date, and this opinion has formed the main motivation source of the study.

Given all these considerations, the primary question addressed by this study is whether or not long-term investments, cash on hand, and price-earnings ratio may be regarded as risk indicators for bank failure cases.

This study investigates whether the ratio of long-term investment to total assets, the ratio of cash on hand to total assets, and the ratio of price to earnings are risk indicators for bank failures. In addition, it creates a model for risk with these variables. Three hypotheses have been established.

H1: If the long-term investment to total assets ratio increases, the risk of bank failure risk increases.

H2: If the cash on hand to total assets ratio increases, the risk of bank failure risk decreases.

H3: If the price-to-earnings ratio increases, the risk of bank failure risk increases.

Literature review

Important studies examining the effects of the variables covered in the study and some related factors on banking sector crises and failures are included in this section.

Diamond, and Dybvig (1983) conducted a study titled "Bank Runs, Liquidity, and Deposit Insurance". It is stated in this study that in the closed economy mod-

el, where banks convert deposits into high-yield long-term assets that are expensive to liquidate in the short term, a bank preferring high returns associated with long-term investments may need to convert them into cash at an earlier date due to unforeseen shocks.

Failures of banks are viewed as being more serious than those of other business firms since they are thought to have a greater negative influence on the economy (Kaufman, 1996). Bank failures tend to be more harmful than other failures, in part due to worries that they would cascade down the banking system in a domino effect. As a result, the failure of one bank creates a systemic risk or the threat of systemic failure.

Marion (1999) addressed the research on currency and banking crises, as well as the new perspectives that emerged in the aftermath of the Asian financial crises. According to this study, banks may be forced to liquidate their long-term investments and collapse, and unfavorable outcomes may occur with low customer expectations in situations where the liquidated value of bank assets is less than the amount that customers desire to attract.

Using three capital measures based on leverage, gross revenue, and risk-weighted assets, Estrella et al., (2000) investigated the accuracy of these ratios in forecasting bank failure across various time periods. According to the study, simple leverage and gross income ratios outperform more intricate risk-weighted ratios in the short term. The study also shows that even while risk-weighted metrics are more reliable in predicting bank failure over the long run, applying basic ratios can be a less expensive and beneficial alternative indication of capital sufficiency.

In order to propose an open economy model of bank liquidations, Takeda (2001) conducted a study in which whereas positive signals do not have this effect, negative signals regarding economic fundamentals can lead to bank runs by requiring depositors to coordinate their activities. The study's findings suggest that if international interest rates are lower than domestic interest rates, capital inflows may raise the likelihood of a crisis. The study also notes that the results are consistent with those of other studies in the literature that have demonstrated a substantial correlation between the commencement of banking crises and low growth rates and higher domestic and international interest rates.

The UK bank Northern Rock, the first high-profile survivor of the 2007-2008 global financial crisis, was researched by Shin (2009). According to the analysis, high leverage and reliance on institutional investors for short-term funding are what caused the bank run at Northern Rock rather than a failure to coordinate.

According to the literature, competition lowers banks' value and pushes them to take more risks, as Martinez-Miera and Repullo (2010) found in their study on whether competition lowers the chance of bank failure. The idea that competition and the risk of bank failure often follow a U-shaped relationship is one of those put forth in this study.

Levy-Yeyati et al., (2010) investigated the bank runs in two emerging economies, Argentina, and Uruguay. The results of this study demonstrate that in times of crisis, depositor behavior is significantly influenced by macroeconomic factors, which can occasionally override the influence of bank-specific characteristics.

Uhlig (2010) models the 2008 financial crisis as resembling a bank run in his article. This study is particularly concerned with the finding that big financial institutions prefer asset-backed securities to long-term investments. According to the research, when uncertainty-averse investors are involved, the crisis would worsen and the market share of troubled core banks will rise, but in the case of adverse selection, the possibility of escape will decline.

Using a neural network approach, Pao and Wang (2012) investigated the association between systematic risk and long-term investment activities for Taiwanese enterprises in the electronics and fiber industries. The findings show that while systemic risk has decreased for the electronics industry, it has increased for long-term investment activities in the fiber industry. According to the study, sectoral dynamics could be the root of this discrepancy.

Calvo analyzes the scenario of a Sudden Stop when expectations fail and the fact that residents' long-term investment projects are encouraged by the expectation of foreign direct investment (2014). According to the study's findings and predictions, long-term investment projects boost productivity while making the economy more susceptible to Sudden Stops. Sudden Stop events can lead to the quick sale of long-term assets, a collapse in output, and a redistribution of wealth.

To comprehend the processes underlying bank run contagions, Chakravarty et al., (2014) carried out several experiments. According to the research, depositors' beliefs about the banks' liquidity levels and what other depositors will do will affect their decision regarding what course of action to take. It has been established that a group learns about liquidity and behaves appropriately; in the absence of information, depositors are impacted by the behavior of other depositor groups. It is shared as an important finding in the study that liquidity is not only strongly associated with the probability of a bank run, but also with the probability of the contagion spreading to a separate bank.

In a study, Goedde-Menke et al., (2014) investigated how depositors' knowledge, attitudes, and behaviors changed during the financial crisis and how that

affected the danger of a bank run. Depositors increased their deposits and gave deposit security more weight at the top of the crisis, according to research. According to the study, the percentage of depositors who are completely uninformed, intensely involved, and highly exposed and who represent the highest risk of starting a bankruptcy declined at the height of the crisis but rebounded substantially subsequently, even exceeding pre-crisis levels. Based on the findings, the danger of a bank rush is higher after a financial crisis than it is during one.

Which risk indicator performs best at the level of a specific bank was the subject of research by Noth and Tonzer (2017). According to the study's findings, the ratio of non-performing assets serves as the strongest indicator of bank risk.

Chen et al., (2019) investigated how economic policy uncertainty affected firm-level capital investment in the US market. The findings of the study demonstrate that when confronted with greater economic policy uncertainties, companies reduce their short-term, long-term, and overall investments.

Method

Silicon Valley Bank (SVB), Signature Bank, and Silvergate Capital Corp., which experienced bank failure, and banks that are among the 20 largest banks in the USA are analyzed in this study.

In the first stage, general descriptive statistics were made for three basic variables, and then basic statisti-cal analyses of these variables were made for each bank. The defined dummy variable named bank failure was also added to the study and correlation analysis was made between the variables to form a basis for the model to be established in the second stage. In the third stage, unit root tests were applied by taking the logarithms of the main variables and then regression analysis was performed. With the model created by this method, the equation of the new variable named Bank Failure Risk was obtained. In the last stage, the data of the main variables were written in the Bank Failure Risk equation, the values of this new variable based on banks were obtained and basic statistics were executed. Analyses were made using quarterly data between 2003Q4 and 2022Q4. The data of the varia-bles that could not be obtained in this time period were left empty.

The main variables of the study are Long Term Investment to Total Asset Ratio, Cash on Hand to Total Asset Ratio, and Price to Earnings Ratio. In addition, a dummy variable named Bank Failure was defined and as a result of the analysis, a new variable named Bank Failure Risk was obtained.

Results

The main descriptive statistics of Long-Term Investment to Total Assets Ratio, Cash on Hand to Total Assets Ratio, and Price to Earnings Ratio, which are the main variables of the study, are given in Table 1.

Table 1: Descriptive Statistics

Variables	Long-Term Investment to Total Assets Ratio	Cash on Hand to Total Assets Ratio	Price to Earnings Ratio
Mean	0.253	0.186	12.368
Median	0.215	0.122	10.705
Maximum	0.777	0.559	93.980
Minimum	0.011	0.003	4.310
Std. Dev.	0.117	0.159	7.365
Skewness	1.196	0.459	5.105
Kurtosis	4.169	1.679	41.392
Jarque-Bera	325.180	118.817	65888.270
Probability	0.000	0.000	0.000

Source: Own elaboration.

It is understood from Table 1 that the Long-Term Investment to Total Assets Ratio variable varies be-tween 0.011 and 0.777 and the mean value is 0.253, and the mean value of Cash on Hand to Total Assets Ratio is 0.186 and varies between 0.003 and 0.559. It is also seen from the table that the Price to Earnings Ra-tio variable has a mean value of 12,368. All three of the variables are skewed to the right when the Skewness values for the variables in Table 1 are evaluated. When the kurtosis values of the table are examined, it is seen that the Long-Term Investment to Total Assets Ratio and Price to Earnings Ratio variables are leptokurtic (pointier than a normal distribution) and the Cash on Hand to Total Assets Ratio variable is platykurtic (flatter than a normal distribution). Probability values in Table 1 show that all three variables do not have a normal distribution ($p < 0.01$).

Çağrı Hamurcu
Bank failure risk: a study on Silicon Valley Bank, Signature Bank, and Silvergate Capital corporations

Financial Internet Quarterly 2023, vol. 19 / no. 2

Table 2: Bank-Based Statistics

Bank Name	Long-Term Investment to Total Assets Ratio				Cash on Hand to Total Assets Ratio				Price to Earnings Ratio			
	Mean	Max	Min	Std. Dev.	Mean	Max	Min	Std. Dev.	Mean	Max	Min	Std. Dev.
Bank of America	0.188	0.314	0.113	0.052	0.266	0.355	0.232	0.021	16.778	85.740	7.260	14.793
Bank of New York Mellon	0.302	0.363	0.184	0.040	0.398	0.458	0.328	0.031	11.339	17.710	6.610	2.278
Capital One	0.207	0.240	0.170	0.015	0.043	0.134	0.017	0.027	10.109	47.100	4.400	7.364
Citigroup	0.179	0.224	0.131	0.021	0.392	0.433	0.343	0.022	9.586	20.980	5.210	3.443
Citizens Financial	0.162	0.191	0.143	0.015	0.035	0.080	0.016	0.018	10.130	14.880	4.920	2.402
Fifth Third Bancorp	0.183	0.257	0.127	0.037	0.061	0.184	0.027	0.047	10.709	93.980	5.890	12.108
First Republic Bank	0.167	0.240	0.011	0.046	0.035	0.096	0.009	0.018	18.325	26.680	8.240	4.596
Goldman Sachs	0.374	0.438	0.304	0.034	0.452	0.519	0.330	0.047	10.264	26.650	5.400	4.171
JP Morgan Chase	0.192	0.245	0.132	0.032	0.389	0.445	0.317	0.028	9.636	14.570	4.650	2.265
Key Corp	0.216	0.287	0.101	0.030	0.051	0.122	0.021	0.024	9.791	18.170	4.310	2.789
M&T Bank	0.102	0.152	0.041	0.029	0.086	0.279	0.022	0.066	12.315	18.120	7.450	2.604
Morgan Stanley	0.411	0.450	0.368	0.021	0.393	0.493	0.289	0.068	12.819	40.780	6.340	8.168
PNC Financial Services	0.236	0.283	0.190	0.022	0.079	0.198	0.027	0.041	9.925	15.140	5.580	2.420
Signature Bank	0.302	0.491	0.153	0.117	0.042	0.267	0.003	0.072	16.564	24.870	7.310	4.118
Silvergate Capital Corp.	0.487	0.777	0.171	0.189	0.214	0.559	0.063	0.182	35.497	58.720	11.110	20.036
State Street	0.443	0.605	0.338	0.089	0.299	0.426	0.155	0.066	11.223	16.250	7.300	2.210
SVB Financial Group	0.485	0.606	0.185	0.095	0.110	0.333	0.033	0.083	18.803	60.380	8.020	7.760
Toronto Dominion Bank	0.176	0.280	0.115	0.034	0.267	0.340	0.127	0.046	9.490	12.070	7.310	1.191
Truist Financial	0.208	0.286	0.133	0.032	0.029	0.092	0.012	0.021	12.008	22.320	7.700	2.550
US Bancorp	0.229	0.305	0.149	0.035	0.044	0.113	0.015	0.024	10.954	17.400	7.620	1.900
Wells Fargo	0.202	0.268	0.129	0.044	0.167	0.225	0.060	0.044	12.683	70.490	5.550	11.214

Source: Own elaboration.

Bank Based Statistics of Long-Term Investment to Total Assets Ratio, Cash on Hand to Total Assets Ratio, and Price to Earnings Ratio are given in Table 2. Silvergate Capital Corp., SVB Financial Group, and State Street are the highest-ranked companies in terms of mean value when looking at the Long-Term Investment to Total Assets Ratio variable. For the Cash on Hand to Total Assets Ratio, the leading three major banks are Goldman Sachs, Bank of New York Mellon, and Morgan Stanley. In terms of Price to Earnings mean value, it is documented that Silvergate Capital Corp., SVB Financial Group, and First Republic Bank are in the highest-ranked positions.

In the study, a dummy variable named Bank Failure is defined as 1 for bank failure banks, Silicon Valley Bank (SVB), Signature Bank, and Silvergate Capital Corp., and 0 for other banks. The results of the correlation analysis between the variables are given in Table 3.

Table 3: Correlation Analysis

		Long-Term Investment to Total Assets Ratio	Cash on Hand to Total Assets Ratio	Price to Earnings Ratio	Bank Failure
Long-Term Investment to Total Asset Ratio	Correlation	1.000			
	Probability	-----			
Cash on Hand to Total Asset Ratio	Correlation	0.222	1.000		
	Probability	0.000	-----		
Price to Earnings Ratio	Correlation	0.177	-0.047	1.000	
	Probability	0.000	0.137	-----	
Bank Failure	Correlation	0.474	-0.229	0.328	1.000
	Probability	0.000	0.000	0.000	-----

Source: Own elaboration.

According to Table 3, there are positive correlations between Bank Failure and Long-Term Investment to Total Assets Ratio and Price to Earnings Ratio and a negative correlation between Cash on Hand to Total Assets Ratio. In addition, it is understood from the table that there are positive correlations between Long-Term Investment to Total Assets Ratio and both Cash on Hand to Total Assets Ratio and the Price to Earnings Ratio.

For further analysis, the natural logarithms of the variables, which are the logarithms to the base of the mathematical constant e, were taken. The unit root test results of three variables whose natural logarithms are taken are given in Table 4. It is understood from the table that all three variables are stationary without taking their differences.

Table 4: Unit Root Tests of Variables

		ln(Long-Term Investment to Total Assets Ratio)		ln(Cash on Hand to Total Assets Ratio)		ln(Price to Earnings Ratio)	
Exogenous variables: None	Null: Unit root (assumes common unit root process)						
	Levin, Lin & Chut*	-2.863	0.002	-2.039	0.021	-1.828	0.034
	Null: Unit root (assumes individual unit root process)						
	ADF-Fisher Chi-square	74.740	0.001	34.743	0.779	45.040	0.346
	PP-Fisher Chi-square	74.534	0.002	33.509	0.822	44.258	0.377

Çağrı Hamurcu
Bank failure risk: a study on Silicon Valley Bank, Signature Bank, and Silvergate Capital corporations

Financial Internet Quarterly 2023, vol. 19 / no. 2

Exogenous variables: Individual effects	Null: Unit root (assumes						
	Levin, Lin & Chut*	-4.645	0.000	-3.780	0.000	-8.329	0.000
	Null: Unit root (assumes individual unit root process)						
	Im, Pesaran and ShinW-stat	-4.871	0.000	-4.146	0.000	-9.955	0.000
	ADF-Fisher Chi-square	120.699	0.000	88.735	0.000	202.360	0.000
	PP-Fisher Chi-square	112.818	0.000	88.370	0.000	199.379	0.000
Exogenous variables: Individual effects, individual linear trends	Null: Unit root (assumes common unit root process)						
	Levin, Lin &Chut*	-3.491	0.000	-4.411	0.000	-8.845	0.000
	Breitung t-stat	1.119	0.868	-2.789	0.003	-3.953	0.000
	Null: Unit root (assumes individual unit root process)						
	Im, Pesaran and Shin W-stat	-3.442	0.000	-3.922	0.000	-7.496	0.000
	ADF-Fisher Chi-square	98.867	0.000	83.693	0.000	189.241	0.000
	PP-Fisher Chi-square	98.384	0.000	92.374	0.000	179.843	0.000

Source: Own elaboration.

In line with the correlation analysis results obtained, a Model was created in which bank failure variable was defined as dependent variable and natural logarithms of Long-Term Investment to Total Assets Ratio, Cash on Hand to Total Assets Ratio and Price to Earnings Ratio variables were defined as independent variables.

Model:

$$Bank\ Failure = c + \alpha_1 \ln(Long-Term\ Investment\ to\ Total\ Assets\ Ratio) + \alpha_2 \ln(Cash\ on\ hand\ to\ Total\ Assets\ Ratio) + \alpha_3 \ln(Price\ to\ Earnings\ Ratio) + \varepsilon \quad (1)$$

The results of the regression analysis performed on the established model are given in Table 5.

Table 5: Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.222	0.062	-3.598	0.000
ln(Long-Term Investment to Total Assets Ratio)	0.293	0.019	15.407	0.000
ln(Cash on Hand to Total Assets Ratio)	-0.084	0.007	-12.310	0.000
ln(Price to Earnings Ratio)	0.237	0.021	11.334	0.000
Root MSE	0.252	R-squared		0.370
Mean dependent var	0.114	Adjusted R-squared		0.368
S, D, dependent var	0.318	S.E. of regression		0.253
Akaike info criterion	0.089	Sum squared resid		63.646
Schwarz criterion	0.109	Loglikehood		-40.815
Hannan-Quinn criteria	0.097	F-static		195.396
Durbin-Watson stat	0.077	Prob(F-static)		0.000

Source: Own elaboration.

Çağrı Hamurcu
Bank failure risk: a study on Silicon Valley Bank, Signature Bank, and Silvergate Capital corporations

Financial Internet Quarterly 2023, vol. 19 / no. 2

$$Bank\ Failure\ Risk = (-0.222) + 0.293\ln(LongTerm$$
$$Investment\ to\ Total\ Assets\ Ratio) + 0.237\ln \qquad (2)$$
$$(Price\ to\ Earnings\ Ratio) + \varepsilon$$

Bank Failure Risk was calculated for each bank by using the coefficients (above-stated formula) obtained as a result of the analysis and the basic statistics of these calculated values are given in Table 6. In this table, banks are listed according to their Bank Failure Risk mean value, from large to small.

Table 6. Bank Failure Risk by bank

Bank Name	Mean	Median	Max	Min	Std. Dev.
Silvergate Capital Corp.	0.519	0.572	0.827	0.262	0.190
SVB Financial Group	0.461	0.493	0.670	0.150	0.117
Signature Bank	0.408	0.441	0.731	-0.073	0.235
First Republic Bank	0.240	0.267	0.416	-0.173	0.116
Truist Financial	0.214	0.231	0.373	-0.073	0.079
State Street	0.197	0.198	0.360	0.025	0.071
US Bancorp	0.184	0.198	0.279	0.044	0.055
Morgan Stanley	0.174	0.152	0.463	-0.003	0.099
Key Corp	0.126	0.120	0.323	-0.092	0.091
PNC Financial Services	0.115	0.135	0.246	-0.118	0.074
Capital One	0.107	0.123	0.505	-0.144	0.120
Goldman Sachs	0.091	0.093	0.309	-0.081	0.090
Bank of New York Mellon	0.080	0.100	0.208	-0.126	0.070
Citizens Financial	0.072	0.063	0.240	-0.153	0.090
Fifth Third Bancorp	0.056	0.056	0.539	-0.106	0.108
Bank of America	0.040	0.018	0.416	-0.177	0.117
Wells Fargo	0.023	0.005	0.508	-0.149	0.132
Toronto Dominion Bank	-0.096	-0.063	0.090	-0.264	0.083
M&T Bank	-0.097	-0.051	0.124	-0.485	0.167
JP Morgan Chase	-0.105	-0.114	0.057	-0.242	0.065
Citigroup	-0.122	-0.130	0.050	-0.296	0.073

Source: Own elaboration.

Discussion and conclusions

Firstly, it is revealed that the long-term investment to total assets ratio increases the bank failure risk. Secondly, the result shows that the risk of bank failure varies negatively with the cash on hand to total assets ratio. Thirdly, according to analysis, bank failure risk rises as the price-to-earnings ratio rises.

The findings can be interpreted as the probability of occurrence of liquidity risk may increase as the ratio of long-term investment increases, and in case of abnormal increases in the cash needs of banks with reduced liquidity, the possibility of bank failure risk may increase if the amount of cash they have is low. In addition, it is thought that a high price-earnings ratio may have increased the risk of bank failure from the point of view that it has a higher price compared to the return of the stock. In this context, the amount of long-term investment, the amount of cash in hand, and the price-to-earnings ratio can be considered important factors affecting the risk of bank failure.

It is seen that the bank failure risk score ranking obtained as a result of the model developed in the study and the order of occurrence of bank failure in banks are compatible. It is known that Silvergate Capital Corp., which is in first place in the bank risk failure score ranking, is the first bank to experience bank failure (Silvergate, 2023), Silicon Valley Bank, which is in second place in the risk failure score ranking, is also the second in the timeline (FDIC, 2023a), and Signature Bank, which is in the third place in the bank failure risk score ranking, is also in the third place in the timeline (FDIC, 2023b).

It is understood from the statements made that those 11 banks gave deposit support to First Republic Bank on March 16, 2023, due to some concerns about First Republic Bank, and this development is evaluated as an indicator of the resilience of the banking system (FDIC, 2023c). This can be interpreted as the manner in which the developments regarding bank failures are handled carefully and First Republic Bank is seen as sensitive to bank failure risk due to various factors. In fact, the finding that First Republic Bank was determined as the fourth highest bank right after the banks that had bank failures, which were in the top three in the ranking, also supports the validity of the model.

The long-term investment bank failure relationship obtained in this study is compatible with Diamond and Dybvig (1983), Marion (1999), Uhlig (2010), Pao and Wang (2012), and Calvo (2014). The occurrence of bank failures and their effects are very important (Kauffman, 1996). Establishing a prediction system and figuring out which components work are vital from this perspective. The study's findings are believed to be potentially valuable from this angle.

The fact that the study was carried out only in the USA and the three banks that have experienced bank failures and the banks in the top twenty rankings in the last period can be considered as a limitation of the study. In order to demonstrate the validity of the findings, it is considered that expanding the study to include other banks and countries will be crucial. It is advisable to create designs for future investigations that address these limitations.

The findings of the study provide evidence that the ratio of the long-term investment amount to total assets, the ratio of cash on hand to total assets, and the price-to-earnings ratio can be considered important factors affecting the risk of bank failure. In terms of revealing the factors influencing the risk of bank failure and possible consequences, it is expected that the findings obtained could contribute to the literature.

References

Calvo, G.A. (2014). Sudden Stop and Sudden Flood of Foreign Direct Investment: Inverse Bank Run, Output, and Welfare Distribution. The Scandinavian Journal of Economics, 116(1), 5-19. https://doi.org/10.1111/sjoe.12041.

Chakravarty, S., Fonseca, M.A., & Kaplan, T.R. (2014). An Experiment on the Causes of Bank Run Contagions. European Economic Review, 72(2), 39-51. https://doi.org/10.1016/j.euroecorev.2014.09.003.

Chen, P.F., Lee, C.C., & Zeng, J.H. (2019). Economic Policy Uncertainty and Firm Investment: Evidence From the US Market. Applied Economics, 51(31), 3423-3435. https://doi.org/10.1080/00036846.2019.1581909.

Diamond, D., & Dybvig, P. (1983). Bank Runs, Liquidity and Deposit Insurance. Journal of Political Economy 91(2), 401-419. https://doi.org/10.1086/261155.

Estrella, A., Park, S., & Peristiani, S. (2000). Capital Ratios as Predictors of Bank Failure. Economic Policy Review, 6(2), 33-52. Retrieved from: https://ssrn.com/abstract=888777 (Accessed: 23.03.2023).

FDIC (2023a). Failed Bank Information for Silicon Valley Bank, Santa Clara, CA. Federal Deposit Insurance Corporation (FDIC) Retrieved from: https://www.fdic.gov/resources/resolutions/bank-failures/failed-bank-list/silicon-valley.html (Accessed: 23.03.2023).

FDIC (2023b). Failed Bank Information for Signature Bank, New York, NY. Federal Deposit Insurance Corporation (FDIC). Retrieved from: https://www.fdic.gov/resources/resolutions/bank-failures/failed-bank-list/signature-ny.html (Accessed: 23.03.2023).

FDIC (2023c). Joint Statement by the Department of the Treasury, Federal Reserve, FDIC, and OCC. Federal Deposit Insurance Corporation (FDIC) (Accessed: 23.03.2023).

Goedde-Menke, M., Langer, T., & Pfingsten, A. (2014). Impact of The Financial Crisis on Bank Run Risk–Danger of the Days After. Journal of Banking & Finance, 40(1), 522-533. https://doi.org/10.1016/j.jbankfin.2013.11.028.

Kaufman, G.G. (1996). Bank Failures, Systemic Risk, and Bank Regulation. The Cato Journal, Vol. 16 No. 1, 1-22.

Levy-Yeyati, E., Martinez Peria, M.S., & Schmukler, S.L. (2010). Depositor Behavior Under Macroeconomic Risk: evidence from Bank Runs in Emerging Economies. Journal of Money, Credit and Banking, 42(4), 585-614. https://doi.org/10.1111/j.1538-4616.2010.00300.x.

Marion, N.P. (1999). Some Parallels Between Currency and Banking Crises. International Tax and Public Finance, 6(1), 473-490. https://doi.org/10.1023/A:1008793129912.

Martinez-Miera, D., & Repullo, R. (2010). Does Competition Reduce the Risk of Bank Failure?. The Review of Financial Studies, 23(10), 3638-3664. https://doi.org/10.1093/rfs/hhq057.

Çağrı Hamurcu
Bank failure risk: a study on Silicon Valley Bank, Signature Bank, and Silvergate
Capital corporations

Financial Internet Quarterly 2023, vol. 19 / no. 2

Noth, F., & Tonzer, L. (2017). Bank Risk Proxies and the Crisis of 2007/09: a Comparison. Applied Economics Letters, 24(7), 498-501. https://doi.org/10.1080/13504851.2016.1205716.

Oxford Analytica (2023). SVB failure spells contagion but not systemic risk, Expert Briefings. https://doi.org/10.1108/OXAN-DB276679.

Pao, H.T., & Wang, K. (2012). A Comparative Study of Systematic Risk Using Neural Networks and Regression Analysis. Pan-Pacific Management Review, 5(2), 183-191.

Shin, H.S. (2009). Reflections on Northern Rock: The Bank Run that Heralded the Global Financial Crisis. Journal of Economic Perspectives, 23(1), 101-119. https://doi.org/10.1257/jep.23.1.101.

Silvergate, (2023). Silvergate Capital Corporation Announces Intent to Wind Down Operations and Voluntarily Liquidate Silvergate Bank. Silvergate (Accessed: 23.03.2023).

Takeda, F. (2001). Bank Runs and International Financial Instability Revisited. Economics Letters, 73(2), 187-194. https://doi.org/10.1016/S0165-1765(01)00483-9.

Uhlig, H. (2010). A Model of a Systemic Bank Run. Journal of Monetary Economics, 57(1), 78-96. https://doi.org/10.1016/j.jmoneco.2009.10.010.