

The Effect of Financial Crises on Banking Performance in Developed and Emerging Economies

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Abstract The aim of the study is to examine the effect of crises on the stability of the banking system in 46 developed and emerging economies for the years 1999–2014. The variables are tested by using the two-step dynamic panel data analysis. The results indicate that the banking crises have an impact on the banking system stability. On the other hand, it is observed that the comparative conditions and the volatility on asset prices are the determinants on performance-stability relations. The most important finding is that the credit to GDP gap influence bank performance negatively.

Keywords Commercial banks • Bank crises • Performance • Dynamic panel

1 Introduction

There is a vast amount of research concerning the financial performance of banks relating to bank profitability. Often, the research is country-specific, as well as panel of countries of different countries with different scope and analysis. The results of these studies indicate that there are common characteristics among them, whether the study is bank-specific, banking system and market-based or macroeconomic. Moreover, many studies prove that bank profitability shows persistency.

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Although many studies have been done in this area, there is a paucity of studies analyzing the persistency on banks' profitability. After the global crises, the world witnessed commercial bank bankruptcies that posed a serious threat of systemic risk for banking systems, especially in industrialized countries. In such cases, most banks faced a remarkable amount of loss. Any crisis in the financial or banking system is contagious. However, the dynamics and determinants of the crisis period are not clear. The determinant or determinants of financial instability affecting bank profitability should be made clear. Since banking systems within individual countries have different structures regarding development levels, the period, as well as the effect of the variables, differ from one country to another. However, some variables have a common effect on different-level banking systems in different countries.

The aim of this study is to analyze how the determinants of persistency influence bank performance. The determinants of stability are analyzed through direct and indirect determinants, and two-step dynamic panel data models are used. This study uses data from 26 developed and 20 emerging economies.

2 Literature

There is a wide variety of literature concerning the determinants of bank performance. Primary studies were done by Short (1979) and Bourke (1989). The study done by Molyneux and Thornton (1992) is considered the primary analytical study in this area. Following these, many other studies were performed, such as Berger (1995), Neely and Wheelock (1997), Naceur (2003), Mamatzakis and Remoundos (2003), Naceur and Goaid (Naceur and Goaid 2001, Naceur and Goaid 2008), Demirgüç-Kunt and Huizinga (1999, 2000), Abreu and Mendes (2002), Staikouras and Wood (2004), Goddard et al. (2004), Athanasoglou et al. (2006), Micco et al. (2007), Pasiouras and Kosmidou (2007), Aburime (2008), Athanasoglou et al. (2008), Dietrich and Wanzenried (2011), Flamini et al. (2009), Hoffmann (2011), Beltratti and Stulz (Beltratti and Stulz 2011), Iatridis and Persakis (Iatridis and Persakis 2012), Roman and Danuletiu (2013), Dietrich and Wanzenried (2014), Diaconu and Oanea (2014), Guillen et al. (Guillen et al. 2014), Naidu and Nair (2014), Yin and Matthews (2014), Albulescu (2015) and Petria et al. (Petria et al. 2015). The aim of the studies was to find out the determinants regarding bank-specific and macro-specific determinants. Many country-specific and comparative studies analyzing hundreds of banks were done. In these studies, linear and dynamic panel data techniques were used.

In bank performance literature, there is a paucity of studies done on the effect of the banking crises on bank performance. Most of the related literature was written after the global crises. Taşkın (2011), Gökalp (2014), Tunay (2014), Albulescu (2015), Bennett et al. (2015), Us (2015), Bhimjee et al. (2016), Capraru and Ilnatov (2014), Kamarudin et al. (2016) and Olson and Zoubi (2016) are some of these. In their studies, Albulescu (2015), Bhimjee et al. (2016), Capraru and Ilnatov (2014)

and Olson and Zoubi (2016) studied many banks within specific countries. Though their data may differ, they all used linear and dynamic panel data methodology. Their studies conclude that crises have negative effects on bank performance. Alternatively, Taşkin (2011), Tunay (2014), Bennett et al. (2015) and Kamarudin et al. (2016) proved crises can also have positive effects on bank performance.¹ Capraru and Ihnatov (2014), Albulescu (2015) and Bhimjee et al. (2016) found that crises have a negative impact on profitability.

Top bank managers were criticized for taking high risks during global crises to increase the premiums they received from the profits because these risks then caused the banks to fail or go bankrupt. In the USA, Bennett et al. (2015) analyzed 371 banks, examining the ratio of internal debt to equity. They found that by controlling leverage ratio, CEOs managed to minimize risk and increase the financial performance of their banks. This finding proves the relationship between internal debt ratio, default risk and financial performance. The stock market returns, ROE, ROA, interest income and non-interest income were analyzed by Bennett et al. (2015). Once again, however, it is possible to observe different results. During the crises, performance measures, internal debt ratio, leverage ratio and nonperforming loans were observed to be negative. It is also noted that between top bank managers' premium payments and bank performance there is a significant negative relation.

Kamarudin et al. (2016) analyzed the financial performance of banks before and after the crises and pointed out the performance of the ownership structure of commercial banks. The study found that bank profitability performance and efficiency depend on different dynamics². Following the crises, both groups had a fall in their efficiencies, but private banks suffered a worse performance when compared to private commercial banks.

During the period of 2004–2011, Capraru and Ihnatov (2014) analyzed the profitability determinants of 143 commercial banks in Romania, Hungary, Poland, Bulgaria and the Czech Republic. After the global crises, debt crises continued in Europe. Average ROE, ROA and NIM were used as profitability measures. However, their results indicated that the negative effect of the crisis can be seen in all measures.

Albulescu's (2015) study on developed and emerging economies proved the negative effect of crises on bank financial performance, pointing out that nonperforming loans were the primary reason for this. According to them, the negative effect of the crises could be seen on the nonperforming loans. Regarding impersistent credit performance, the performance of the banking sector in both developed and emerging countries declined after the global crises. Albulescu (2015) pointed out that in

¹In the Turkish Banking system, concerning different periods, both studies prove that crises have a negative effect on ROA and ROA, whereas the effect on NIM is positive.

²Kamarudin et al. (2016) concluded that bank size, liquidity, economic growth and sector concentration variables have a negative effect on the profitability of public banks, while private banks see positive effects. Capitalization, credit risk and inflation, however, affect the profit of public banks positively and the efficiency of private banks negatively.

emerging countries bank profit declined due to easy ways of reaching credits, which, in turn, caused nonperforming loans to rise. By aiming to strengthen bank capital, profit declined in the short term.

Bhimjee et al. (2016) investigated the banking systems of 41 developed and emerging economies before and after crises. The banking systems of emerging economies investigated and probable regime differences are tried to be determined.³ The results indicated that banking performances have two different clusters and each has unique regime dynamics. In the period before crises, the securities in developed countries had a high performance. In the second group, the banks of emerging economies, had a low performance. During the crises, banks in different groups showed similar patterns and regarding this regime synchronization went up and regime dynamics differences disappeared. Such results, like global crises with systemic dimensions and different dynamics, made the synchronization go up and such crises with an international spread and contingency potential can be seen.

After the global crises, conventional banks faced huge debts and generated risks, causing a collapse in the system. As Islamic banks showed a better performance after the crises, there has been an increase in the comparative studies that include Islamic banks and conventional. Studies done by Gökalp (2014) and Olson and Zoubi (2016) are primary examples of these comparative studies.⁴

The wholesale and Islamic bank performance in the Middle Eastern, African and Southeast Asian areas is investigated by Olson and Zoubi (2016) He found out that ROA and ROE performances converged in two different categories. Despite the different operational structures' profit convergence, after the crises profit convergence depends on the post-crises.

When analyzed, the relationship between crises and bank performance cannot be concluded in one way. Regarding these crises had a negative effect. Moreover, crisis performance when determined positively valid in some performance measures. Especially ROA and ROE profitability measures and experimental analysis are used widely and the effect proved to be negative after the crises.

3 Data and Methodology

The literature regarding the analysis of bank performance can be grouped into three main sections. The first group includes credit risk, capital structure, efficiency and concentration; the second group contains competition structure, concentration and ownership structure; and the third group includes macroeconomic variables such as inflation, growth and budget deficit. In most studies where

³Bhimjee et al. (2016) used panel regime-switching modelling in their analysis.

⁴Ramlan and Adnan (2016) did the analysis on Malesia, while Rashid and Jabeen (2016) investigated Pakistan. They found that the crises had a direct effect on performance. Regarding their comparative analysis, they pointed out that Islamic banks showed a better profitability performance during the global crisis period.

a wide range of different countries are investigated, macroeconomic variables depend on factors specific to the country involved. In most of the studies where bank performance is analyzed by ROA, ROE and NIM as determinants of bank profitability as profitability ratios.

Although there is a vast number of literature regarding bank performance analysis there is a paucity of studies on the effect of crises on banks. Taşkın (2011), Dietrich and Wanzenried (2014), Gökalp (2014), Tunay (2014), Kamarudin et al. (2016) are some of them. Three of these studies (Taşkın 2011; Gökalp 2014; and Tunay 2014) look at the Turkish banking sector. In the past 40 years, Turkey has experienced three separate financial crises, making it a unique case. In those three studies, the effects of crises on bank performance are usually analyzed by the linear and dynamic panel data models. In those studies, another common thing is the variables that are used in the studies. The variables among bank-specific and macroeconomic variables.

The articles mentioned above are analyzed and the ones that investigated the effect of crises on banking performance are considered however, it should be noted that variables used during crises and performance are taken into consideration. Not only the variables that reflect the systematic and döngüsel boyutlar of the global crises are taken into consideration. In such competition and concentration as sectoral factors but also the variables such as financial health, credit deficit that are important taken as important factors. In our study, we used different variables compared to the ones in the literature, and the dynamic model is used for analysis:

$$P_{it} = \alpha + \sum_{k=1}^p \varphi_k P_{it-k} + \beta_1 Crisis_{it} + \beta_2 Gap_{it}^{Crd} + \beta_3 NPL_{it} + \beta_4 Z_{it} + \beta_5 Cap_{it}^{Reg} + \gamma_1 \left(\frac{TA^5}{TA} \right)_{it} + \gamma_2 BI_{it} + \gamma_3 LI_{it} + \delta_1 Vol_{it}^{SM} + \delta_2 Vol_{it}^{Exc} + \varepsilon_{it} \tag{1}$$

in the equation numbered (1), i is the country, t is the index. According to model P, ROA or ROE performance measurement, Crisis represents the banking crises in related countries, Gap^{Crd} represents the credit-to-GDP gap, NPL is the ratio of non-performing loans to total loans, Z is the z-test score, Cap^{Reg} is the capital requirement ratio (regulatory capital), (TA⁵/TA) represents the total asset concentration of the first five banks, BI represents the Boone indicator, LI represents the Lerner index, VolSM represents volatility in stock prices and Vol^{Exc} represents foreign exchange volatility. ε_{it} is the zero average and rastsal distribution error term. α is the constant term, φ, β, γ, δ are the coefficient vectors.

The (1) numbered equation is analyzed by Arellano and Bover (1995) and Blundell and Bond (1998) using the two-step GMM system on a dynamic panel data model. Arellano and Bond (1991) is preferred, as it provided a one-step alternative ratio. To find out the error term second-order autocorrelation and instruments validity. The Arellano-Bond Hansen tests are applied (Roodman 2006, 2008, 2009).

3.1 Data

For 26 developed and 20 emerging economies, the period of 1999–2014 is observed. The list of the countries is given in Table A.1. There have been 690 observations and in total there are 8280. Data is gathered from IMF, World Bank, OECD and BIS. Foreign Exchange IMF World Development Indicator as of November 2016, interest rates are taken from OECD Economic Outlook as of December 2016, credit-to-GDP deficit is from BIS Statistical Bulletin as of December 2016. The rest of the data is IMF Financial Soundness Indicators as of November 2016. The definitions related to this data are given in Table 1, and the relation of the variables and correlation coefficients in Table 2.

3.2 Results

The banking performance measurement for the equation numbered (1) is analyzed using two-step dynamic panel data. In the case of both the developed and emerging economies, the profit performance is gauged using NIM, ROA ve ROE. The results are given in Tables 3, 4 and 5.

All the results of these diagnostic test results are presented. Wald test models indicate that the significance levels are high. The results of the Sargan tests prove that the independent variables are selected correctly. The models also indicate the residuals of the second level. For this, the Arellano-Bond test is used. The first difference is taken in the model in (AR(1)) and in the second level (AR(2)) prove that the residuals are significant at both levels. All the results are significant with GMM.

In all models, dependent variable lags are significant and bank performances indicate a persistency toward the past. However, persistency levels are different regarding dependent variables. All the equations are tested on NIM, ROA and ROE where persistency is high. In developed economies, persistency is higher than that of emerging economies. NIM as a dependent variable is half to half; however, ROA and ROE indicate lower difference. In emerging economies, ROA and ROE performances especially indicate a persistency to the past. When the whole model is taken into consideration, the dependent variable between 0.11 and 0.38 indicates persistency.

When the whole model is taken into consideration, Therefore, banking crises have a strong effect on bank performance. The crises have a positive effect on NIM and negative on ROA and ROE. During crises, interest rates are observed to have a rise and a fall in the profits.

After the global crises, systemic bank crises are considered to have a credit-to-GDP gap, which primary and secondary models prove are significant and negative. Only in emerging economies is ROA not significant. The increase in systemic risk affects bank performance negatively. This is an expected result.

The relation between nonperforming loans and bank performance has a similar structure with banking crises. In developed economies, ROE is not significant,

Table 1 Descriptive statistics

	NIM	ROA	ROE	Bank Crisis	Credit- to-GDP gap	Z Score	(TA ² /TA)	Security market volatility	Exchange rate volatility	Regul. capital	Non. Per. loans	Boone index	Lerner index
Mean	3.1036	0.8248	9.8224	0.1345	-0.0664	10.4213	71.0256	23.0158	0.0510	13.9261	4.9182	-0.0821	0.1969
Std.Dev.	2.4641	1.2873	18.8698	0.3414	12.6905	6.8879	28.2925	10.7998	0.1186	4.3692	6.0745	0.1434	0.1487
Variance	6.0719	1.6571	356.0701	0.1166	161.0492	47.4432	800.4629	116.6356	0.0141	19.0899	36.9001	0.0206	0.0221
Skewness	2.3179	-1.8397	-8.3627	2.1424	0.1414	0.9933	-1.3624	1.5235	3.3955	0.2558	2.5258	-2.2425	-2.5069
Kurtosis	11.9012	19.6287	125.8185	5.5898	15.2756	4.6253	4.0711	8.9742	15.9980	9.3314	10.1936	11.5379	32.6757

Table 2 Correlation coefficients matrix

	NIM	ROA	ROE	Bank. Crisis	Credit-to-GDP gap	Z Score	(TA ² /TA)	Security market volatility	Exchange rate volatility	Regul. capital	Non-Per. loans	Boone index	Lerner index
NIM	1.0000												
ROA	0.3996	1.0000											
ROE	0.1624	0.6696	1.0000										
Bank. Crisis	-0.0731	-0.3602	-0.3468	1.0000									
Credit-to-GDP Gap	-0.0434	-0.1269	-0.0940	0.1850	1.0000								
Z Score	-0.1206	0.0957	0.1161	-0.1319	-0.0111	1.0000							
(TA ² /TA)	-0.1331	-0.0600	-0.0198	0.0501	0.0510	0.1226	1.0000						
Sec.Mar. Volat.	0.2276	-0.2568	-0.1840	0.2715	0.0859	-0.1510	-0.0880	1.0000					
Exc.Rate Volat.	0.3982	0.2870	0.1173	-0.0974	-0.0385	-0.1596	-0.0408	0.1498	1.0000				
Regul. Capital	0.2053	0.2097	0.0674	-0.0016	-0.0917	-0.1030	0.0232	0.0535	0.4000	1.0000			
Nonperf. Loans	0.1761	-0.3039	-0.3726	0.2310	-0.0466	-0.2660	-0.0717	0.1979	0.0587	0.1199	1.0000		
Boone Index	-0.1075	-0.1568	-0.1228	0.0437	0.0175	-0.0803	-0.0725	0.0074	-0.0986	-0.1027	0.0320	1.0000	
Lerner Index	0.1200	0.2302	0.2614	-0.1348	0.0369	0.0346	0.0592	0.0253	0.0546	0.0149	-0.1406	-0.0343	1.0000

Table 3 System dynamic estimations of bank performance determinants for developed economies

	NIM			ROA			ROE		
	Coef.	Z-Test		Coef.	Z-Test		Coef.	Z-Test	
α	-0.15747	-0.440		0.36210	1.520		0.24553	1.410	
φ_1	0.5550	5.480	***	0.15731	3.220	***	0.23723	9.630	***
β_1	0.1981	1.270		-0.04316	-0.510				
β_2	-0.0063	-3.350	***	-0.00243	-1.200		-0.00472	-2.730	***
β_3	0.0442	2.790	***	-0.08438	-3.180	***	-0.04341	-4.070	***
β_4	-0.0139	-1.320	**	0.05382	3.090	***	0.06619	5.560	***
β_5	-0.0363	-3.630	***	0.00261	0.200				
γ_1	-0.0008	-0.940		-0.00354	-2.060	**	-0.00331	-2.990	***
γ_2	-1.2248	-1.420		0.62562	0.710				
γ_3	1.5649	3.160	***	0.14624	-0.490				
δ_1	0.0188	3.220	***	-0.02593	-5.600	***	-0.03206	-14.490	***
δ_2	0.7997	0.350		6.56683	2.990	***	4.35896	3.190	***
Wald Tests:									
χ^2	1782.76	[0.000]		4025.28	[0.000]		9401.81	[0.000]	
Arellano-Bond Tests:									
Z-Test				Z-Test			Z-Test		
AR(1)	-2.3043	[0.021]		-2.0246	[0.043]		-2.2931	[0.022]	
AR(2)	-1.0844	[0.278]		-1.3546	[0.176]		-1.2719	[0.203]	
Sargan Tests:									
χ^2	18.9403	[1.000]		12.9905	[1.000]		19.6713	[1.000]	
(***) , (**), (*) show significant z-test scores at levels of 1%, 5% and 10%, respectively									

(***) , (**), (*) show significant z-test scores at levels of 1%, 5% and 10%, respectively

Table 4 System dynamic estimations of bank performance determinants for emerging market economies

	NIM			ROA			ROE											
	Coef.	Z-Test		Coef.	Z-Test		Coef.	Z-Test										
α	-1.01021	-0.540		-1.58958	-3.780	***	-1.39741	-2.440	**	-0.87420	-2.740	***	-8.54063	-0.380		5.72128	2.820	***
φ_1	0.24269	3.610	***	0.25973	9.330	***	0.07469	0.580		0.15998	1.950	*	0.060465	2.990	***	0.04032	6.680	***
β_1	0.46619	0.640		1.14788	4.310	***	-1.47863	-1.640	*	-0.03219	-2.540	**	9.52653	1.130				
β_2	-0.05229	-3.020	***	-0.05418	-7.170	***	-0.01997	-1.520					-0.72806	-2.830	***	-0.92973	-6.300	***
β_3	0.00786	0.250					-2.49531	-0.660		-5.28057	-1.900	*	-1.23640	-1.690	*	-0.46450	-3.120	***
β_4	0.04986	0.680		0.07906	2.080	**	0.05128	1.590					0.74332	2.080	**			
β_5	0.10160	1.010		0.16463	6.850	***	-0.03138	-2.150	**	-0.04784	-2.490	**	1.00979	0.860				
γ_1	0.01231	0.640		0.00764	1.900	*	0.00314	0.880		0.00335	2.530	**	0.16703	2.050	**			
γ_2	-4.00304	-0.400					2.65943	1.940	*	2.66742	3.110	***	68.81895	1.280				
γ_3	5.88358	1.350		5.10918	5.480	***	-0.01766	-2.360	**	-0.02341	-2.620	***	14.47330	1.010		31.53532	6.430	***
δ_1	0.00483	0.590					-0.25463	-0.110					-0.01213	-0.070				
δ_2	2.94581	0.680					0.09479	3.010	***	0.10014	3.970	***	-8.45424	-0.310				
Wald Tests:																		
χ^2	1218.80	[0.000]		1072.72	[0.000]		1678.75	[0.000]		492.76	[0.000]		2413.75	[0.000]		585.33	[0.000]	
Arellano-Bond Test:																		
Z-Test				Z-Test			Z-Test			Z-Test			Z-Test			Z-Test		
AR(1)	-1.8909	[0.058]		-1.9477	[0.051]		-1.9586	[0.050]		-2.2603	[0.024]		-1.7835	[0.074]		-1.7012	[0.089]	
AR(2)	1.0942	[0.273]		1.3932	[0.163]		-0.3794	[0.704]		-0.4801	[0.631]		-0.8926	[0.372]		0.0179	[0.985]	
Sargan Tests:																		
χ^2	12.6347	[1.000]		15.3180	[1.000]		7.0839	[1.000]		14.4444	[1.000]		6.017402	[1.000]		14.5689	[1.000]	

(***), (**), (*) show significant z-test scores at levels of 1%, 5% and 10%, respectively.

Table 5 System dynamic estimations of bank performance determinants for whole sample (Developed and emerging market economies)

	NIM			ROA			ROE					
	Coef.	Z-Test		Coef.	Z-Test		Coef.	Z-Test				
α	-1.14847	-6.990	***	-0.51413	-4.410	***	8.57950	3.430	***	6.25213	4.530	***
φ_1	0.38635	64.500	***	0.24652	14.580	***	0.11605	15.230	***	0.11408	23.760	***
β_1	0.15567	2.570	**	-0.27329	-5.440	***	-0.20000	-3.170	***	-4.60421	-9.110	***
β_2	-0.00752	-7.020	***	-0.00791	-4.680	***	-0.00836	-4.990	***	-0.16517	-5.560	***
β_3	0.04110	8.770	***	-0.04006	-10.610	***	-0.03600	-9.530	***	-0.20180	-4.720	***
β_4	-0.03090	-12.150	***	0.04236	6.040	***	0.05289	12.450	***	0.37377	3.040	***
β_5	0.10599	8.670	***	0.04095	8.090	***	0.03762	6.870	***	-0.12170	-1.270	
γ_1	0.00649	9.330	***	0.00505	4.690	***	0.00596	8.750	***	0.02037	1.680	*
γ_2	-1.49043	-6.190	***	-1.78354	-6.050	***	-1.92759	-6.200	***	-21.95234	-2.510	**
γ_3	2.83631	11.930	***	1.06397	3.760	***	1.18934	6.340	***	15.97915	5.050	***
δ_1	0.02310	17.270	***	-0.02170	-18.190	***	-0.02138	-19.700	***	-0.23749	-8.910	***
δ_2	2.36468	6.690	***	0.70540	2.260	**	0.77207	1.940	*	3.24756	0.370	
Wald Tests:												
χ^2	31857.67	[0.000]		4726.28	[0.000]		14467.91	[0.000]		8659.34	[0.000]	
Arellano-Bond Tests:												
Z-Test				Z-Test			Z-Test			Z-Test		
AR(1)	-1.996	[0.046]		-3.0768	[0.002]		-3.1138	[0.002]		-2.6592	[0.008]	
AR(2)	1.0723	[0.284]		-1.2543	[0.209]		-1.2266	[0.220]		-1.1981	[0.231]	
Sargan Test:												
χ^2	39.9414	[1.000]		37.8763	[1.000]		39.4409	[1.000]		38.9488	[1.000]	

(***), (**), (*) show significant z-test scores at levels of 1%, 5% and 10%, respectively.

while in emerging economies NIM is not significant. When there is an increase in interest rates, nonperforming credits indicate an increase. In the same way, the increase in nonperforming loans causes a decline in profitability.

The z-test score reflects bank risk-taking and differs from one model to another. When the risk is taken in order to increase profit and the excess risk taken makes it to come up with a conclusion that there is decline in the profit. In all the models, z score has a negative relation with NIM and a positive relation with ROA and ROE. ROE is observed as insignificant and same in emerging economies as well. In emerging economies NIM has a positive relation.

Capital and bank performance, it is observed to be biased results. In developed countries, as expected, NIM and ROE have negative relation in capital, and in emerging economies, NIM and ROE have negative reactions.

Looking at the Boone indicator and Lerner index provides interesting results. When all models are taken into consideration, the Boone indicator is negative, concentration ratio and Lerner index is positive and significant coefficients. Generally, competition structure influences performance and the concentration performance is affected positively.

The volatilities in asset prices and performance relation are used to analyze stock market volatility and foreign exchange volatility where found as significant. When negative coefficient values are taken, the rise in asset price volatility has a negative effect on bank performance.

4 Conclusion

There is a wide variety of literature analyzing bank performance using bank-based, market-based and macroeconomic variables. In general, the effect of bank performance on financial stability and banking system stability. However, after crises in developed economies many banks failed. In this study, the banking systems of 46 developed and emerging economies are investigated and the stability of the banking performance is analyzed. The analysis is done by using systemic dynamic panel data model.

The results analyze the banking crises and the stability of the system regarding bank performance variables. During crises, interest rates increase and NIM is affected positively, whereas the effect on ROA and ROE is negative. In the beginning, there has been a logical explanation in such relations. Credit-to-GDP gap, nonperforming loans, z-test scores and capital are the variables that influence bank performance. In developed and emerging economies, there are structural differences, and from one model to another it is natural to observe different results. After the global crises, credit-to-GDP gap after the systemic bank crises affect the bank performance negatively.

Under both competitive conditions and asset pricing volatility, bank performance is influenced negatively. The competitive structure of the banking system ensures that system stability has an important effect. Consequently, independent variables affect stability performance. The asset price performance effect is the inevitable result. For this reason, it is important to take this into consideration for further studies.

Appendix

Table A.1 Countries in sample

Panel A–Developed countries		Panel B–Emerging countries	
Australia	Italy	Argentina	Romania
Austria	Japan	Brazil	Russian Federation
Belgium	Korea, Rep.	Bulgaria	South Africa
Canada	Netherlands	Chile	Thailand
Denmark	New Zealand	China	Turkey
Estonia	Norway	Czech Republic	Ukraine
Finland	Portugal	Greece	Venezuela, RB
France	Slovak Republic	Hungary	
Germany	Spain	India	
Hong Kong SAR, China	Sweden	Indonesia	
Iceland	Switzerland	Malaysia	
Ireland	United Kingdom	Mexico	
Israel	United States	Poland	

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