



# Bank ownership around the world

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## ABSTRACT

This paper describes a dataset on bank ownership that covers more than 6,500 banks in 181 countries. It documents that until 2010, there was a reduction in state-ownership of banks and an increase in foreign ownership. However, the Global Financial Crisis interrupted or reversed these trends. I show that at the country level, there is no robust relationship between bank ownership and each of GDP growth and financial depth. Bank-level regressions show that state-owned banks are less profitable and have a higher share of non-performing loans than their private (domestic or foreign) counterparts. There is also evidence that state-owned banks stabilize credit in the presence of domestic shocks (more so in the presence of positive shocks). Instead, foreign banks amplify external shocks. In terms of domestic shocks, foreign banks are not significantly different from their domestic private counterparts.

## 1. Introduction

This paper describes a novel dataset on bank ownership covering more than 6500 banks in 181 countries over 1995–2020. For each bank-year included in the sample, it codes which fraction of the bank is owned by the government or foreign entities. The paper uses both bank-level data and country-level data to study the relationship between bank ownership and each of economic growth and financial depth, the relationship between bank ownership and bank performance, and the role of bank ownership in the transmission of domestic and international macroeconomic shocks.

The late 1980s and early 1990s were characterized by a sea change in the consensus view on the benefits of financial globalization and the role of the state in finance. Policy reforms based on this emerging consensus resulted in significant changes in bank ownership across both developed and developing economies. Privatization led to a reduction of the role of the state in the financial sector and more open capital markets led to an increase in the share of banks owned by foreigners. In high-income

economies, the share of state-owned banks decreased from 15% in 1995 to 6% in 2008. Over the same period, the share of foreign banks increased from 19% to 34%.<sup>1</sup> In emerging and developing economies, state ownership of banks decreased from 24% in 1995 to 14% in 2015 and foreign ownership increased from 24% in 1995 to 38% in 2010.

These trends were interrupted or reversed by the Global Financial Crisis (GFC). In the aftermath of the GFC, bank nationalization led to an increase of state ownership which, in advanced economies, peaked at 9% in 2014. It then decreased again, reaching 5% in 2020. The presence of foreign banks, instead, remained stable around 32–33% over 2009–2020. In developing and emerging economies, the presence of state-owned banks increased slightly to 15–16% over 2016–2020. The share of foreign banks hovered around 38% over 2010–2013 and then decreased to 36% over 2013–20.

There are different views on the costs and benefits of foreign-owned and state-owned banks. On the one hand, entry of foreign-owned banks can bring new technology, risk management techniques, political independence, and foster competition and efficiency. [Levine \(1996\)](#)

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<sup>1</sup> These are simple cross-country averages using the SOE1 and FOR1 measures of ownership described in [Section 2](#). I focus on 2008 and (below) 2010 and 2015 because these were the year though and peak years in the trends in bank ownership discussed here.

highlights three channels through which foreign banks can ameliorate financial frictions and improve financial development: (i) competition that spurs domestic banks to cut costs and improve quality; (ii) incentives for better auditing and rating institutions; and (iii) pressure on governments to enhance regulation and supervision. These potential benefits are particularly important in low-income economies that tend to have underdeveloped domestic banking sectors (Goldberg, 2004). Thanks to diversification, foreign banks are also likely to be less sensitive to local shocks (Galindo et al., 2005). On the other hand, foreign-owned banks might be poorly suited to processing soft information and reduce access to finance for small and opaque firms that operate in poor countries (Detragiache et al., 2008). Moreover, foreign banks can act as propagators of external financial shocks (IMF, 2009 and Adams-Kane et al., 2017).

The debate on the role of state-owned banks is even more heated than that on the role of foreign banks (for surveys, see La Porta et al., 2002 and Levy Yeyati et al., 2007). While state-owned banks can play a key role in addressing market failures and promoting economic growth (this is the social or development view; see Gerschenkron, 1962), agency costs and political failures can lead to inefficiencies and resource misallocation (Shleifer and Vishny, 1994, World Bank, 2001, Kornai, 1979).

The empirical literature on the effects of foreign and government ownership of banks is vast. Here, I only mention a few papers that are closely related to my analysis (for a survey, see Cull et al. 2018). La Porta et al. (2002) built a country-level dataset on state ownership of banks that goes back to 1970 and, using a cross-section of countries, showed that state ownership is associated with lower future financial depth and GDP growth. To address the fact that the results of La Porta et al. (2002) could be affected by the presence of unobserved factors that are jointly correlated with state ownership of banks and the outcome of interest, Levy Yeyati et al. (2007) control for country fixed effects and find a weak positive relationship between state-ownership and financial depth. In Panizza (2023), I use a longer sample and find no robust correlation between state-ownership of banks and either growth or financial depth.

In this paper, I jointly control for government and foreign ownership of banks. When I do not include fixed effects, I find a positive conditional correlation between state-ownership and economic growth and no significant correlation between foreign ownership and growth. However, regressions that include country effects show that state-ownership is no longer significantly correlated with growth and that foreign ownership is significantly and positively correlated with growth in the sample of emerging economies. The finding that the presence of foreign bank is positively correlated with growth is consistent with the results of Bruno and Hauswald (2014) who study a sample of 81 advanced and emerging economies and Schnabel and Seckinger (2019) who focus on European banks. When I look at financial depth, I find that there is no robust correlation between state ownership and credit to the private sector, but in developing economies there appear to be a negative (albeit not robust) correlation between foreign ownership and financial depth.

There is a consensus in the literature that state-owned banks are less profitable than private banks (see Cull et al., 2018). My bank-level results provide additional evidence in this direction. I show that differences in profitability are probably driven by a riskier debt portfolio and higher non-interest costs (especially personnel expenses. Instead, there are no significant differences in net interest margins. In fact, state-owned banks tend to have higher margins, driven by their lower funding costs, which are not fully passed on to clients.

Evidence on the relative profitability of foreign banks is mixed. In advanced economies, foreign banks are less profitable than domestic banks (Berger et al., 2000; Claessens et al., 2001) but the opposite is true in developing economies (Demirgüç-Kunt, and Huizinga, 1999, and

Micco et al. 2007).<sup>2</sup> I do not find any difference between the profitability of foreign banks and domestic private banks in either advanced or developing economies. I also find no difference between the share of non-performing loans of foreign and domestic private banks.

I jointly test for the role of domestic and foreign banks in amplifying or stabilizing domestic and foreign shocks. My results are consistent with the existing evidence that state-owned banks contribute to stabilizing domestic shocks and that foreign-owned banks amplify external shocks (on the latter, see Morais et al., 2019, who use proprietary loan-level, Mexican data).<sup>3</sup> However, I do not find that foreign banks contribute to stabilizing domestic real or financial shocks: the coefficients often go in the right direction but they are never statistically significant.

## 2. Data and trends

This section provides a concise overview of the bank-level and country-level databases, highlighting the primary trends in state and foreign ownership. Table 1 defines the variables utilized in the analysis and specifies their sources. Additional details on the dataset construction are available in Appendix A1.

Table 2 reports summary statistics for return on assets, non-performing loans as a share of total loans, net interest margin, interest expenditure, interest income, total assets, and personnel expenses over income (all ratios are Winsorized at 99%). The top panel uses data for all countries and the other three panels separate countries across income groups. For this table, I code as state-owned all the banks which have a state-ownership of at least 50% and as foreign-owned all the banks with a foreign ownership of at least 50% and I do not include development banks.<sup>4</sup>

A comparison of the three groups of banks for the full sample of countries shows that the average state-owned bank is more than twice as large as the average bank, and it is slightly less profitable (average ROA is 0.88 versus 0.83 in state-owned banks). State-owned banks also have a higher share of non-performing loans (9.4% versus 6.5%), a slightly higher net interest margin (3.9 versus 3.8), higher interest expenses (5 versus 3.7), and lower personnel cost as share of total income (18.6 versus 20).<sup>5</sup> Foreign-owned banks, instead, tend to be smaller than the typical bank and have higher profitability and net interest margins. They also have higher non-performing loans than private domestic banks (but lower than state-owned banks). Most of these patterns are unchanged if we focus on banks in advanced and middle-income economies. One exception is that in these groups of countries state-owned banks have lower net interest margins than the average bank (1.9 versus 2.5 in advanced economies and 4.8 versus 5.5 in middle income economies). Also, the difference between the share of non-performing loans in state-owned banks and private domestic banks is much larger (15% versus 10%) in low-income economies.

After coding ownership at the bank-level, I build country-year-level indicators of bank ownership. I follow La Porta et al. (2002) and calculate the country-year percentage of state ownership by weighting the assets of each bank by the share of government ownership in a specific bank-year and then dividing by total banking assets in the same

<sup>2</sup> Claessens and Van Horen (2012) show that this heterogeneity depends on both bank and country characteristics.

<sup>3</sup> There is, however, substantial heterogeneity. For a detailed discussion of the role of global banks in the transmission of international shocks, see Buch and Goldberg (2020).

<sup>4</sup> The results are similar if I define ownership using a 20% threshold. Table A1 in the Appendix provides the full list of countries included in the sample and the definition of country groups used throughout the paper.

<sup>5</sup> This is probably because of economies of scale. When we control for bank characteristics, we find that personnel expenses are higher in state-owned banks.

**Table 1**  
Variable Definitions and Sources.

Variable	Definition and sources
ROA	Bank-level return on assets (in%). Source Bankscope and Fitch Connect
Total Assets	Bank-level total assets in constant 217 USD. Source Bankscope and Fitch Connect
NPL/Loans	Non-performing loans over gross loans (in%). Source Bankscope and Fitch Connect
Net Int. Margin	(Investment Income – Interest Expenses) / Average Earning Assets (in%). Source Bankscope and Fitch Connect
Inter. Income	Interest income over average earning assets (in%). Source Bankscope and Fitch Connect
Inter. Expenses	Interest expenses over average interest-bearing liabilities (in%). Source Bankscope and Fitch Connect
Equity/Assets	Total equity over assets (in%). Source Bankscope and Fitch Connect
Liquid Assets /Deposits & ST Funds	Liquid assets over deposits and short-term funding (in %). Source Bankscope and Fitch Connect
Personnel expenses over income	Total personnel expenses over total income (in%). Source Bankscope and Fitch Connect
Growth	Country-year-level real GDP per capita growth (in%). Source IMF WEO and World Bank World Development indicators
EDU	Country-year-level average years of education (the original data are reported at 10-year intervals, the data used in the paper interpolate the original data to build annual data). Source Barro and Lee (2013)
Gov. Cons.	Country-year-level government consumption over GDP. Source World Bank World Development Indicators
Open	Country-year-level trade openness defined as import+exports over GDP (in%) Source World Bank World Development Indicators
Credit to Priv Sector	Country-year-level credit to the private sector over GDP (in%) Source World Bank World Development Indicators
GDP PC	Country-year-level GDP per capita in constant 2017 USD. Source IMF WEO and World Bank World Development indicators
Inflation	Country-year-level inflation (in%). Source IMF WEO and World Bank World Development indicators
Common Law	Dummy that takes value one for countries with common law legal origin. Source La Porta et al. (1998)
German Law	Dummy that takes value one for countries with German legal origin. Source La Porta et al. (1998)
Scandinavian Law	Dummy that takes value one for countries with Scandinavian legal origin. Source La Porta et al. (1998)
Social Law	Dummy that takes value one for countries with Socialist legal origin. Source La Porta et al. (1998)
French Law	Dummy that takes value one for countries with French legal origin. Source La Porta et al. (1998)

country-year. Formally, government ownership in country  $i$ , year  $t$  is given by:

$$SOE_{i,t} = \frac{\sum_{b=1}^B g_{b,t} A_{b,t}}{\sum_{b=1}^B A_{b,t}} \quad (1)$$

where  $g_{b,t}$  is the share of government ownership of bank  $b$  in year  $t$ ,  $A_{b,t}$  are the assets of bank  $b$  in year  $t$ , and  $B$  is the number of banks in country  $i$ , year  $t$ .

Similarly, foreign ownership is given by:

$$FOR_{i,t} = \frac{\sum_{b=1}^B f_{b,t} A_{b,t}}{\sum_{b=1}^B A_{b,t}} \quad (2)$$

where  $f_{b,t}$  is the share of foreign ownership of bank  $b$  in year  $t$  and all other variables are as in Eq. (1).<sup>6</sup>

The top panel of Table 3 shows the distribution of state and foreign ownership in different country groups.<sup>7</sup> State ownership of banks tends to be more prevalent in developing economies. In advanced economies, the state owns about 8% of bank assets, in middle-income economies state ownership is 20%, and in low-income economies is 17%. Among emerging and developing regions, state-ownership is particularly large in South Asia (47%) and in East Asia and Pacific (29%). Sub-Saharan Africa and Latin America and the Caribbean, instead, have relatively low levels of state-ownership. There is also substantial dispersion in state ownership within regions and over time (Fig. 1).

Advanced economies have lower foreign ownership shares than emerging and developing economies. Within the group of emerging and developing economies, low-income economies have the highest share of foreign bank assets (38% versus 29% in middle-income economies). Looking across geographical regions, foreign-owned banks are particularly important in Eastern Europe and Central Asia and in Sub-Saharan Africa (Table 2). Foreign ownership has increased in all income groups and geographical regions, including regions that started with a limited presence of foreign-owned banks, such as East Asia, South Asia, and Latin America and the Caribbean (Fig. 2).

### 3. Bank ownership and GDP growth

According to the development view, state-owned banks should promote economic growth by mitigating market failures and financing projects with high social returns. However, state-owned banks may end up having a negative impact on growth because of agency costs or political failures. There are also potential costs and benefits related to the presence of foreign banks. On the one hand, the entry of foreign banks can promote growth by improving the working of the domestic financial system. On the other hand, foreign banks could crowd out domestic institutions and reduce credit to small and medium enterprises.

What do the data say? As mentioned in the introduction, existing work that focuses on state-ownership of banks yields mixed results. To probe further, I estimate the following model:

$$GR_{i,t/(t-5)} = \beta_1 y_{i,t-5} + \beta_2 SOE_{i,t-5} + \beta_3 FOR_{i,t-5} + X_{i,t-5} B + \theta_i + \tau_t + \varepsilon_{i,t} \quad (3)$$

Where  $GR_{i,t/(t-5)}$  is the growth rate of real income per capita of country  $i$  between year  $t - 5$  and year  $t$ ,  $y_{i,t-5}$  is the log of initial income per capita,  $SOE_{i,t-5}$  and  $FOR_{i,t-5}$  measure state and foreign ownership,  $X_{i,t-5}$  is a matrix of controls that includes, as it is standard in the finance and growth literature (see, for instance, Beck and Levine, 2004), the log of credit to the private sector over GDP, the log of average years of education of the adult population, the log of government consumption over GDP, the log of trade openness, and the log of 1+inflation,  $\theta_i$  are country fixed effects and  $\tau_t$  are time fixed effects. I also estimate the model without country fixed effects but I always include time fixed effects (the results are essentially identical if time fixed effects are not included).

To avoid choosing an arbitrary starting point, I estimate Eq. (3) by including all possible five-year spells. As the presence of overlapping five-year spells creates MA(4) errors even if the original errors are *i.i.d.*, I cluster the standard errors by country. This procedure corrects for

<sup>6</sup> I also build indexes which assume that certain ownership thresholds (I experiment with both 20% and 50% give full control) and indexes that include development banks. However, I do not use any of these indexes in this paper. The country-year dataset of bank ownership which also includes these indicators is available at <https://www.upanizza.com/general-4>

<sup>7</sup> The bottom panel of the Table reports summary statistics for all country-level variables used in the analysis. For the variables used in log, the Table also reports the mean and the standard deviation of the logged variable.

**Table 2**  
Bank-level Summary statistics.

	N. Obs.	Mean	Std. dev.	Min.	Max	N. Obs.	Mean	Std. dev.	Min.	Max	N. Obs.	Mean	Std. dev.	Min.	Max
	All Banks					State-Owned Banks					Foreign Owned Banks				
All Countries															
ROA (%)	92,083	0.881	2.03	−14.8	14.8	7355	0.827	2.057	−14.7	14.8	21,927	0.997	2.368	−14.9	13.9
Total Assets	95,365	19,935	116,761	0.02	4838,932	9386	43,921	226,673	0.05	4838,932	22,347	6694	30,003	0.02	4838,932
NPL/Loans (%)	58,448	6.471	10.538	0	100	5015	9.386	12.412	0	100	13,399	7.946	12.263	0	100
Net Int. Margin (%)	87,428	3.848	3.518	−25	25	8715	3.934	3.832	−23.26	24.85	20,068	4.448	3.858	−23.2	25
Inter. Income (%)	87,143	7.561	5.912	0	41.97	8690	8.606	5.812	0	41.93	19,993	8.234	6.086	0	41.89
Inter. Expenses (%)	86,202	3.895	3.753	0	29.93	8569	5.04	3.826	0	29.45	19,808	3.919	3.601	0	29.93
Pers. Exp/Income (%)	67,921	20.14	11.22	0	100	4341	18.63	10.47	0	99.6	15,953	20.02	12.51	0	100
Advanced Economies															
ROA (%)	54,109	0.63	1.56	−14.95	14.9	2193	0.5	1.58	−14.58	13.38	9457	0.71	1.93	−14.89	14.86
Total Assets	55,559	25,694	118,297	0.02	3743,567	3069	39,131	83,679	0.03	234,902	9626	12,455	43,886	0.02	791,536
NPL/Loans (%)	30,836	4.61	7.92	0	100	1252	7.4	10.41	0	100	4422	6.88	10.76	0	100
Net Int. Margin (%)	51,527	2.53	2.07	−25	24.9	2909	1.95	2.08	−16.94	23.64	8625	2.57	2.54	−17.71	24.9
Inter. Income (%)	51,441	4.94	3.45	0	41.23	2919	4.99	3.71	0	36.54	8611	5.35	4.17	0	41.23
Inter. Expenses (%)	50,637	2.61	2.46	0	29.86	2802	3.52	3	0	29.54	8408	3.04	2.89	0	29.86
Pers. Exp/Income (%)	41,753	21.58	11.36	0	100	1310	18.13	9.31	0	97.16	7017	20.47	13.71	0	100
Middle Income Economies															
ROA (%)	29,255	1.17	2.49	−14.97	14.96	4167	0.95	2.13	−14.69	13.84	9034	1.09	2.5	−14.97	14.97
Total Assets	30,763	15,066	129,602	0.07	4838,932	5109	56,485	299,354	0.924	4838,932	9226	3055	10,397	0.07	250,282
NPL/Loans (%)	21,414	8.09	12.31	0	100	3127	9.06	11.83	0	95.79	6555	8.2	13.08	0	100
Net Int. Margin (%)	27,854	5.47	4.18	−23.6	25	4741	4.79	3.96	−23.26	24.85	8377	5.32	3.85	−23.2	25
Inter. Income (%)	27,733	11.25	6.83	0	41.97	4707	10.52	5.9	0	41.93	8333	10.04	6.45	0	41.89
Inter. Expenses (%)	27,536	5.97	4.6	0	29.87	4701	6.1	4.11	0	28.87	8302	4.82	4.11	0	29.87
Pers. Exp/Income (%)	20,358	17.50	10.65	0	99.9	2452	18.61	10.94	0	98.7	6625	18.90	11.53	0	98.8
Low Income Economies															
ROA (%)	8719	1.49	2.59	−14.86	14.78	995	1.02	2.54	−14.35	14.76	3436	1.55	2.92	−14.86	14.36
Total Assets	9043	1117	3832	3.32	76,126	1208	2955	8040	5.47	76,126	3495	430	711	3.32	10,448
NPL/Loans (%)	6198	10.17	13.09	0	100	636	14.89	16.59	0	98.18	2422	9.21	12.41	0	100
Net Int. Margin (%)	8047	6.67	4.3	−17.39	24.96	1065	5.56	4.7	−5.84	24.03	3066	7.35	4.27	−9.1	24.84
Inter. Income (%)	7969	11.61	5.9	0	41.77	1064	10.04	5.49	0.09	39.09	3049	11.45	6.1	0	41.54
Inter. Expenses (%)	8029	4.88	3.77	0	29.93	1066	4.37	2.87	0	20.24	3098	3.86	3.27	0	29.93
Pers. Exp/Income (%)	5810	19.06	10.36	0	95.4	579	21.90	10.77	1.99	72.74	2311	21.87	10.99	2.45	85.61

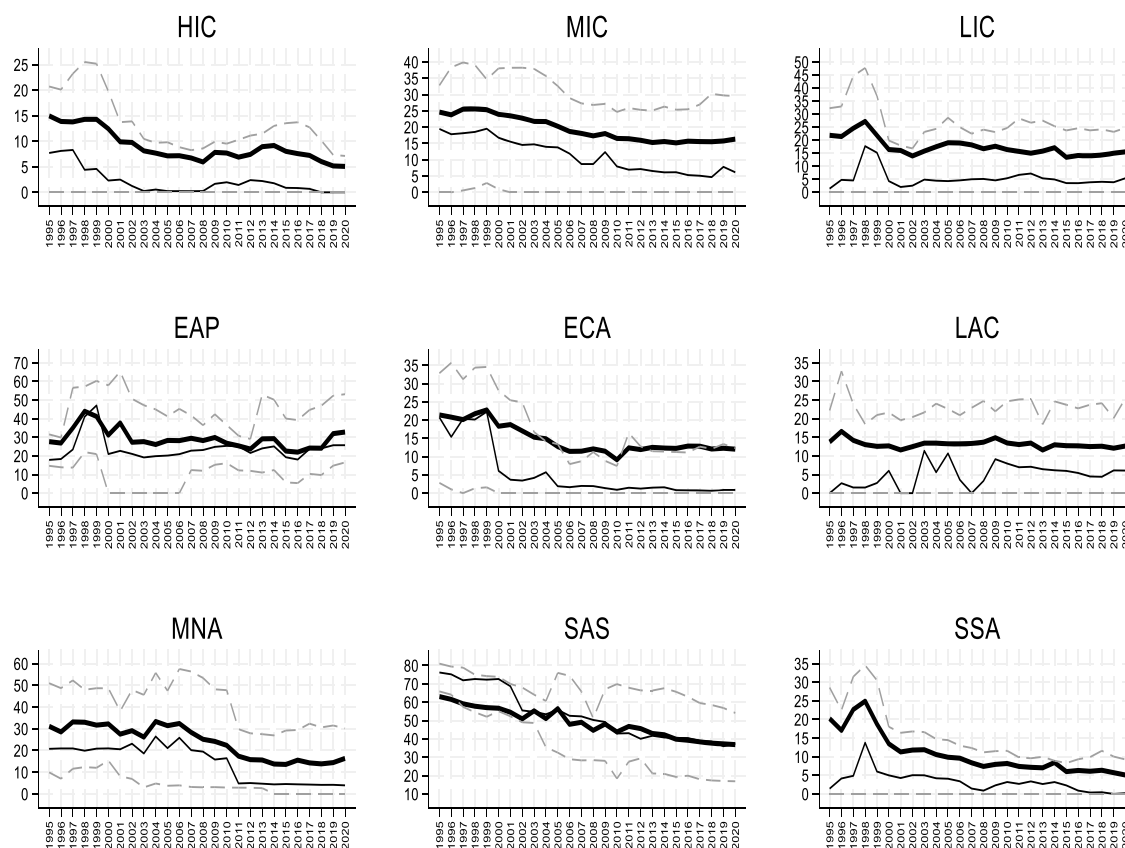
**Table 3**  
Bank Ownership by Country Group and Summary statistics of country-level variables.

Ownership of Banks by Country Groups (%)											
	All		AE		MIC		LIC		EAP		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
SOE	15.3	21.3	7.7	12.6	19.1	22.5	17.3	24.6	28.6	24.2	
FOR	31.8	28.7	20.4	25.1	28.8	28.8	38.2	23.9	20.4	23.9	
	ECA		LAC		MNA		SAS		SSA		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
SOE	14.5	22.3	13.1	16.8	23.2	24.3	47.1	24.3	10.4	17.8	
FOR	50.4	28.9	25.6	22.7	19.2	22.2	13.7	14.5	45.5	27.9	

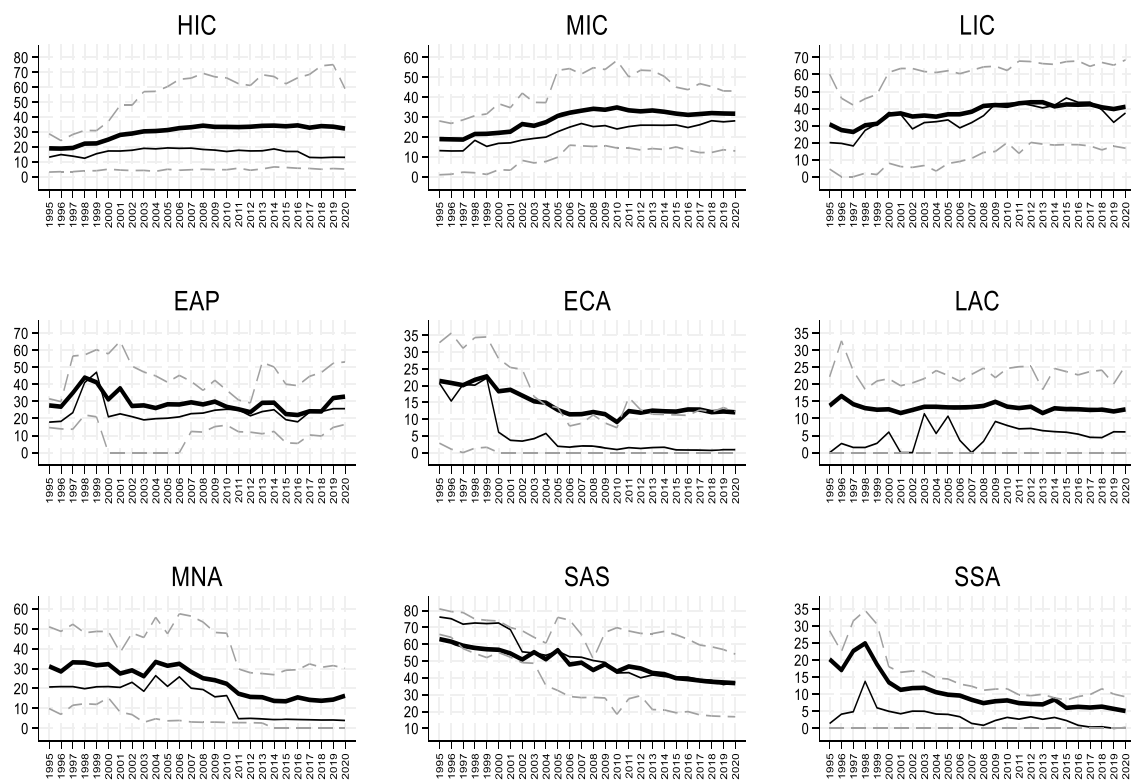
Summary statistics for Country-level variables											
	N. Obs	Mean		St.Dev		Min		Max			
		Level	Log*	Level	Log*	Level	Log*				
SOE (%)	3266	15.3		21.3		0.00		91.2			
FOR (%)	3266	31.8		28.7		0.00		100			
Growth (%)	2777	2.08		2.57		-14.7		12.9			
EDU (Years)	2777	8.08	2.00	2.85	0.46	1.0		13.2			
Government Consumption/GDP (%)	2777	15.51	2.68	5.56	0.37	2.1		50.9			
Openness (%)	2777	85.04	4.27	58.27	0.59	0.8		441.4			
Credit to the Private Sector/GDP (%)	3264	49.25	3.53	41.92	0.96	0.19		304.6			
GDP PC (USD)	3264	20,752	9.27	21,049	1.18	502.7		12,571			
Inflation (%)	3264	7.39	1.37	30.23	1.02	1.00		1053.7			
Common Law (share of total)	3264	0.311		0.463		0.00		1.00			
German Law (share of total)	3264	0.503		0.289		0.00		1.00			
Scandinavian Law (share of total)	3264	0.046		0.209		0.00		1.00			
Socialist Law (share of total)	3264	0.099		0.299		0.00		1.00			
French Law (share of total)	3264	0.421		0.494		0.00		1.00			

\* The column reports mean/standard deviation of the log of the variable.



**Fig. 1.** Evolution of State-Ownership by Income Groups and Regions.

This figure plots the average (thick solid line), median (thin solid line) and the interquartile range (dashed lines) of the share of state-owned banks (as measured by SOE) in high income (HIC), middle-income (MIC) and low-income (LIC) economies and in East Asia and Pacific (EAP), East Europe and Central Asia (ECA), Latin America and Caribbean (LAC), Middle East and North Africa (MNA), South Asia (SAS), and Sub-Saharan Africa (SSA).



**Fig. 2.** Evolution of Foreign-Ownership by Income Groups and Regions.

This figure plots the average (thick solid line), median (thin solid line) and the interquartile range (dashed lines) of the share of foreign-owned banks (as measured by FOR) in high income (HIC), middle-income (MIC) and low-income (LIC) economies and in East Asia and Pacific (EAP), East Europe and Central Asia (ECA), Latin America and Caribbean (LAC), Middle East and North Africa (MNA), South Asia (SAS), and Sub-Saharan Africa (SSA).

**Table 4**

**GDP Growth and Bank Ownership.** This table reports a set of regressions where the dependent variable is annual real per capita GDP growth over a five-year period and the explanatory variables the lagged values of the share of state-owned banks (SOE) and the share of foreign-owned banks (FOR), the log of initial GDP ( $y$ ), the log of lagged credit to private sector over GDP (PC), the log of the lagged level of education (EDU), the log of lagged government consumption over GDP (Gov Cons), the lag of the log of trade openness (Open), and the lag of log inflation (Infl).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$y_{t-5}$	-0.929*** (0.309)	-2.238*** (0.588)	-0.769** (0.370)	-1.763*** (0.450)	-0.165 (0.528)	-5.923*** (1.004)	-8.117*** (2.079)	-5.579*** (1.030)	-4.757*** (1.150)	-5.884*** (1.465)
$SOE_{t-5}$	2.829*** (0.766)	1.492 (1.138)	2.725*** (0.887)	2.069* (1.067)	3.051*** (0.910)	0.947 (0.730)	1.459 (1.467)	0.438 (0.714)	-0.214 (1.048)	-0.746 (0.933)
$FOR_{t-5}$	0.968* (0.503)	-0.937* (0.533)	1.489** (0.717)	1.446* (0.826)	1.918* (1.133)	1.680** (0.733)	0.682 (1.013)	2.105*** (0.793)	3.183*** (0.969)	-0.019 (1.295)
$PC_{t-5}$	0.149 (0.243)	-0.662*** (0.239)	0.424 (0.324)	0.214 (0.417)	0.300 (0.355)	-0.768*** (0.272)	-0.527* (0.265)	-0.682* (0.371)	-0.938** (0.411)	-0.474 (0.656)
$EDU_{t-5}$	1.903*** (0.610)	3.369*** (0.787)	1.420* (0.721)	2.450** (1.033)	0.017 (0.777)	1.936 (1.495)	0.749 (3.333)	0.319 (1.631)	0.096 (2.453)	-2.417 (2.384)
$Gov\ Cons_{t-5}$	-1.034*** (0.366)	-0.357 (0.651)	-1.381*** (0.412)	-0.843** (0.409)	-1.953*** (0.622)	0.078 (0.567)	1.962 (1.196)	-0.152 (0.555)	0.866 (0.819)	-0.890 (0.666)
$Open_{t-5}$	0.462** (0.216)	1.258*** (0.295)	0.318 (0.341)	0.163 (0.458)	0.649 (0.488)	0.950** (0.455)	3.029*** (1.024)	0.515 (0.546)	0.538 (1.154)	0.478 (0.555)
$Infl_{t-5}$	-0.225 (0.146)	-0.757*** (0.239)	-0.074 (0.168)	-0.150 (0.202)	0.015 (0.233)	-0.288*** (0.093)	-0.815*** (0.216)	-0.094 (0.079)	-0.167 (0.113)	-0.059 (0.116)
Const.	6.654*** (1.676)	16.230*** (5.690)	6.384*** (2.343)	13.956*** (3.362)	3.506 (3.923)					
N. Obs	2371	770	1517	934	583	2371	770	1516	934	582
R2	0.241	0.513	0.234	0.342	0.241	0.651	0.725	0.669	0.680	0.723
Countries	127	44	83	47	36	127	44	83	47	36
Country FE	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	AE	EMDE	MIC	LIC	All	AE	EMDE	MIC	LIC

Robust standard errors clustered at the country level in parentheses;

\*\*\*  $p < 0.01$ .

\*\*  $p < 0.05$ .

\*  $p < 0.1$ .

arbitrary departures from independence within each country.

Note that it is difficult to establish whether there is a causal relationship between bank ownership and economic growth. For instance, a negative relationship between state-ownership of banks and economic growth could be consistent with both theories that suggest that state-owned banks are particularly useful in countries with pervasive market and institutional failures and theories that suggest that state ownership of banks is the source of such failures (Rodrik, 2012). Similarly, a positive correlation between economic growth and foreign ownership of banks could be driven by the fact that foreign banks decide to locate in countries with good growth prospects. A negative correlation between foreign ownership and economic growth could instead be driven by the fact that foreign banks decide to settle in countries with poorly working financial sector to exploit their competitive advantage with respect to local banks.

I partly address these issues by including a rich set of controls and country fixed effects that capture time-invariant factors that are jointly correlated with bank ownership and economic growth. However, I am aware that I cannot solve the endogeneity problem described above.

I start by estimating Eq. (3) without including country fixed effects for the full sample of countries (Column 1 of Table 4) and then for different sub-samples (columns 2–5 of Table 4). I find that state ownership of banks is positively correlated with economic growth in the next five years and that the coefficient is statistically significant in the full sample and in the samples that only include developing economies (columns 3–5; the coefficient is positive but not statistically significant in high-income economies, column 2). In developing economies, foreign ownership of banks is generally positively associated with growth and the coefficient is statistically significant at the 10% level. In high-income economies, the correlation between foreign ownership and growth is negative and statistically significant at the 10% confidence level.<sup>8</sup>

The results are different for the models that include country and time fixed effects (columns 6–10 of Table 4). The correlation between state ownership and growth remains positive but not statistically significant for the full sample, for advanced economies, and for emerging and developing economies (columns 6–8). It is, instead, negative but not statistically significant for middle income economies and low-income economies (columns 9 and 10). The correlation between foreign ownership and growth, instead, becomes positive for all subgroup of countries, and statistically significant for all emerging and developing economies for the sample of middle-income economies.

The fact that the correlation between state-ownership and successive growth remains positive but is no longer significant when I control for country and time fixed effects is somewhat puzzling. If state-owned banks are present in countries with time-invariant non-observable (to the econometrician) deep institutional failures, we expect that implicitly controlling for these failures should amplify the positive coefficient of state-owned banks found in the regression without fixed effects.<sup>9</sup>

There are two explanations for this result. The first is that state-owned banks are more likely to operate in countries with a better institutional framework. This view, is however, in contrast with the fact

<sup>8</sup> All other coefficients are as expected. Initial income, government consumption, and inflation are negatively correlated with growth and education and openness are positively correlated with growth. The only exception is credit to the private sector, which is rarely statistically significant and, when statistically significant, it is negatively correlated with growth (see column 2). For a discussion of the evolving correlation between credit to the private sector and GDP growth see Arcand et al. (2015).

<sup>9</sup> This argument comes from the standard omitted variable bias formula. Assume that the true model is:  $GR = \alpha + \beta SOE + \gamma X + u$  and that  $X$  is an unobservable institutional (failure) variable measure which is negatively associated with growth ( $\gamma < 0$ ) and positively correlated with state-ownership. If we estimate  $GR = \alpha + \beta SOE + u$ , we get that:  $\hat{\beta} = \beta + \gamma \frac{Cov(SOE, X)}{Var(SOE)}$ . Since  $Cov(SOE, X) > 0$ , we have  $\gamma \frac{Cov(SOE, X)}{Var(SOE)} < 0$  and  $\hat{\beta} < \beta$ .

that state ownership is negatively correlated with institutional quality. Another possibility is related to the fact that the ownership variables tend to have limited within-country variation and the inclusion of fixed effects leads to imprecise estimates of their correlation with growth (see Barro, 2015). Be as it may, panel data show no indication of the negative correlation between state-ownership of banks and growth found in studies that only use cross sectional data.

#### 4. Bank ownership and financial depth

Because of their intertemporal nature, financial contracts tend to be more information sensitive than spot transactions. Asymmetric information can lead to market failures that reduce the profitability of lending to small and informationally opaque borrowers. These imperfections are a standard justification for government intervention in financial markets.<sup>10</sup> Informational failures are also important for the role of foreign-owned banks. While foreign banks that operate in poor countries can benefit from economies of scale and better risk management technology, they may suffer from less local knowledge and be in a worse position when they need to assess soft information which are necessary to evaluate informationally opaque small firms (Detragiache et al., 2008).

To explore the conditional correlation between bank-ownership and financial depth, I estimate the following model:

$$PC_{i,t} = \beta_1 y_{i,t-5} + \beta_2 SOE_{i,t-5} + \beta_3 FOR_{i,t-5} + X_{i,t-5} B + \theta_i + \tau_t + \varepsilon_{i,t} \quad (4)$$

Where  $PC_{i,t}$  is credit to the private sector over GDP in country  $i$  year  $t$ ,  $y_{i,t-5}$  and the other variables are as in Eq. (3). The matrix of controls  $X_{i,t-5}$  includes log inflation and, when I do not include fixed effects, four dummies that track the country legal origin (French legal origin is the excluded group).

When I do not include country fixed effects, I find that the correlation between state ownership and credit to the private sector is positive for the emerging and developing economies and positive and statistically significant for low-income economies. It is instead negative but not significant for high-income economies (columns 1–5 of Table 5). The correlation between foreign ownership and credit to the private sector is always negative but only statistically significant in the full sample (at the 10% confidence level) and in the sample that includes all developing and emerging economies (in this case at the 5% confidence level, see Column 3 of Table 5). When I control for country and time fixed effects, the correlation between state ownership and credit to the private sector becomes negative and statistically significant for the full sample (column 6) and negative and insignificant for all other country groups. The correlation with foreign ownership, instead, is always negative but only statistically significant (at the 10% confidence level) in the advanced economies sample.

Summing up, while previous work which uses older data and focuses on the cross-sectional correlation between state ownership and financial depth found a strong negative correlation between state-ownership of banks and each of financial depth and economic growth, more recent data do not fully support the view that “state ownership tends to stunt financial sector development, thereby contributing to slower growth.” (World Bank, 2001 p. 123).

#### 5. Bank ownership and performance

In this section, I use bank-level data to analyze the correlation between ownership and bank performance in terms of profitability (measured with returns on assets), non-performing loans (scaled by total gross loans), and net interest margin. All regressions take the following

<sup>10</sup> Another standard justification for government intervention in the financial sector is that private banks may not finance projects with a high social return if the projects are perceived to be too risky (Fernández Arias et al., 2020).

**Table 5**

Credit to the private Sector and Bank Ownership. This table reports a set of regressions where the dependent variable is credit to the private sector and the explanatory variables are the lagged values of the share of state-owned banks (SOE) and the share of foreign-owned banks (FOR), the log of initial GDP (y), the lag of log inflation (Infl), and a set of dummies controlling for English, German, Scandinavian, and socialist legal origin.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
SOE <sub>t-5</sub>	2.963 (10.879)	-31.085 (34.109)	12.765 (10.840)	16.860 (16.484)	15.799** (7.606)	-16.556** (8.244)	-40.491 (26.789)	-3.445 (4.470)	-3.640 (7.134)	-2.969 (5.147)
FOR <sub>t-5</sub>	-14.565* (8.479)	-27.270 (20.130)	-13.705** (5.961)	-9.332 (9.249)	-9.490 (7.496)	-10.884* (6.434)	-28.579* (15.433)	-2.866 (4.673)	-2.780 (6.242)	-4.603 (6.905)
Y <sub>t-5</sub>	7.908*** (2.393)	-4.317 (11.794)	4.953** (2.230)	1.603 (4.483)	12.236*** (2.993)	23.070*** (5.990)	36.479 (23.564)	17.972*** (4.622)	14.323** (5.878)	25.737*** (8.085)
Infl <sub>t-5</sub>	-6.136*** (1.365)	-2.669 (3.931)	-5.725*** (1.411)	-7.850*** (2.266)	-0.999 (1.360)	0.478 (0.704)	4.347 (2.610)	-0.979* (0.562)	-1.844** (0.806)	0.418 (0.540)
ENG	4.539 (5.348)	18.995 (15.882)	-0.264 (4.315)	2.975 (6.640)	-7.211 (4.354)					
GER	68.068*** (9.639)	94.849*** (23.356)	52.817*** (11.138)	58.105*** (15.312)	35.652** (14.458)					
SCAN	22.810 (14.073)	20.078 (15.910)								
SOC	-3.091 (3.602)	12.780 (13.430)	-4.022 (3.463)	-0.839 (4.590)	-15.489** (6.220)					
Constant	2.963 (10.879)	-31.085 (34.109)	12.765 (10.840)	16.860 (16.484)	15.799** (7.606)					
N. Obs	2700	808	1841	1112	729	2700	808	1839	1112	727
R2	0.580	0.323	0.448	0.368	0.475	0.910	0.837	0.907	0.904	0.861
Countries	143	42	99	55	44	143	42	99	55	44
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Sample	All	AE	EMDE	MIC	LIC	All	AE	EMDE	MIC	LIC

Robust standard errors clustered at the country level in parentheses;

\*\*\*  $p < 0.01$ .

\*\*  $p < 0.05$ .

\*  $p < 0.1$ .

form:

$$PERF_{b(i),t} = \alpha_1 SOE_{b(i),t-1} + \alpha_2 FOR_{b(i),t-1} + X_{b(c),t-1}A + \theta_{i,t} + \xi_{s(b)} + \varepsilon_{b(i),t} \quad (5)$$

Where  $PERF_{b(i),t}$  is one of the performance indicators described above for bank  $b$  in country  $i$  in year  $t$ ;  $SOE_{b(i),t-1}$  and  $FOR_{b(i),t-1}$  are dummy variables that take value one if 50% or more of bank  $b$  in country  $i$  in year  $t - 1$  is state-owned or foreign-owned;  $X_{b(c),t-1}$  is a matrix of bank-level controls;  $\theta_{i,t}$  are country-year fixed effects; and  $\xi_{s(b)}$  are bank type (sector) fixed effects.<sup>11</sup> In Eq. (5), the parameters  $\alpha_1$  and  $\alpha_2$  measure the performance of state-owned and foreign-owned banks relative to that of private domestically owned banks.

I find that state-owned banks are always less profitable than domestic private banks (top panel of Table 6). The difference is particularly large in developing economies, especially in low-income economies. I also find that there is no statistically significant difference between the profitability of foreign owned banks and domestic private banks. The mid and bottom panel of Table 6 shows that the results do not change when I split the sample between the 1995–2009 and 2010–2020 periods.<sup>12</sup>

There are three possible explanations for the difference in

profitability. First, state-owned banks might have a riskier loan portfolio, which could result from lower project screening capacity, political lending, or efforts to address market failures by financing risky projects with high social returns. Second, state-owned banks could have lower margins due to their social mandates. Finally, low profitability might stem from high administrative costs, potentially caused by bloated personnel and generally inefficient management.

There is strong evidence supporting the first explanation. On average, state-owned banks have more non-performing loans than domestic private banks in all country groups (top panel of Table 7). In the full sample, the difference is 2.8 percentage points. This is a large effect as it corresponds to more than 40% of average NPL in the full sample (6.5%). The difference between non-performing loans of state-owned and domestic private banks remains statistically but becomes much lower when I focus on the 2010–2020 period (bottom panel of Table 7). For instance, in the full sample the level of NPL in state-owned banks was 3.5 percentage points higher than that of private domestic banks over 1995–2009, but this difference dropped to 1.9 percentage points in 2010–20 (compare column 1 in the mid the top panels of Table 7). Foreign-owned banks have fewer non-performing loans than their domestic counterparts, but the difference is rarely statistically significant. The fact that the profitability difference between state-owned and private banks has remained relatively constant, despite a decrease in the gap in NPL, indicates that NPL are not the sole cause of the profitability differences documented in Table 6.

Regression results provide no evidence that differences in profitability are driven by lower margins (Table 8). If anything, in middle income economies, state-owned banks have significantly higher net interest margins than private banks (the difference is not statistically significant post 2010; see the bottom panel of Table 8). In all other regions, bank ownership is not significantly correlated with net interest margins. By decomposing the net interest margin into interest expenses and interest income, I find that state-owned and foreign-owned banks have much lower funding costs than their private domestic counterparts (Appendix Table A2) and charge lower interests than domestic private

<sup>11</sup> Bank type fixed effects are based on the following specialization codes: bank holdings; commercial bank; credit union; co-operative bank; private bank; real estate and mortgage bank; and saving bank. The results are essentially identical if I do not include these specialization fixed effects. In the regressions for profitability and non-performing loans,  $X_{b(c),t}$  includes log assets, customer deposits scaled by assets, gross loans scaled by assets, interest expenditure scaled by assets; equity scaled by assets and liquid assets scaled by deposits and short-term funding. For net interest margins, I use the same controls except for interest expenditure scaled by assets.

<sup>12</sup> I arbitrarily split the sample in 2010 to compare period before and after the global financial crisis. The results are similar if I use 2009 or 2010. Note that the regressions of the bottom panels of Table 6 include all the controls of the top panel but only report the results for the ownership variables.



**Table 6**

Bank profitability and Bank Ownership. This table reports a set of bank-level regressions where the dependent variable is return on assets (ROA) and the explanatory variables are two dummies controlling for the lag of state and foreign ownership (defined using the 50% ownership threshold), and the lagged value of log total assets, customer deposits over assets, loan over assets, interest expenditure over assets, equity over assets, and liquid assets over deposits and short-term funds. All regressions include country-year fixed effects and fixed effects controlling for bank type (sector fixed effects). The tables also report the number of countries and banks included in each regression. The bottom two panels restrict the sample to 1995–2009 and 2010–2020, respectively. The regressions for these two subsamples include the same set of controls as the regressions in the top panel but only report results for the ownership variables.

	(1)	(2)	(3)	(4)	(5)
SOE <sub>t-1</sub>	-0.2660*** (-4.613)	-0.2078*** (-3.656)	-0.4617*** (-5.700)	-0.3851*** (-4.355)	-0.8570*** (-4.188)
FOR <sub>t-1</sub>	0.0201 (0.460)	-0.0157 (-0.301)	0.0063 (0.094)	-0.0199 (-0.277)	0.1199 (0.719)
ln(Assets <sub>t-1</sub> )	0.0877*** (8.461)	0.0851*** (9.844)	0.2185*** (10.533)	0.1914*** (8.857)	0.5621*** (7.302)
Cust. Dep. <sub>t-1</sub> /Assets <sub>t-1</sub>	-0.0033*** (-3.859)	0.0003 (0.362)	-0.0082*** (-4.824)	-0.0096*** (-5.170)	0.0073 (1.516)
Loan <sub>t-1</sub> /Assets <sub>t-1</sub>	-0.0055*** (-6.059)	-0.0034*** (-3.710)	-0.0100*** (-5.329)	-0.0100*** (-4.864)	-0.0056 (-1.328)
Interest Exp <sub>t-1</sub> /Assets <sub>t-1</sub>	0.1363*** (14.171)	0.2016*** (12.404)	0.1201*** (11.736)	0.1158*** (10.323)	0.1248*** (5.273)
Equity <sub>t-1</sub> /Assets <sub>t-1</sub>	0.0043** (2.410)	0.0310*** (6.812)	0.0030** (2.506)	0.0029*** (2.589)	0.0393*** (2.953)
Liquid Assets <sub>t-1</sub> /Dep & ST Funding <sub>t-1</sub>	0.0000 (1.003)	-0.0000 (-0.898)	0.0001*** (3.686)	0.0001*** (3.543)	-0.0003 (-0.522)
N. Obs	71,124	42,981	28,489	22,074	6415
R2	0.281	0.285	0.271	0.232	0.405
Countries	177	49	128	71	57
Banks	5907	3439	2589	2003	586
	1995–2009				
SOE <sub>t-1</sub>	-0.2713*** (-4.073)	-0.2064*** (-3.099)	-0.4952*** (-5.243)	-0.4343*** (-4.308)	-0.8987*** (-3.463)
FOR <sub>t-1</sub>	0.0064 (0.127)	-0.0361 (-0.644)	-0.0058 (-0.068)	-0.0538 (-0.585)	0.2111 (0.997)
N. Obs	41,676	26,506	15,445	12,156	3289
R2	0.291	0.292	0.286	0.244	0.440
Countries	175	49	126	71	55
	2010–2020				
SOE <sub>t-1</sub>	-0.2598*** (-3.291)	-0.1776* (-1.886)	-0.3907*** (-3.640)	-0.3082** (-2.547)	-0.8136*** (-3.465)
FOR <sub>t-1</sub>	0.0479 (0.822)	0.0203 (0.259)	0.0590 (0.750)	0.0452 (0.519)	0.1362 (0.742)
N. Obs	29,448	16,475	13,044	9918	3126
R2	0.277	0.272	0.267	0.233	0.385
Countries	170	49	121	67	54
Sample	ALL	AE	EMDE	MIC	LIC
Country-year FE	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes

Robust *t*-statistics clustered at the bank level in parentheses;

\*\*\* *p* < 0.01,.

\*\* *p* < 0.05,.

\* *p* < 0.1.

banks (Appendix Table A3). For foreign banks, the difference in funding costs is almost identical to that in interest income (about 0.5 in both cases; compare Table A2 with Table A3). This is not the case for state-owned banks which benefit from low funding costs (possibly because of implicit or explicit state guarantees) but do not fully pass these lower funding costs to the ultimate borrower. This is why, state-owned bank tend to have interest margins which are higher (albeit not always significant higher) than those of their private counterparts.

Finally, I check whether the difference in profitability documented in Table 6 is driven by the fact that state-owned banks have higher overall costs. With this objective in mind, I examine the correlation between bank ownership and each of non-interest expenses over income and personnel expenses over income. The data support the hypothesis that, in developing and emerging economies, state owned banks have higher costs than their private counterparts (Table 9). Instead, expenses are not significantly correlated with ownership in advanced economies. As the coefficients for total non-interest costs (top panel of Table 9) are basically identical to those for personnel costs (bottom panel of the Table), this effect appears to be driven by the fact that, other things equal, state-owned banks have higher personnel expenses. A set of additional

regressions (not reported) confirm that this effect is driven by the fact that, other things equal, state owned banks have more employees (in the case of foreign owned banks, instead, the difference is due to higher average compensation).

## 6. Bank ownership and response of credit to domestic and external shocks

Levy Yeyati et al. (2007) suggest that a possible rationale for state-ownership of banks is procyclical lending of private banks which reduces the effectiveness of countercyclical macroeconomic policies. There is a similar rationale for favoring the entry of foreign banks that, because of their global presence, may be less sensitive to local shocks (Galindo et al., 2005). Nevertheless, there are tradeoffs as foreign banks could amplify international shocks or shocks in the source country (Adams-Kane et al. 2017) and lending booms by state-owned banks may create to contingent liabilities.

Micco and Panizza (2006) were the first to use bank-level data to

**Table 7**

Non-Performing Loans and Bank Ownership. This table reports a set of bank-level regressions where the dependent variable is the share of non-performing loans over gross loans and the explanatory variables are two dummies controlling for the lag of state and foreign ownership (defined using the 50% ownership threshold), and the lagged value of log total assets, customer deposits over assets, loan over assets, interest expenditure over assets, equity over assets, and liquid assets over deposits and short-term funds. All regressions include country-year fixed effects and fixed effects controlling for bank type (sector fixed effects). The tables also report the number of countries and banks included in each regression. The bottom two panels restrict the sample to 1995–2009 and 2010–2020, respectively. The regressions for these two subsamples include the same set of controls as the regressions in the top panel but only report results for the ownership variables.

	(1)	(2)	(3)	(4)	(5)
SOE <sub>t-1</sub>	2.7580*** (6.157)	2.5147*** (3.647)	2.3975*** (4.596)	1.9874*** (3.686)	4.5095*** (3.079)
FOR <sub>t-1</sub>	-0.4743 (-1.644)	-0.5849 (-1.353)	-0.4866 (-1.284)	-0.6994* (-1.693)	0.2395 (0.261)
ln(Assets <sub>t-1</sub> )	-0.6026*** (-10.648)	-0.5726*** (-8.291)	-0.4802*** (-5.221)	-0.4940*** (-5.161)	-0.3659 (-0.784)
Cust. Dep. <sub>t-1</sub> /Assets <sub>t-1</sub>	-0.0304*** (-4.016)	-0.0361*** (-4.023)	-0.0173 (-1.496)	-0.0179 (-1.425)	-0.0304 (-0.826)
Loan <sub>t-1</sub> /Assets <sub>t-1</sub>	-0.0514*** (-7.235)	-0.0351*** (-4.045)	-0.0791*** (-6.815)	-0.0785*** (-6.286)	-0.0940*** (-2.915)
Interest Exp <sub>t-1</sub> /Assets <sub>t-1</sub>	0.0906** (2.467)	0.2973*** (2.745)	0.0559 (1.460)	0.0704 (1.637)	-0.0248 (-0.377)
Equity <sub>t-1</sub> /Assets <sub>t-1</sub>	-0.0181*** (-10.145)	0.0742* (1.747)	-0.0190*** (-10.850)	-0.0188*** (-10.876)	-0.0555 (-0.562)
Liquid Assets <sub>t-1</sub> /Dep & ST Funding <sub>t-1</sub>	0.0000 (0.896)	0.0000 (0.789)	0.0000 (0.510)	0.0002 (0.566)	-0.0023 (-0.958)
N. Obs	47,167	25,506	22,006	17,232	4774
R2	0.401	0.432	0.362	0.332	0.446
Countries	170	49	121	68	53
Banks	4390	2288	2133	1638	495
	1995–2009				
SOE <sub>t-1</sub>	3.4998*** (5.236)	2.8032** (2.487)	3.5086*** (4.520)	3.1245*** (3.912)	5.8719** (2.378)
FOR <sub>t-1</sub>	-0.5427 (-1.450)	-0.4902 (-0.964)	-0.5275 (-0.999)	-0.4901 (-0.856)	-0.8314 (-0.624)
N. Obs	23,470	13,040	10,705	8540	2165
R2	0.395	0.387	0.344	0.328	0.396
Countries	157	48	109	64	45
	2010–2020				
SOE <sub>t-1</sub>	1.9140*** (3.792)	2.2067*** (3.305)	1.2252** (2.046)	0.7429 (1.195)	3.3652** (2.078)
FOR <sub>t-1</sub>	-0.4390 (-1.213)	-0.6911 (-1.198)	-0.4532 (-1.005)	-0.8695* (-1.762)	0.8262 (0.783)
N. Obs	23,697	12,466	11,301	8692	2609
R2	0.409	0.456	0.380	0.336	0.504
Countries	166	49	117	64	53
Sample	ALL	AE	EMDE	MIC	LIC
Country-year FE	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes

Robust *t*-statistics clustered at the bank level in parentheses;

\*\*\* *p* < 0.01,.

\*\* *p* < 0.05,.

\* *p* < 0.1.

show that lending by state-owned banks in emerging and developing economies is less procyclical than private bank lending.<sup>13</sup> Here, I follow their methodology but also include external shocks and jointly control for the role of state-owned and foreign-owned banks. I start by estimating the following model:

$$LOANGR_{b(i),t} = SOE_{b(i),t-1}(\alpha_0 + \alpha_1 DOM_{i,t} + \alpha_2 EXT_t) + FOR_{b(i),t-1}(\beta_0 + \beta_1 DOM_{i,t} + \beta_2 EXT_t) + X_{b(i),t-1}B + \theta_{i,t} + \delta_b + \varepsilon_{b(i),t} \quad (6)$$

Where  $LOANGR_{b(i),t}$  is the growth rate of net loans (measured in USD) of bank *b* located in country *i*, in year *t*;  $DOM_{i,t}$  is a measure of domestic economic conditions in country *i*, year *t*,  $EXT_t$  is a measure of external economic conditions,  $X_{b(i),t}$  are bank-level controls (lagged log assets,

<sup>13</sup> Multiple subsequent studies have confirmed this result using both cross-country data (World Bank, 2012, Brei and Schclarek, 2013, Cull and Martinez-Peria, 2013, Coleman and Feler, 2015, Bertay et al., 2015, De Haas et al., 2015, Duprey 2015, Chen et al., 2016; Allen et al., 2017; Panizza, 2023; Ture, 2021) as well as by concentrating on specific countries (Önder and Özyildirim, 2013, and Bonomo et al., 2015)

lagged customer deposits scaled by assets, lagged equity over assets, and lagged liquid assets over deposits and short-term funding),  $\theta_{i,t}$  are country-year fixed effects, and  $\delta_b$  are bank fixed effects.<sup>14</sup> I exclude US banks from the sample because, given the size of the US economy, it is impossible to separate domestic from external shocks. All results are robust to including US banks.

In Eq. (6),  $\alpha_1$  and  $\alpha_2$  measure how lending by state-owned banks react to domestic and external shocks, while  $\beta_1$  and  $\beta_2$  measure how foreign-owned banks react to these shocks (the main effect of the shocks is captured by the country-year fixed effects). As Eq. (6) controls for bank fixed effects,  $\alpha_0$  and  $\beta_0$  are identified by banks that change ownership. The interpretation is thus different from the interpretation of the ownership dummies in Eq. (5) which did not include bank fixed effects.

I always use domestic GDP growth as a measure of domestic economic conditions and I start by using the broad dollar index as a measure of external conditions (an increase of the broad dollar index tends to be

<sup>14</sup> The results are identical when I also control for lagged loans.

**Table 8**

Net Interest Margin and Bank Ownership. This table reports a set of bank-level regressions where the dependent variable is the net interest margin and the explanatory variables are two dummies controlling for the lag of state and foreign ownership (defined using the 50% ownership threshold), and the lagged value of log total assets, customer deposits over assets, loans over assets, equity over assets, and liquid assets over deposits and short-term funds. All regressions include country-year fixed effects and fixed effects controlling for bank type (sector fixed effects). The tables also report the number of countries and banks included in each regression. The bottom two panels restrict the sample to 1995–2009 and 2010–2020, respectively. The regressions for these two subsamples include the same set of controls as the regressions in the top panel but only report results for the ownership variables.

	(1)	(2)	(3)	(4)	(5)
SOE <sub>t-1</sub>	0.1158 (0.903)	-0.0456 (-0.488)	0.2709 (1.565)	0.4102** (2.108)	-0.3861 (-1.065)
FOR <sub>t-1</sub>	-0.0599 (-0.791)	0.0009 (0.010)	-0.0379 (-0.319)	-0.0691 (-0.525)	0.0836 (0.314)
ln(Assets <sub>t-1</sub> )	-0.2670*** (-13.126)	-0.0953*** (-6.855)	-0.4552*** (-11.891)	-0.4925*** (-12.378)	0.0428 (0.383)
Cust. Dep. <sub>t-1</sub> /Assets <sub>t-1</sub>	0.0021 (1.239)	0.0074*** (4.684)	0.0083*** (2.582)	0.0090*** (2.613)	0.0184** (2.377)
Loan <sub>t-1</sub> /Assets <sub>t-1</sub>	0.0256*** (16.580)	0.0201*** (13.807)	0.0438*** (13.218)	0.0434*** (12.066)	0.0472*** (6.400)
Equity <sub>t-1</sub> /Assets <sub>t-1</sub>	0.0055 (0.976)	0.0527*** (13.064)	0.0027 (0.646)	0.0022 (0.572)	0.0773*** (6.947)
Liquid Assets <sub>t-1</sub> /Dep & ST Funding <sub>t-1</sub>	0.0000 (1.425)	0.0000 (0.363)	0.0000 (0.878)	0.0000 (0.829)	-0.0014*** (-2.687)
N. Obs	71,656	43,220	28,782	22,334	6448
R2	0.563	0.456	0.454	0.412	0.588
Countries	177	49	128	71	57
Banks	5932	3368	2595	2020	585
1995–2009					
SOE <sub>t-1</sub>	0.0765 (0.601)	-0.0543 (-0.549)	0.2570 (1.416)	0.3970* (1.947)	-0.4572 (-1.178)
FOR <sub>t-1</sub>	0.0044 (0.052)	-0.0526 (-0.553)	0.1243 (0.883)	0.0776 (0.501)	0.3131 (0.986)
N. Obs	42,094	26,692	15,677	12,355	3322
R2	0.556	0.483	0.455	0.420	0.580
Countries	175	49	126	71	55
2010–2020					
SOE <sub>t-1</sub>	0.1288 (0.679)	-0.0115 (-0.087)	0.2243 (0.947)	0.3298 (1.209)	-0.2923 (-0.604)
FOR <sub>t-1</sub>	-0.1640 (-1.604)	0.0951 (0.828)	-0.2083 (-1.373)	-0.2528 (-1.473)	-0.0364 (-0.111)
N. Obs	29,562	16,528	13,105	9979	3126
R2	0.590	0.382	0.481	0.432	0.608
Countries	170	49	121	67	54
Sample	ALL	AE	EMDE	MIC	LIC
Country-year FE	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes

Robust *t*- statistics clustered at the bank level in parentheses;

\*\*\*  $p < 0.01$ ,

\*\*  $p < 0.05$ ,

\*  $p < 0.1$ .

associated with tighter external financial conditions; see [Shin, 2019](#); [Avdjiev et al., 2019](#) and [Hofman and Park, 2020](#)). I find that  $\alpha_1$  is always negative and often statistically significant (it is not statistically significant in advanced economies, see columns 3 and 8 of [Table 10](#)) and  $\alpha_2$  is never statistically significant. The first result corroborates existing evidence that state-owned banks contribute to stabilizing credit over the domestic business cycle but that this countercyclical role of state-owned banks is only present in emerging and developing economies. The second result indicates that lending by state-owned banks is not affected by external financial shocks (to be more precise: there is no difference between the way in which an external shock affects lending by state-owned bank and the way in which it affects the lending of private domestic banks).

As state-owned banks tend to be larger than domestic private banks and foreign-owned banks tend to be smaller than domestic private banks ([Table 2](#)), I also augment [Eq. \(6\)](#) with the interaction between the log of lagged assets and each of  $DOM_{i,t}$  and  $EXT_t$ . The results are robust to augmenting the model with these interactions (last three columns of [Table 10](#)).

Focusing on foreign-owned banks, I find that  $\beta_1$  is positive and statistically significant in advanced economies (thus, foreign banks are more procyclical than private domestic banks) and negative but rarely

statistically significant in emerging and developing countries (it is statistically significant at the 5% confidence level in low-income economies; see column 6). Instead,  $\beta_2$  is always negative and statistically significant: lending by foreign-owned banks amplifies foreign shocks (i. e., lending by these banks decreases when external financial conditions tighten) and does not contribute to stabilizing credit over the domestic business cycle. If anything, lending by foreign-owned banks is procyclical in advanced economies. As changes in net loans might not be driven by new loans but by provisioning for loan losses ([De Haas and Van Lelyveld 2014](#)), I show that my results are robust to using gross loans (see [Table A4](#) in the Appendix).<sup>15</sup>

Next, I measure domestic economic conditions with both domestic GDP growth and a dummy that takes value 1 during banking crises (the data are from [Laeven and Valencia, 2020](#)).<sup>16</sup> The interaction between the banking crisis dummy and state-ownership is rarely statistically

<sup>15</sup> I would like to thank an anonymous referee for suggesting this robustness check.

<sup>16</sup> Here I do not include a dummy for external shocks. The results are similar if I measure domestic economic conditions with banking crises and external economic conditions with the dollar index.

**Table 9**

Non-Interest Expenses over Income and Bank Ownership. This table reports a set of bank-level regressions where the dependent variable is either non-interest expenses over total income (top panel) or personnel expenses over income (bottom panel) and the explanatory variables are two dummies controlling for the lag of state and foreign ownership (defined using the 50% ownership threshold), and the lagged value of log total assets, customer deposits over assets, loan over assets, equity over assets, and liquid assets over deposits and short-term funds. All regressions include country-year fixed effects and fixed effects controlling for bank type (sector fixed effects). The tables also report the number of countries and banks included in each regression.

	(1)	(2)	(3)	(4)	(5)
	Total Expenses/Income				
SOE <sub>t-1</sub>	0.0359*** (5.812)	-0.0007 (-0.063)	0.0500*** (7.011)	0.0503*** (6.410)	0.0540*** (3.262)
FOR <sub>t-1</sub>	0.0154*** (3.343)	0.0289*** (3.758)	0.0156*** (2.941)	0.0145** (2.450)	0.0181 (1.497)
ln(Assets <sub>t-1</sub> )	-0.0266*** (-23.746)	-0.0200*** (-13.567)	-0.0275*** (-17.221)	-0.0271*** (-16.181)	-0.0335*** (-6.876)
Cust. Dep. <sub>t-1</sub> /Assets <sub>t-1</sub>	0.0012*** (13.105)	0.0018*** (14.030)	0.0005*** (4.111)	0.0005*** (3.864)	0.0005 (1.605)
Loan <sub>t-1</sub> /Assets <sub>t-1</sub>	-0.0007*** (-6.862)	-0.0009*** (-6.463)	-0.0007*** (-4.554)	-0.0006*** (-3.996)	-0.0009*** (-2.965)
Equity <sub>t-1</sub> /Assets <sub>t-1</sub>	0.0002 (1.064)	0.0025*** (6.403)	0.0000 (0.857)	0.0000 (0.789)	0.0005 (1.054)
Liquid Assets <sub>t-1</sub> /Dep & ST Fund <sub>t-1</sub>	-0.0000 (-0.837)	-0.0000 (-0.503)	-0.0000** (-1.992)	-0.0000* (-1.923)	-0.0001*** (-3.352)
N. Obs	71,328	42,846	28,825	22,415	6410
R2	0.523	0.510	0.525	0.508	0.582
Countries	163	48	115	62	53
Banks	5902	3322	2610	2024	586
	Personell Expenses/Income				
SOE <sub>t-1</sub>	0.0405*** (9.171)	0.0038 (0.559)	0.0558*** (10.673)	0.0565*** (9.405)	0.0517*** (5.102)
FOR <sub>t-1</sub>	0.0152*** (4.857)	0.0223*** (4.287)	0.0127*** (3.783)	0.0130*** (3.532)	0.0098 (1.218)
ln(Assets <sub>t-1</sub> )	-0.0178*** (-22.315)	-0.0130*** (-13.312)	-0.0194*** (-17.679)	-0.0195*** (-16.839)	-0.0194*** (-5.405)
Cust. Dep. <sub>t-1</sub> /Assets <sub>t-1</sub>	0.0007*** (12.160)	0.0011*** (15.341)	0.0004*** (5.038)	0.0005*** (5.225)	0.0001 (0.313)
Loan <sub>t-1</sub> /Assets <sub>t-1</sub>	-0.0006*** (-8.211)	-0.0006*** (-6.338)	-0.0006*** (-6.599)	-0.0006*** (-5.880)	-0.0009*** (-3.846)
Equity <sub>t-1</sub> /Assets <sub>t-1</sub>	0.0002 (1.488)	0.0020*** (7.434)	0.0001** (2.152)	0.0001** (2.170)	0.0004 (0.865)
Liquid Assets <sub>t-1</sub> /Dep & ST Fund <sub>t-1</sub>	-0.0000 (-1.228)	-0.0000 (-1.059)	-0.0000 (-0.593)	-0.0000 (-0.412)	-0.0001*** (-3.311)
N. Obs	67,921	42,101	26,168	20,358	5810
R2	0.447	0.441	0.424	0.411	0.470
Countries	163	48	115	62	53
Banks	5712	3258	2485	1923	562
Sample	ALL	AE	EMDE	MIC	LIC
Country-year FE	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes

Robust *t*- statistics clustered at the bank level in parentheses;

- \*\*\* *p* < 0.01,.
- \*\* *p* < 0.05,.
- \* *p* < 0.1.

significant. It is, however, negative and statistically significant in some of the emerging economies' regressions (see columns 4, 5, 7 and 9 of Table 11). This indicates that, during banking crises, state-owned banks reduce credit. This could be a symptom of the bank-sovereign doom loop discussed by, among others, Altavilla et al. (2017). It is however worth noting that the interaction with domestic growth remains negative and statistically significant. Given that growth tends to be low during and after banking crises (Reinhart and Rogoff, 2009), this countercyclical effect might compensate for the lending reduction associated with the banking crisis itself. The interaction between the banking crisis and foreign ownership dummies is never statistically significant.

I then use World GDP growth as an alternative measure of external economic conditions and find that  $\alpha_2 < 0$  and  $\beta_2 > 0$  (Table 12). This result indicates that state-owned banks contribute to stabilizing credit with respect to external growth shocks while foreign-owned banks amplify these shocks. I now find that  $\alpha_1$  is no longer negative and statistically significant and in a few cases positive and marginally statistically significant: state-owned banks appear to stabilize credit in the

presence of low domestic growth which is driven by external growth shocks.<sup>17</sup>

To study possible asymmetric effects of domestic and global shocks, I augment Eq. (6) with a set of triple interactions which allow to separate the effects of negative and positive shocks:

$$\begin{aligned}
 LOANGR_{b(i),t} = & SOE_{b(i),t-1} (\alpha_0 + DOM_{i,t} (\alpha_1 + \alpha_3 BT1_t) + EXT_t (\alpha_2 + \alpha_4 BT2_t)) + \\
 & + FOR_{b(i),t-1} (\beta_0 + DOM_{i,t} (\beta_1 + \beta_3 BT1_t) + EXT_t (\beta_2 + \beta_4 BT2_t)) + \\
 & + \mathbf{X}_{b(i),t-1} \mathbf{B} + \theta_{i,t} + \delta_b + \epsilon_{b(i),t}
 \end{aligned}
 \tag{7}$$

Where  $BT1_t$  and  $BT2_t$  are dummies that take values 1 during “bad times.” Specifically,  $BT1_t$  takes value 1 when domestic growth is lower

<sup>17</sup> I also explore the role of terms of trade and the real exchange rate. The main advantage of these measures of external conditions is that they also vary at the country level. Their main problem is that they are not fully driven by external factors (especially the real exchange rate). Be as it may, the results (not reported) that are broadly in line with those of the previous analysis.

**Table 10**

Loan Growth, GDP Growth and International Financial Conditions. This table reports a set of bank-level regressions where the dependent variable is annual net loan growth and the explanatory variables are the lagged values of a dummy that takes value 1 for state-owned banks (using the 50% ownership threshold) and a dummy that takes value 1 for foreign-owned banks (using the 50% ownership threshold), the interaction between these dummies and each of domestic real GDP growth and the broad dollar index, the log of lagged total assets also interacted with domestic real GDP growth and the broad dollar index, lagged customer deposits over assets lagged equity over assets and lag liquid assets over deposits and short terms funding. Regressions do not include US banks.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SOE <sub>t-1</sub>	1.2418 (0.217)	-4.7074 (-0.760)	-7.2928 (-0.732)	-2.0046 (-0.239)	-3.1320 (-0.342)	8.3281 (0.439)	0.0926 (0.014)	-5.2875 (-0.496)	7.6543 (0.899)
SOE <sub>t-1</sub> xGR	-0.5165*** (-4.437)	-0.3469*** (-2.902)	-0.3898 (-1.363)	-0.3727*** (-2.791)	-0.3214** (-2.298)	-0.8475** (-2.048)	-0.3413*** (-2.760)	-0.4190 (-1.460)	-0.3972*** (-2.827)
FOR <sub>t-1</sub>	27.6358*** (4.693)	24.9710*** (4.450)	33.6011*** (3.884)	23.0740*** (3.057)	22.1438*** (2.590)	28.0995* (1.858)	24.4917*** (4.377)	33.5727*** (3.890)	21.5402*** (2.854)
FOR <sub>t-1</sub> xGR	-0.0584 (-0.473)	0.0201 (0.167)	0.4350** (2.092)	-0.1585 (-1.068)	-0.0387 (-0.245)	-0.8377** (-2.035)	0.0191 (0.159)	0.4361** (2.102)	-0.1618 (-1.093)
SOE <sub>t-1</sub> xDollar Index	-0.0492 (-0.842)	0.0249 (0.393)	0.0296 (0.284)	0.0290 (0.361)	0.0163 (0.183)	0.1448 (0.806)	-0.0291 (-0.437)	0.0081 (0.072)	-0.0788 (-0.970)
FOR <sub>t-1</sub> xDollar Index	-0.2193*** (-3.955)	-0.2223*** (-4.053)	-0.2484*** (-3.152)	-0.2309*** (-3.032)	-0.2209** (-2.554)	-0.2508* (-1.659)	-0.2160*** (-3.949)	-0.2467*** (-3.138)	-0.2138*** (-2.807)
Ln(assets) <sub>t-1</sub>		-13.7540*** (-20.231)	-11.5665*** (-11.168)	-16.3240*** (-17.521)	-15.2927*** (-14.701)	-20.5569*** (-11.269)	-17.3401*** (-12.557)	-12.8071*** (-7.521)	-24.5362*** (-10.184)
(Cust. Dep/Assets) <sub>t-1</sub>		0.0005 (0.027)	0.0087 (0.324)	-0.0086 (-0.291)	0.0028 (0.087)	-0.0295 (-0.437)	-0.0002 (-0.011)	0.0073 (0.273)	-0.0058 (-0.197)
(Equity/Assets) <sub>t-1</sub>		0.0651*** (2.793)	-0.0268 (-0.335)	0.0818*** (3.103)	0.0755*** (2.954)	0.3218** (2.166)	0.0649*** (2.790)	-0.0263 (-0.328)	0.0814*** (3.104)
(Liquid Assets /Dep & ST Funding) <sub>t-1</sub>		-0.0000	-0.0000	-0.0000	-0.0000	0.0031	-0.0000	-0.0000	-0.0000
Ln(assets) <sub>t-1</sub> xGR		(-0.976)	(-1.131)	(-0.747)	(-0.778)	(0.644)	(-0.937)	(-1.115)	(-0.679)
Ln(assets) <sub>t-1</sub> xDollar Index							0.0409**	0.0136	0.0920***
N. Obs	78,719	75,019	42,366	32,653	25,434	7219	75,019	42,366	32,653
R2	0.365	0.398	0.336	0.440	0.418	0.526	0.398	0.336	0.441
Sample	ALL	ALL	AE	EMDE	MIC	LIC	ALL	AE	EMDE
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countries	175	175	48	127	71	56	127	71	56
Banks	5567	5413	2879	2534	1956	578	5413	2879	2534

Robust *t*-statistics clustered at the bank level in parentheses;

\*\*\* *p* < 0.01,.

\*\* *p* < 0.05,.

\* *p* < 0.1.

than average growth and *BT2* takes value one when the dollar index is above its long-term average (and indication of tight financial conditions) or when world growth its below its long-term average. All the other variables are as in Eq. (6). In Eq. (7),  $\alpha_1, \alpha_2, \beta_1$ , and  $\beta_2$  measure how lending by state-owned and foreign owned banks react to domestic and external shocks during “good times” and  $\alpha_3, \alpha_4, \beta_3$ , and  $\beta_4$  tell us if things are different during “bad times.”

I find that  $\alpha_3$  is generally positive—indicating that state-owned banks are relatively less countercyclical in response to domestic bad shocks—but never statistically significant (Table 13). State owned banks are still countercyclical in bad times ( $\alpha_1 + \alpha_3 < 0$ ), but the effect is not statistically significant (see bottom panel of Table 13). Looking at foreign-owned banks, I find that  $\beta_3$  is never close to being statistically significant. The same applies to  $\beta_1 + \beta_3$ : foreign owned banks do not stabilize credit in the presence of domestic shocks. Focusing on the external financial shocks (columns 1, 3, and 5 of Table 13), I find that both  $\beta_2$  and  $\beta_2 + \beta_4$  are negative and statistically significant: foreign banks amplify external financial shocks, with the effect being more pronounced during bad times. Focusing on state-owned banks, I find that  $\alpha_2 + \alpha_4$  is positive and statistically significant in the full sample and the in the sample of emerging and developing economies (columns 1 and 5 of Table 13) indicating that state-owned banks are countercyclical in

the presence of external financial shocks. Focusing on external real shocks, I find that foreign-owned banks tend to amplify these shocks ( $\beta_2 + \beta_4$  is positive, albeit not always significant; see columns 2, 4, and 6 of Table 1) and state-owned banks are countercyclical in good times and acyclical in bad times ( $\alpha_2$  is negative and statistically significant in emerging and eveloping economies but  $\alpha_2 + \alpha_4$  is never statistically significant).

It is possible that, by stabilizing credit over the business cycle, state-owned banks pay a price in terms of future lower profitability or higher non-performing loans. To test for this possibility, I build impulse responses using Jordá’s (2005) local projections method. Formally, I estimate the following equation:

$$PERF_{b(i),t+h} = SOE_{b(i),t}(\alpha_{0,h} + \alpha_{1,h}DOM_{i,t} + \alpha_{2,h}EXT_t) + FOR_{b(i),t}(\beta_{0,h} + \beta_{1,h}DOM_{i,t} + \beta_{2,h}EXT_t) + X_{b(i),t}B_h + \theta_{i,t} + \delta_b + \varepsilon_{b(i),t} \quad (8)$$

With  $h = 1, 2, 3$ . I find that future profits are positively correlated with lagged growth for state-owned banks and negatively correlated with lagged growth for foreign-owned banks and that the opposite is true for NPL (Tables 14 and 15). While these results are consistent with the idea that state-owned banks pay a price in terms of profitability (or higher NPLs) for their credit stabilization role, the coefficients are rarely statistically significant. There is, instead, a strong effect of growth on the

**Table 11**

Loan Growth, GDP Growth and Banking Crises. This table reports a set of bank-level regressions where the dependent variable is annual net loan growth and the explanatory variables are the lagged values of a dummy that takes value 1 for state-owned banks (using the 50% ownership threshold) and a dummy that takes value 1 for foreign-owned banks (using the 50% ownership threshold), the interaction between these dummies and each of domestic real GDP growth and a dummy that takes value one during banking crises, the log of lagged total assets also interacted with domestic real GDP growth and the broad dollar index, lagged customer deposits over assets lagged equity over assets and lag liquid assets over deposits and short terms funding. Regressions do not include US banks.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SOE <sub>t-1</sub>	-2.3818 (-1.069)	-1.4123 (-0.634)	-5.1349** (-2.157)	2.5324 (0.609)	0.7560 (0.171)	19.9820** (2.457)	-1.4175 (-0.634)	-4.8513** (-2.043)	2.3158 (0.556)
SOE <sub>t-1</sub> xGR	-0.5366*** (-4.590)	-0.3969*** (-3.355)	-0.3377 (-1.248)	-0.4378*** (-3.281)	-0.3906*** (-2.798)	-0.9187** (-2.270)	-0.3756*** (-3.068)	-0.3769 (-1.391)	-0.3977*** (-2.824)
FOR <sub>t-1</sub>	7.5736** (2.499)	4.6158* (1.735)	10.5216** (2.196)	2.3419 (0.727)	2.3511 (0.620)	4.9626 (0.874)	4.6427* (1.744)	10.7485** (2.234)	2.3005 (0.713)
FOR <sub>t-1</sub> xGR	0.0255 (0.209)	0.1028 (0.855)	0.5204** (2.507)	-0.0672 (-0.456)	0.0550 (0.347)	-0.7219* (-1.799)	0.1034 (0.860)	0.5203** (2.507)	-0.0669 (-0.454)
SOE <sub>t-1</sub> xBKCR	-2.8797 (-1.426)	-3.6620 (-1.591)	2.0380 (0.588)	-7.6003*** (-2.586)	-8.1166*** (-2.682)	10.7959 (1.342)	-3.9053* (-1.668)	1.6052 (0.454)	-7.2261** (-2.426)
FOR <sub>t-1</sub> xBKCR	0.7569 (0.443)	0.5024 (0.292)	3.0039 (1.497)	-2.6299 (-0.853)	-1.8127 (-0.553)	-7.2657 (-0.893)	0.5565 (0.323)	3.0900 (1.542)	-2.6356 (-0.856)
Ln(assets) <sub>t-1</sub>		-13.7333*** (-20.212)	-11.5644*** (-11.188)	-16.2544*** (-17.467)	-15.2058*** (-14.632)	-20.5145*** (-11.318)	-13.7333*** (-20.086)	-11.7403*** (-11.332)	-16.0800*** (-17.059)
(Cust. Dep/Assets) <sub>t-1</sub>		-0.0001 (-0.006)	0.0072 (0.269)	-0.0081 (-0.274)	0.0030 (0.092)	-0.0246 (-0.362)	0.0006 (0.029)	0.0076 (0.285)	-0.0079 (-0.267)
(Equity/Assets) <sub>t-1</sub>		0.0654*** (2.800)	-0.0254 (-0.318)	0.0813*** (3.090)	0.0748*** (2.934)	0.3311** (2.219)	0.0655*** (2.808)	-0.0246 (-0.308)	0.0809*** (3.089)
(Liquid Assets /Dep & ST Funding) <sub>t-1</sub>		-0.0000 (-0.914)	-0.0000 (-1.116)	-0.0000 (-0.680)	-0.0000 (-0.720)	0.0029 (0.603)	-0.0000 (-0.910)	-0.0000 (-1.137)	-0.0000 (-0.674)
Ln(assets) <sub>t-1</sub> xGR							-0.0168 (-0.610)	0.0383 (0.958)	-0.0333 (-0.883)
Ln(assets) <sub>t-1</sub> xBKCR							0.2406 (0.786)	0.4633 (1.469)	-0.4201 (-0.557)
N. Obs	78,719	75,019	42,366	32,653	25,434	7219	75,019	42,366	32,653
R2	0.364	0.398	0.336	0.440	0.418	0.526	0.398	0.336	0.440
Sample	ALL	ALL	AE	EMDE	MIC	LIC	ALL	AE	EMDE
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countries	175	175	48	127	71	56	127	71	56
Banks	5574	5421	2887	2534	1956	578	5421	2887	2534

Robust *t*- statistics clustered at the bank level in parentheses;

\*\*\* *p* < 0.01,.

\*\* *p* < 0.05,.

\* *p* < 0.1.

**Table 12**

Loan Growth, GDP Growth and Global Economic Conditions. This table reports a set of bank-level regressions where the dependent variable is annual net loan growth and the explanatory variables are the lagged values of a dummy that takes value 1 for state-owned banks (using the 50% ownership threshold) and a dummy that takes value 1 for foreign-owned banks (using the 50% ownership threshold), the interaction between these dummies and each of domestic real GDP growth and world GDP growth, the log of lagged total assets also interacted with domestic real GDP growth and the broad dollar index, lagged customer deposits over assets lagged equity over assets and lag liquid assets over deposits and short terms funding. Regressions do not include US banks.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SOE <sub>t-1</sub>	-0.6012 (-0.263)	-0.6540 (-0.281)	-3.5162 (-1.452)	2.8479 (0.671)	1.2393 (0.275)	20.0428** (2.465)	-0.7926 (-0.340)	-3.6918 (-1.521)	2.5986 (0.612)
SOE <sub>t-1</sub> xGR	6.2378* (3.033)	3.5443 (1.309)	8.8247* (1.804)	1.7136 (0.525)	2.0503 (0.533)	3.6494 (0.652)	3.5543 (1.312)	8.8817* (1.818)	1.7613 (0.539)
FOR <sub>t-1</sub>	-0.2936** (-2.294)	-0.2395* (-1.818)	-0.2274 (-0.578)	-0.2604* (-1.840)	-0.1593 (-1.065)	-0.9442** (-2.214)	-0.2299* (-1.666)	-0.3279 (-0.850)	-0.2600* (-1.838)
FOR <sub>t-1</sub> xGR	-0.1900 (-1.240)	-0.0780 (-0.521)	-0.0491 (-0.153)	-0.0934 (-0.544)	0.0458 (0.250)	-0.7931* (-1.720)	-0.0767 (-0.513)	-0.0580 (-0.181)	-0.0917 (-0.533)
SOE <sub>t-1</sub> xWorld GR	-1.0493*** (-4.345)	-0.6817*** (-2.626)	-0.5036 (-1.126)	-0.8416** (-2.453)	-1.0762*** (-2.755)	0.2131 (0.345)	-0.6449** (-2.356)	-0.3339 (-0.741)	-0.7594** (-2.124)
FOR <sub>t-1</sub> xWorld GR	0.7137*** (2.639)	0.5966** (2.253)	1.2195** (2.525)	0.1386 (0.414)	0.0108 (0.028)	0.4239 (0.700)	0.5870** (2.221)	1.2306** (2.558)	0.1157 (0.343)
Ln(assets) <sub>t-1</sub>		-13.7217*** (-20.194)	-11.5395*** (-11.151)	-16.2719*** (-17.472)	-15.2358*** (-14.651)	-20.5277*** (-11.282)	-13.6193*** (-20.130)	-11.3366*** (-11.075)	-16.0695*** (-17.008)
(Cust. Dep/Assets) <sub>t-1</sub>		-0.0003 (-0.015)	0.0071 (0.265)	-0.0090 (-0.303)	0.0024 (0.074)	-0.0294 (-0.435)	-0.0000 (-0.002)	0.0061 (0.229)	-0.0085 (-0.287)
(Equity/Assets) <sub>t-1</sub>		0.0654*** (2.801)	-0.0272 (-0.340)	0.0822*** (3.106)	0.0757*** (2.955)	0.3272** (2.189)	0.0653*** (2.796)	-0.0268 (-0.334)	0.0821*** (3.096)
(Liquid Assets /Dep & ST Funding) <sub>t-1</sub>		-0.0000 (-0.920)	-0.0000 (-1.203)	-0.0000 (-0.687)	-0.0000 (-0.727)	0.0029 (0.601)	-0.0000 (-0.915)	-0.0000 (-1.099)	-0.0000 (-0.682)
Ln(assets) <sub>t-1</sub> xGR							-0.0081 (-0.217)	0.0912 (1.459)	
Ln(assets) <sub>t-1</sub> xWorld GR							-0.0276 (-0.444)	-0.1250 (-1.476)	-0.0695 (-0.890)
N. Obs	78,719	75,019	42,366	32,653	25,434	7219	75,019	42,366	32,653
R2	0.365	0.398	0.336	0.440	0.418	0.525	0.398	0.336	0.440
Sample	ALL	ALL	AE	EMDE	MIC	LIC	ALL	AE	EMDE
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countries	175	175	48	127	71	56	175	48	127
Banks	5567	5413	2879	2534	1956	578	5413	2879	2534

Robust *t*-statistics clustered at the bank level in parentheses;

\*\*\* *p* < 0.01,.

\*\* *p* < 0.05,.

\* *p* < 0.1.

**Table 13**

Asymmetric effects of domestic and Global Economic Conditions. This table reports a set of bank-level regressions where the dependent variable is annual net loan growth and the explanatory variables are the lagged net loans, the lagged values of a dummy that takes value 1 for state-owned banks and a dummy that takes value 1 for foreign-owned banks, the interaction between these dummies and each of domestic real GDP growth and the broad dollar index (columns 1, 3, and 5, see the definition of INT2 in the last row of the table) and World Growth (columns 2, 4, and 6, see the definition of INT2 in the last row of the table). The regressions also include a triple interaction with a dummy that takes value 1 when domestic GDP growth is below its long-term average (BT1) and a dummy (BT2) that takes value one when the dollar index is above its long term average (columns 1, 3, and 5) and world growth is below its long term average (columns 2, 4, and 6). The regressions include the same of controls and fixed effects included in column 2 of Table 10. The bottom panel reports the sum of interactive coefficients with p-values in parentheses).  $SOE_{t-1} \times GR+$   $SOE_{t-1} \times GR \times BT1$  measures the total effect of domestic shocks on state-owned banks lending in bad times;  $FOR_{t-1} \times GR+$   $FOR_{t-1} \times GR \times BT1$  measures the corresponding effect for foreign banks.  $SOE_{t-1} \times INT2+$   $SOE_{t-1} \times INT2 \times BT2$  measures the total effect of external shocks on state-owned banks lending in bad times;  $FOR_{t-1} \times INT2+$   $FOR_{t-1} \times INT2 \times BT2$  measures rge corresponding effect for foreign-owned banks.

	(1)	(2)	(3)	(4)	(5)	(6)
$SOE_{t-1}$	-23.9613** (-2.038)	-0.5060 (-0.217)	-15.0745 (-0.704)	-3.2312 (-1.336)	-25.6600* (-1.732)	3.0150 (0.704)
$FOR_{t-1}$	24.4183** (2.188)	3.5290 (1.293)	21.9426 (1.405)	8.1511 (1.638)	31.2329* (1.938)	1.8431 (0.562)
$SOE_{t-1} \times GR$	-0.4379*** (-2.701)	-0.2537 (-1.527)	-0.5417* (-1.737)	-0.2876 (-0.790)	-0.4568** (-2.325)	-0.2715 (-1.391)
$FOR_{t-1} \times GR$	-0.0427 (-0.252)	-0.0836 (-0.458)	0.4744 (1.567)	0.0512 (0.145)	-0.2340 (-1.149)	-0.1031 (-0.466)
$SOE_{t-1} \times INT2$	0.2702* (1.936)	-0.8946*** (-3.221)	0.1320 (0.519)	-0.7902 (-1.469)	0.3288* (1.906)	-1.0341*** (-2.810)
$FOR_{t-1} \times INT2$	-0.2125 (-1.604)	0.5739** (2.023)	-0.1056 (-0.581)	1.3669*** (2.654)	-0.3276* (-1.697)	-0.0326 (-0.089)
$SOE_{t-1} \times GR \times BT1$	0.2224 (0.788)	0.0862 (0.300)	0.4562 (0.769)	0.2301 (0.328)	0.1820 (0.548)	0.0748 (0.226)
$FOR_{t-1} \times GR \times BT1$	0.1588 (0.658)	0.0152 (0.063)	-0.0786 (-0.198)	-0.2857 (-0.649)	0.2198 (0.727)	0.0714 (0.234)
$SOE_{t-1} \times INT2 \times BT2$	-0.0446* (-1.955)	0.6733** (2.574)	-0.0179 (-0.486)	0.8102* (1.726)	-0.0549* (-1.846)	0.6386* (1.908)
$FOR_{t-1} \times INT2 \times BT2$	-0.0019 (-0.085)	0.0957 (0.384)	-0.0259 (-0.865)	-0.2175 (-0.551)	0.0168 (0.525)	0.4984 (1.532)
N. Obs	75,019	75,019	42,366	42,366	32,653	32,653
R2	0.398	0.398	0.336	0.336	0.440	0.440
Sample	ALL	ALL	AE	AE	EMDE	EMDE
$SOE_{t-1} \times GR+$ $SOE_{t-1} \times GR \times BT1$	-0.22 (0.3)	-0.17 (0.46)	-0.09 (0.87)	-0.058 (0.94)	-0.27 (0.22)	-0.120 (0.4)
$FOR_{t-1} \times GR+$ $FOR_{t-1} \times GR \times BT1$	0.12 (0.49)	-0.07 (0.73)	0.40 (0.14)	-0.23 (0.59)	-0.01 (0.95)	-0.032 (0.89)
$SOE_{t-1} \times INT2+$ $SOE_{t-1} \times INT2 \times BT2$	0.23 (0.06)	-0.22 (0.47)	0.11 (0.61)	0.02 (0.97)	0.27 (0.06)	-0.40 (0.31)
$FOR_{t-1} \times INT2+$ $FOR_{t-1} \times INT2 \times BT2$	-0.21 (0.06)	0.67 (0.03)	-0.13 (0.4)	1.149 (0.06)	-0.311 (0.06)	0.47 (0.21)
INT2 is	Dollar	World	Dollar	World	Dollar	World
	Index	Growth	Index	Growth	Index	Growth

Robust *t*- statistics clustered at the bank level in parentheses;

\*\*\*  $p < 0.01$ .

\*\*  $p < 0.05$ .

\*  $p < 0.1$ .



**Table 14**

Returns on Assets: Local Projections. This table reports a set of bank-level regressions where the dependent variable is return on assets (at time  $t$ ;  $t + 1$ ;  $t + 2$ ;  $t + 3$ ) and the explanatory variables are as in column 1 of Table 6.

	$h = 0$	$h = 1$	$h = 2$	$h = 3$
ALL				
SOE	0.2564 (0.767)	0.3688 (0.906)	0.0757 (0.187)	-0.3601 (-0.860)
FOR	0.4693* (1.792)	0.4883 (1.514)	0.6930** (2.025)	0.8932** (2.568)
SOExGR	0.0052 (0.711)	0.0159* (1.87)	0.0125 (1.526)	-0.0039 (0.443)
FORxGR	-0.0096 (1.505)	-0.0142* (1.81)	-0.0258*** (3.273)	-0.0254*** (3.049)
SOExDollar Index	-0.0035 (1.058)	-0.0039 (1.05)	-0.0011 (0.254)	0.0051 (1.151)
FORxDollar Index	0.0005 (0.211)	-0.0002 (0.050)	-0.0028 (0.823)	-0.0061* (1.741)
EMDE				
SOE	0.1443 (0.300)	0.1977 (0.332)	-0.4577 (-0.754)	-0.9841 (-1.532)
FOR	0.2030 (0.527)	0.4447 (0.921)	0.6940 (1.349)	1.1670** (2.242)
SOExGR	0.0056 (0.651)	0.0179* (1.831)	0.0151 (1.566)	-0.0043 (-0.432)
FORxGR	-0.0172** (-2.042)	-0.0168 (-1.603)	-0.0305*** (-2.989)	-0.0301*** (-2.711)
SOExDollar Index	-0.0025 (-0.514)	-0.0033 (-0.604)	0.0012 (0.192)	0.0096 (1.450)
FORxDollar Index	0.0027 (0.714)	-0.0008 (-0.175)	-0.0049 (-0.923)	-0.0104* (-1.919)
MIC				
SOE	0.1374 (0.252)	-0.0148 (-0.022)	-0.7349 (-1.094)	-1.2206* (-1.717)
FOR	0.1432 (0.322)	0.4671 (0.854)	0.5647 (0.972)	0.9567 (1.611)
SOExGR	0.0058 (0.606)	0.0221** (2.081)	0.0166 (1.585)	-0.0098 (-0.886)
FORxGR	-0.0198** (-2.053)	-0.0208* (-1.738)	-0.0248** (-2.176)	-0.0238** (-1.963)
SOExDollar Index	-0.0022 (-0.395)	-0.0022 (-0.352)	0.0022 (0.317)	0.0105 (1.436)
FORxDollar Index	0.0037 (0.847)	-0.0010 (-0.189)	-0.0044 (-0.732)	-0.0094 (-1.520)
LIC				
SOE	0.2136 (0.224)	1.4000 (1.191)	0.9249 (0.767)	0.1776 (0.133)
FOR	0.5229 (0.710)	0.4998 (0.509)	1.3682 (1.314)	2.1479** (2.169)
SOExGR	0.0090 (0.490)	0.0005 (0.019)	0.0180 (0.743)	0.0354* (1.870)
FORxGR	-0.0038 (-0.283)	0.0099 (0.515)	-0.0479** (-2.467)	-0.0536** (-2.338)
SOExDollar Index	-0.0049 (-0.484)	-0.0095 (-0.760)	-0.0021 (-0.151)	0.0078 (0.509)
FORxDollar Index	-0.0024 (-0.309)	-0.0010 (-0.098)	-0.0071 (-0.641)	-0.0153 (-1.492)

Robust  $t$ -statistics clustered at the bank level in parentheses;

- \*\*\*  $p < 0.01$ ,.
- \*\*  $p < 0.05$ ,.
- \*  $p < 0.1$ .

future profitability of foreign owned banks. The negative point estimates of  $\beta_{1,h}$  indicate that foreign owned banks are relatively more profitable (compared to domestically owned private banks) in the aftermath of negative growth shocks. Focusing on external shocks, I find that state-owned banks tend to accumulate NPL after a tightening of global financial conditions and that global financial conditions have no significant effect on the profitability and NPL of foreign-owned banks (Table 15).

When I study the behavior of net interest margins, I find that domestic conditions do not matter but that margins of state-owned banks tend to increase when global financial conditions are tight. There is no effect, instead, for foreign owned banks (Table 16).

**Table 15**

Non-performing Loans: Local projections. This table reports a set of bank-level regressions where the dependent variable is non-performing loans (at time  $t$ ;  $t + 1$ ;  $t + 2$ ;  $t + 3$ ) and the explanatory variables are as in column 1 of Table 7.

	$h = 0$	$h = 1$	$h = 2$	$h = 3$
ALL				
SOE	-1.6093 (-1.020)	-4.9843** (-2.118)	-6.0572** (-2.229)	-5.1787 (-1.639)
FOR	-0.0271 (-0.020)	-0.6298 (-0.298)	-1.1169 (-0.449)	-1.0340 (-0.389)
SOExGR	0.0346 (0.891)	-0.1337** (2.025)	-0.0199 (0.354)	-0.1395* (1.848)
FORxGR	0.0417 (1.547)	0.1074** (2.013)	0.0189 (0.398)	0.1314** (2.514)
SOExDollar Index	0.0307** (1.985)	0.0787*** (2.966)	0.0641*** (2.759)	0.0630** (2.091)
FORxDollar Index	-0.0013 (0.101)	0.0102 (0.397)	0.0024 (0.112)	0.0145 (0.537)
EMDE				
SOE	-4.7219* (-1.958)	-9.5283*** (-2.594)	-9.4690** (-2.279)	-7.9450* (-1.675)
FOR	0.4869 (0.264)	0.9597 (0.321)	0.4162 (0.121)	1.0748 (0.294)
SOExGR	0.0930* (1.957)	0.0331 (0.484)	-0.1381* (-1.676)	-0.1525 (-1.643)
FORxGR	0.0704** (2.086)	0.0002 (0.004)	0.0881 (1.336)	0.1017 (1.584)
SOExDollar Index	0.0611*** (2.906)	0.1067*** (3.372)	0.1145*** (3.249)	0.0889** (2.206)
FORxDollar Index	-0.0086 (-0.474)	-0.0146 (-0.491)	-0.0036 (-0.102)	-0.0004 (-0.010)
MIC				
SOE	-2.1907 (-0.872)	-5.5218 (-1.528)	-6.1983 (-1.578)	-5.1019 (-1.165)
FOR	0.5802 (0.285)	0.8401 (0.263)	-0.1974 (-0.055)	0.8428 (0.228)
SOExGR	0.0942* (1.932)	0.0016 (0.022)	-0.1072 (-1.158)	-0.0783 (-0.829)
FORxGR	0.0548 (1.620)	-0.0429 (-0.800)	0.0658 (0.998)	0.1099* (1.714)
SOExDollar Index	0.0437* (1.952)	0.0855** (2.520)	0.1053*** (2.790)	0.0861** (2.074)
FORxDollar Index	-0.0085 (-0.412)	-0.0114 (-0.344)	0.0046 (0.121)	-0.0019 (-0.048)
LIC				
SOE	-14.7768*** (-2.661)	-24.5575*** (-2.917)	-22.1782** (-2.306)	-18.3310 (-1.434)
FOR	0.2842 (0.064)	2.2413 (0.287)	3.0530 (0.310)	0.6870 (0.062)
SOExGR	0.0658 (0.446)	0.1736 (0.992)	-0.2629* (-1.694)	-0.4755** (-2.068)
FORxGR	0.1508 (1.344)	0.2138 (0.916)	0.1790 (0.859)	-0.0055 (-0.027)
SOExDollar Index	0.1317** (2.369)	0.1742** (2.158)	0.1350 (1.493)	0.0716 (0.577)
FORxDollar Index	-0.0145 (-0.390)	-0.0365 (-0.556)	-0.0383 (-0.450)	0.0336 (0.347)

Robust  $t$ -statistics clustered at the bank level in parentheses;

- \*\*\*  $p < 0.01$ ,.
- \*\*  $p < 0.05$ ,.
- \*  $p < 0.1$ .

To probe further, I explore asymmetries in the local projection regressions. I find that profits of foreign owned banks are relatively high in the aftermath of negative domestic growth shocks and those of state-owned banks increase after global financial conditions tighten (Appendix Table A5). I do not find any strong asymmetric effects for non-performing loans and net interest margins (Appendix Tables A6 and A7).

## 7. Conclusions and directions for future research

Using a novel dataset of bank ownership covering more than 6500 banks in 181 countries from 1995 to 2020, I show that in developing economies, the presence of foreign and state-owned banks tends to be

**Table 16**

Net interest margin: Local projections. This table reports a set of bank-level regressions where the dependent variable is net interest margin (at time  $t$ ;  $t + 1$ ;  $t + 2$ ;  $t + 3$ ) and the explanatory variables are as in column 1 of Table 8.

	$h = 0$ ALL	$h = 1$	$h = 2$	$h = 3$
SOE	-0.5496 (-1.562)	-0.6053 (-1.188)	-0.8634 (-1.493)	-1.2329* (-1.955)
FOR	0.5359* (1.872)	0.5002 (1.294)	0.6555 (1.536)	0.7299* (1.682)
SOExGR	0.0248* (1.951)	0.0441*** (3.008)	0.0053 (0.447)	0.0093 (0.740)
FORxGR	-0.0152* (1.952)	-0.0297*** (3.105)	-0.0208** (2.188)	-0.0138 (1.426)
SOExDollar Index	0.0030 (0.859)	0.0054 (1.045)	0.0107* (1.771)	0.0143** (2.217)
FORxDollar Index	-0.0002 (0.073)	0.0039 (1.202)	0.0029 (0.752)	0.0009 (0.213)
	EMDE			
SOE	-0.7855 (-1.290)	-1.1006 (-1.236)	-1.1668 (-1.174)	-1.6057 (-1.497)
FOR	0.8054* (1.731)	0.7404 (1.148)	0.8140 (1.142)	0.9102 (1.230)
SOExGR	0.0259* (1.653)	0.0464** (2.484)	-0.0015 (-0.101)	0.0040 (0.250)
FORxGR	-0.0240** (-2.101)	-0.0406*** (-3.039)	-0.0281** (-2.172)	-0.0157 (-1.141)
SOExDollar Index	0.0045 (0.798)	0.0108 (1.279)	0.0151 (1.564)	0.0192* (1.858)
FORxDollar Index	-0.0026 (-0.624)	0.0028 (0.466)	0.0019 (0.279)	-0.0002 (-0.023)
	MIC			
SOE	-1.0129 (-1.441)	-1.3898 (-1.357)	-1.3361 (-1.176)	-1.9872* (-1.658)
FOR	0.7007 (1.314)	0.7544 (1.013)	0.7843 (0.954)	0.9770 (1.153)
SOExGR	0.0313* (1.780)	0.0509** (2.420)	-0.0106 (-0.624)	-0.0023 (-0.131)
FORxGR	-0.0286** (-2.186)	-0.0440*** (-2.884)	-0.0342** (-2.346)	-0.0201 (-1.284)
SOExDollar Index	0.0064 (0.974)	0.0132 (1.365)	0.0164 (1.502)	0.0225** (1.974)
FORxDollar Index	-0.0022 (-0.455)	0.0030 (0.442)	0.0025 (0.315)	-0.0008 (-0.090)
	LIC			
SOE	0.3562 (0.382)	0.4850 (0.359)	-0.1581 (-0.096)	0.6570 (0.292)
FOR	1.1392 (1.280)	0.6248 (0.524)	1.0697 (0.814)	0.7263 (0.526)
SOExGR	-0.0152 (-0.780)	0.0022 (0.094)	0.0491 (1.560)	0.0570** (2.282)
FORxGR	-0.0018 (-0.108)	-0.0271 (-1.324)	0.0044 (0.187)	0.0140 (0.664)
SOExDollar Index	-0.0032 (-0.326)	-0.0004 (-0.024)	0.0076 (0.412)	-0.0016 (-0.066)
FORxDollar Index	-0.0047 (-0.589)	0.0014 (0.119)	-0.0021 (-0.156)	0.0006 (0.043)

Robust  $t$ - statistics clustered at the bank level in parentheses;

\*\*\*  $p < 0.01$ ,

\*\*  $p < 0.05$ ,

\*  $p < 0.1$ .

positively associated with higher GDP growth, although this association is not always statistically significant. The correlation between state-owned banks and financial depth is rarely statistically significant and varies depending on the model: it is positive in models without country fixed effects and negative in those with country fixed effects. Conversely, a larger share of foreign-owned banks is consistently associated with lower financial depth, but this correlation is also rarely statistically significant.

Bank-level data show that state-owned banks are less profitable than their private counterparts, whereas foreign banks do not exhibit statistically significant differences from domestic private banks. Upon examining the factors driving profitability differences between private and state-owned banks, I find large differences in non-performing loans

and non-interest expenses, particularly personnel expenses. The data show that state owned banks have a riskier loan portfolio and larger administrative expenses. Instead, net interest margins do not contribute to explaining differences in profitability. If anything, state-owned banks in developing and emerging economies have higher margins, with the difference being statistically significant in middle-income economies. This is because state-owned banks located in developing and emerging economies benefit from lower funding costs but do not fully transfer these savings to their customers; in fact, their net interest margin is higher than that of private banks

In line with previous evidence, I find that state-owned banks play a crucial role in stabilizing credit when domestic GDP growth is low. Foreign-owned banks, instead, behave like domestic private banks when

hit by domestic shocks but tend to amplify external financial and real shocks.

This paper merely scratches the surface of the potential research that can be conducted using the newly assembled dataset of bank ownership. One potential direction for future research is utilizing bank-level data to examine the heterogeneity of bank and country characteristics within ownership groups. For example, while [Detragiache et al. \(2008\)](#) demonstrate that foreign banks negatively affect domestic credit in low-income economies, [Claessens and Van Horen \(2015\)](#) show that the relationship between the presence of foreign banks and credit to the private sector depends on their market share, institutional quality, and distance from the source country. More in general, bank-level data can be used to study how ownership influences competition within the domestic banking system by employing both country-level measures of competition ([Claessens and Laeven, 2004](#) and [Levy-Yeyati and Micco, 2007](#) study the role of foreign owned banks) and bank-level measures of market power ([Delis et al., 2016](#)).

Regarding the macro-stabilization role of various types of banks, bank-level data can be used to examine how the lending behavior of different banks can either amplify or hinder macroeconomic policies. Additionally, these data can help in studying whether lending stabilization by state-owned banks can play a role in the presence of pro-cyclical macroeconomic policies.

On a more technical level, bank-level data can be employed to

construct granular instrumental variables and explore the causal impact of bank lending on macroeconomic outcomes. [Gabaix and Koijen \(2020\)](#) demonstrate that a few large firms significantly influence economic activity. By isolating idiosyncratic shocks to these firms from aggregate shocks, it becomes possible to estimate the causal relationship between bank lending and economic activity.

Finally, the new dataset allows studying the behavior of different types of banks during banking crises in both host and source countries and assessing whether the structure of the banking system has a causal effect on the likelihood of a banking crisis. Bank-level data allow going beyond simple binary indicators of generalized banking crises and look at bank balance sheets to identify the roots of banking crises.

#### CRediT authorship contribution statement

**Ugo Panizza:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

#### Data availability

The authors do not have permission to share data.

## Appendix

### A1. Constructions of the dataset

I source bank-level information on income and balance sheet statements over 1995–2020 from Fitch Connect. There are three key issues with this dataset:

- (i) Fitch Connect does not report ownership information for every bank included in the dataset. Even when available, ownership is only reported for the last available year.
- (ii) Fitch Connect does not always separate banks from non-bank financial intermediaries.
- (iii) Fitch Connect reports multiple observations for individual banks (depending on consolidation levels and accounting standards) and does not clearly identify the main units of large banking groups.

For state ownership, I update the data from [Panizza \(2023\)](#) to 2020. For foreign ownership, I use the same hand-coding procedure used to classify state-ownership.<sup>18</sup> For a subset of banks for which I could not find ownership information, I use information from [Claessens and Van Horen \(2015\)](#).<sup>19</sup>

In building ownership shares, I follow, [La Porta et al. \(2002\)](#) and classify ownership by foreign governments as private rather than state ownership. The rationale for this choice is that banks owned by foreign governments are unlikely to have a social mandate that focuses on the host country. I exclude from the sample central banks, Islamic banks, multilateral banks, and non-bank financial institutions (for instance, leasing and factoring companies). I include development banks but compute ownership shares with and without development banks.<sup>20</sup>

After cleaning and coding the data, I am left with an unbalanced panel of about 6500 banks (of which about 200 are development banks) in 181 countries over the period 1995–2020 and a total of over 95,000 observations for which I have information on total assets (nearly 92,000 observations if I exclude development banks).

**Table A1**

List of Countries and Country Groups.

Country	AE	MIC	LIC	EAP	ECA	LAC	MNA	SAS	SSA
AFG	0	0	1	0	0	0	0	1	0
AGO	0	1	0	0	0	0	0	0	1
ALB	0	1	0	0	1	0	0	0	0
AND	1	0	0	0	0	0	0	0	0
ARE	1	0	0	0	0	0	1	0	0
ARG	0	1	0	0	0	1	0	0	0
ARM	0	1	0	0	1	0	0	0	0

(continued on next page)

<sup>18</sup> Thanks to Matteo Ficarra for his help in this extremely tedious task.

<sup>19</sup> One caveat with these data is that they end in 2009 and do not report the share of foreign ownership but simply a dummy that takes value 1 for foreign-owned banks. In the bank-level dataset, I include a dummy that identifies bank-years for which ownership was coded using [Claessens and Van Horen's \(2015\)](#) data.

<sup>20</sup> The bank-level dataset includes a variable that allows to identify development banks.

Table A1 (continued)

Country	AE	MIC	LIC	EAP	ECA	LAC	MNA	SAS	SSA
AUS	1	0	0	0	0	0	0	0	0
AUT	1	0	0	0	0	0	0	0	0
AZE	0	1	0	0	1	0	0	0	0
BDI	0	0	1	0	0	0	0	0	1
BEL	1	0	0	0	0	0	0	0	0
BEN	0	0	1	0	0	0	0	0	1
BFA	0	0	1	0	0	0	0	0	1
BGD	0	0	1	0	0	0	0	1	0
BGR	1	0	0	0	1	0	0	0	0
BHR	0	1	0	0	0	0	1	0	0
BHS	1	0	0	0	0	1	0	0	0
BIH	0	1	0	0	1	0	0	0	0
BLR	0	1	0	0	1	0	0	0	0
BLZ	0	1	0	0	0	1	0	0	0
BMU	1	0	0	0	0	0	0	0	0
BOL	0	0	1	0	0	1	0	0	0
BRA	0	1	0	0	0	1	0	0	0
BRB	1	0	0	0	0	1	0	0	0
BRN	1	0	0	1	0	0	0	0	0
BTN	0	0	1	0	0	0	0	1	0
BWA	0	1	0	0	0	0	0	0	1
CAF	0	0	1	0	0	0	0	0	1
CAN	1	0	0	0	0	0	0	0	0
CHE	1	0	0	0	0	0	0	0	0
CHL	0	1	0	0	0	1	0	0	0
CHN	0	1	0	1	0	0	0	0	0
CIV	0	1	0	0	1	0	0	0	0
CMR	0	0	1	0	0	0	0	0	1
COD	0	0	1	0	0	0	0	0	1
COG	0	0	1	0	0	0	0	0	1
COL	0	1	0	0	0	1	0	0	0
CPV	0	0	1	0	0	0	0	0	1
CRI	0	1	0	0	0	1	0	0	0
CYP	1	0	0	0	0	0	0	0	0
CZE	1	0	0	0	1	0	0	0	0
DEU	1	0	0	0	0	0	0	0	0
DJI	0	0	1	0	0	0	1	0	0
DMA	0	1	0	0	0	1	0	0	0
DNK	1	0	0	0	0	0	0	0	0
DOM	0	1	0	0	0	1	0	0	0
DZA	0	1	0	0	0	0	1	0	0
ECU	0	1	0	0	0	1	0	0	0
EGY	0	1	0	0	0	0	1	0	0
ERI	0	0	1	0	0	0	0	0	1
ESP	1	0	0	0	0	0	0	0	0
EST	1	0	0	0	1	0	0	0	0
ETH	0	0	1	0	0	0	0	0	1
FIN	1	0	0	0	0	0	0	0	0
FJI	0	1	0	1	0	0	0	0	0
FRA	1	0	0	0	0	0	0	0	0
GAB	0	1	0	0	0	0	0	0	1
GBR	1	0	0	0	0	0	0	0	0
GEO	0	1	0	0	1	0	0	0	0
GHA	0	0	1	0	0	0	0	0	1
GIN	0	0	1	0	0	0	0	0	1
GMB	0	0	1	0	0	0	0	0	1
GRC	1	0	0	0	0	0	0	0	0
GRD	0	1	0	0	0	1	0	0	0
GTM	0	1	0	0	0	1	0	0	0
GUY	0	1	0	0	0	1	0	0	0
HKG	1	0	0	0	0	0	0	0	0
HND	0	0	1	0	0	1	0	0	0
HRV	1	0	0	0	1	0	0	0	0
HTI	0	0	1	0	0	1	0	0	0
HUN	1	0	0	0	1	0	0	0	0
IDN	0	1	0	1	0	0	0	0	0
IND	0	1	0	0	0	0	0	1	0
IRL	1	0	0	0	0	0	0	0	0
IRN	0	1	0	0	0	0	1	0	0
IRQ	0	1	0	0	0	0	1	0	0
ISL	1	0	0	0	0	0	0	0	0
ISR	1	0	0	0	0	0	0	0	0
ITA	1	0	0	0	0	0	0	0	0
JAM	0	1	0	0	0	1	0	0	0
JOR	0	1	0	0	0	0	1	0	0
JPN	1	0	0	0	0	0	0	0	0

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Table A1 (continued)

Country	AE	MIC	LIC	EAP	ECA	LAC	MNA	SAS	SSA
KAZ	0	1	0	0	1	0	0	0	0
KEN	0	0	1	0	0	0	0	0	1
KGZ	0	0	1	0	1	0	0	0	0
KHM	0	0	1	1	0	0	0	0	0
KIR	0	0	1	1	0	0	0	0	0
KOR	1	0	0	1	0	0	0	0	0
KWT	1	0	0	0	0	0	1	0	0
LAO	0	0	1	1	0	0	0	0	0
LBN	0	1	0	0	0	0	1	0	0
LBR	0	0	1	0	0	0	0	0	1
LBY	0	1	0	0	0	0	1	0	0
LIE	1	0	0	0	0	0	0	0	0
LKA	0	1	0	0	0	0	0	1	0
LSO	0	0	1	0	0	0	0	0	1
LTU	1	0	0	0	1	0	0	0	0
LUX	1	0	0	0	0	0	0	0	0
LVA	1	0	0	0	1	0	0	0	0
MAR	0	1	0	0	0	0	1	0	0
MDA	0	0	1	0	1	0	0	0	0
MDG	0	0	1	0	0	0	0	0	1
MDV	0	1	0	0	0	0	0	1	0
MEX	0	1	0	0	0	1	0	0	0
MKD	0	1	0	0	1	0	0	0	0
MLI	0	0	1	0	0	0	0	0	1
MLT	1	0	0	0	0	0	0	0	0
MMR	0	0	1	1	0	0	0	0	0
MNE	0	1	0	0	1	0	0	0	0
MNG	0	0	1	1	0	0	0	0	0
MOZ	0	0	1	0	0	0	0	0	1
MRT	0	0	1	0	0	0	0	0	1
MUS	0	1	0	0	0	0	0	0	1
MWI	0	0	1	0	0	0	0	0	1
MYS	0	1	0	1	0	0	0	0	0
NAM	0	1	0	0	0	0	0	0	1
NER	0	0	1	0	0	0	0	0	1
NGA	0	0	1	0	0	0	0	0	1
NIC	0	0	1	0	0	1	0	0	0
NLD	1	0	0	0	0	0	0	0	0
NOR	1	0	0	0	0	0	0	0	0
NPL	0	0	1	0	0	0	0	1	0
NZL	1	0	0	0	0	0	0	0	0
OMN	0	1	0	0	0	0	1	0	0
PAK	0	1	0	0	0	0	0	1	0
PAN	0	1	0	0	0	1	0	0	0
PER	0	1	0	0	0	1	0	0	0
PHL	0	1	0	1	0	0	0	0	0
PNG	0	0	1	1	0	0	0	0	0
POL	1	0	0	0	1	0	0	0	0
PRT	1	0	0	0	0	0	0	0	0
PRY	0	1	0	0	0	1	0	0	0
PSE	0	1	0	0	0	0	0	0	0
QAT	1	0	0	0	0	0	1	0	0
ROU	1	0	0	0	1	0	0	0	0
RUS	0	1	0	0	1	0	0	0	0
RWA	0	0	1	0	0	0	0	0	1
SAU	0	1	0	0	0	0	1	0	0
SDN	0	0	1	0	0	0	0	0	1
SEN	0	0	1	0	0	0	0	0	1
SGP	1	0	0	0	0	0	0	0	0
SLE	0	0	1	0	0	0	0	0	1
SLV	0	1	0	0	0	1	0	0	0
SRB	0	1	0	0	1	0	0	0	0
STP	0	0	1	0	0	0	0	0	1
SUR	0	1	0	0	0	1	0	0	0
SVK	1	0	0	0	1	0	0	0	0
SVN	1	0	0	0	1	0	0	0	0
SWE	1	0	0	0	0	0	0	0	0
SYC	0	1	0	0	0	0	0	0	1
SYR	0	0	1	0	0	0	1	0	0
TCD	0	0	1	0	0	0	0	0	1
TGO	0	0	1	0	0	0	0	0	1
THA	0	1	0	1	0	0	0	0	0
TJK	0	0	1	0	1	0	0	0	0
TKM	0	1	0	0	1	0	0	0	0
TON	0	1	0	1	0	0	0	0	0
TTO	0	1	0	0	0	1	0	0	0

(continued on next page)

Table A1 (continued)

Country	AE	MIC	LIC	EAP	ECA	LAC	MNA	SAS	SSA
TUN	0	1	0	0	0	0	1	0	0
TUR	0	1	0	0	1	0	0	0	0
TUV	0	1	0	1	0	0	0	0	0
TZA	0	0	1	0	0	0	0	0	1
UGA	0	0	1	0	0	0	0	0	1
UKR	0	1	0	0	1	0	0	0	0
URY	0	1	0	0	0	1	0	0	0
USA	1	0	0	0	0	0	0	0	0
UZB	0	0	1	0	1	0	0	0	0
VEN	0	1	0	0	0	1	0	0	0
VNM	0	0	1	1	0	0	0	0	0
VUT	0	1	0	1	0	0	0	0	0
WSM	0	0	1	1	0	0	0	0	0
XKX	0	1	0	0	1	0	0	0	0
YEM	0	0	1	0	0	0	1	0	0
ZAF	0	1	0	0	0	0	0	0	1
ZMB	0	0	1	0	0	0	0	0	1
ZWE	0	0	1	0	0	0	0	0	1

Table A2

Interest Expenses and Bank Ownership This table reports a set of bank-level regressions where the dependent variable is the interest expenses over average interest-bearing liabilities and the explanatory variables are two dummies controlling for the lag of state and foreign ownership (defined using the 50% ownership threshold), and the lagged value of log total assets customer deposits over assets, loan over assets, equity over assets and liquid assets over deposits and short-term funds. All regressions include country-year fixed effects and fixed effects controlling for bank type (sector fixed effects). The table also reports the number of countries and banks included in each regression. The bottom two panels restrict the sample to 1995–2009 and 2010–2020, respectively. The regressions for these two subsamples include the same set of controls as the regressions in the top panel but only report results for the ownership variables.

	(1)	(2)	(3)	(4)	(5)
SOE <sub>t-1</sub>	-0.4133*** (-4.355)	0.1649** (2.008)	-0.5638*** (-4.584)	-0.6174*** (-4.336)	-0.2961 (-1.294)
FOR <sub>t-1</sub>	-0.5069*** (-7.682)	-0.1719** (-2.186)	-0.7903*** (-8.140)	-0.7329*** (-6.770)	-0.9716*** (-4.988)
ln(Assets <sub>t-1</sub> )	-0.0587*** (-4.581)	0.0002 (0.016)	-0.2346*** (-9.297)	-0.1820*** (-7.018)	-0.7561*** (-8.635)
Cust. Dep. <sub>t-1</sub> /Assets <sub>t-1</sub>	-0.0145*** (-12.322)	-0.0176*** (-13.748)	-0.0023 (-0.963)	-0.0003 (-0.118)	-0.0218*** (-3.585)
Loan <sub>t-1</sub> /Assets <sub>t-1</sub>	0.0136*** (11.534)	0.0050*** (4.650)	0.0375*** (13.574)	0.0352*** (11.569)	0.0459*** (7.727)
Equity <sub>t-1</sub> /Assets <sub>t-1</sub>	-0.0014 (-0.887)	-0.0046 (-1.090)	-0.0015 (-0.896)	-0.0012 (-0.820)	-0.0393*** (-3.766)
Liquid Assets <sub>t-1</sub> /Dep & ST Funding <sub>t-1</sub>	-0.0000 (-1.374)	-0.0000** (-2.037)	-0.0001* (-1.672)	-0.0001 (-1.435)	-0.0010 (-1.302)
N. Obs	71,333	42,923	28,756	22,282	6474
R2	0.730	0.663	0.690	0.692	0.682
Countries	177	49	128	71	57
1995–2009					
SOE <sub>t-1</sub>	-0.4161*** (-3.760)	0.3105*** (2.715)	-0.6201*** (-4.333)	-0.6626*** (-4.096)	-0.3633 (-1.233)
FOR <sub>t-1</sub>	-0.4408*** (-5.483)	-0.1362 (-1.449)	-0.7851*** (-6.196)	-0.7196*** (-5.104)	-0.9803*** (-3.904)
N. Obs	41,753	26,470	15,558	12,236	3322
R2	0.713	0.606	0.685	0.682	0.694
Countries	175	49	126	71	55
2010–2020					
SOE <sub>t-1</sub>	-0.4081*** (-3.217)	-0.0808 (-1.039)	-0.4994*** (-3.031)	-0.5691*** (-2.856)	-0.2181 (-0.781)
FOR <sub>t-1</sub>	-0.5799*** (-7.263)	-0.2315** (-2.430)	-0.7907*** (-7.101)	-0.7479*** (-6.191)	-0.9337*** (-3.841)
N. Obs	29,580	16,453	13,198	10,046	3152
Countries	170	49	121	67	54
Countries	170	49	121	67	54
Sample	ALL	AE	EMDE	MIC	LIC
Country-year FE	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes

Robust *t*-statistics clustered at the bank level in parentheses;

\*\*\* *p* < 0.01,.

\*\* *p* < 0.05,.

\* *p* < 0.1.

**Table A3**

Interest Income and Bank Ownership This table reports a set of bank-level regressions where the dependent variable is the interest income over average earning assets and the explanatory variables are two dummies controlling for the lag of state and foreign ownership (defined using the 50% ownership threshold), and the lagged value of log total assets customer deposits over assets, loan over assets, equity over assets and liquid assets over deposits and short-term funds. All regressions include country-year fixed effects and fixed effects controlling for bank type (sector fixed effects). The table also reports the number of countries and banks included in each regression. The bottom two panels restrict the sample to 1995–2009 and 2010–2020, respectively. The regressions for these two subsamples include the same set of controls as the regressions in the to panel but only report results for the ownership variables.

	(1)	(2)	(3)	(4)	(5)
SOE <sub>t-1</sub>	-0.2870** (-2.017)	0.0111 (0.087)	-0.2316 (-1.344)	-0.1072 (-0.553)	-0.7297* (-1.919)
FOR <sub>t-1</sub>	-0.5347*** (-5.078)	-0.1711 (-1.393)	-0.7625*** (-4.889)	-0.7547*** (-4.287)	-0.7519** (-2.312)
ln(Assets <sub>t-1</sub> )	-0.2550*** (-12.467)	-0.0831*** (-4.278)	-0.6189*** (-14.362)	-0.6016*** (-13.287)	-0.7556*** (-5.146)
Cust. Dep. <sub>t-1</sub> /Assets <sub>t-1</sub>	-0.0013 (-0.649)	-0.0069*** (-3.217)	0.0277*** (7.433)	0.0300*** (7.632)	0.0155 (1.208)
Loan <sub>t-1</sub> /Assets <sub>t-1</sub>	0.0372*** (16.746)	0.0239*** (11.077)	0.0755*** (16.230)	0.0727*** (14.425)	0.0907*** (7.891)
Equity <sub>t-1</sub> /Assets <sub>t-1</sub>	-0.0013 (-1.363)	0.0237*** (4.761)	-0.0026*** (-4.821)	-0.0027*** (-5.416)	0.0102 (0.459)
Liquid Assets <sub>t-1</sub> /Dep & Funding <sub>t-1</sub>	-0.0000 (-0.967)	-0.0000 (-0.715)	-0.0001* (-1.732)	-0.0001* (-1.735)	-0.0012 (-1.329)
N. Obs	71,367	43,127	28,586	22,163	6423
R2	0.738	0.605	0.653	0.654	0.658
Countries	177	49	128	71	57
Banks	5912	3359	2584	2001	583
1995–2009					
SOE <sub>t-1</sub>	-0.3371** (-2.228)	0.0585 (0.386)	-0.2953 (-1.568)	-0.1633 (-0.785)	-0.8710* (-1.923)
FOR <sub>t-1</sub>	-0.4002*** (-3.568)	-0.1886 (-1.413)	-0.5841*** (-3.355)	-0.6224*** (-3.285)	-0.3545 (-0.813)
N. Obs	41,759	26,594	15,440	12,157	3283
R2	0.743	0.586	0.676	0.680	0.674
Countries	175	49	126	71	55
2010–2020					
SOE <sub>t-1</sub>	-0.2437 (-1.187)	-0.0678 (-0.447)	-0.2162 (-0.858)	-0.1074 (-0.371)	-0.6204 (-1.172)
FOR <sub>t-1</sub>	-0.7172*** (-4.888)	-0.1418 (-0.890)	-0.9618*** (-4.588)	-0.9292*** (-3.791)	-1.0193*** (-2.670)
N. Obs	29,608	16,533	13,146	10,006	3140
R2	0.711	0.411	0.580	0.564	0.635
Countries	170	49	121	67	54
Sample	ALL	AE	EMDE	MIC	LIC
Country-year FE	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes

Robust *t*- statistics clustered at the bank level in parentheses;

\*\*\* *p* < 0.01,.

\*\* *p* < 0.05,.

\* *p* < 0.1.

**Table A4**

Gross Loan Growth, GDP Growth and International Financial Conditions This tables reports a set of bank-level regressions where the dependent variable is annual gross loan growth and the explanatory variables are the lagged values of a dummy that takes value 1 for state-owned banks (using the 50% ownership threshold) and a dummy that takes value 1 for foreign-owned banks (using the 50% ownership threshold), the interaction between these dummies and each of domestic real GDP growth and the broad dollar index, the log of lagged total assets also interacted with domestic real GDP growth and the broad dollar index, lagged customer deposits over assets lagged equity over assets and lag liquid assets over deposits and short terms funding. Regressions do not include US banks.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SOE <sub>t-1</sub>	-0.5513 (-0.097)	-5.6886 (-0.911)	-8.1517 (-0.759)	-4.1385 (-0.508)	-4.3109 (-0.485)	2.2108 (0.127)	-0.8864 (-0.134)	-6.5460 (-0.565)	5.8081 (0.699)
SOE <sub>t-1</sub> xGR	-0.5945*** (-5.414)	-0.4381*** (-3.940)	-0.4275 (-1.586)	-0.4729*** (-3.805)	-0.4307*** (-3.344)	-0.8967** (-2.187)	-0.4313*** (-3.722)	-0.4613* (-1.696)	-0.4897*** (-3.714)
FOR <sub>t-1</sub>	29.2601*** (5.078)	25.7806*** (4.702)	34.4817*** (4.068)	23.5950*** (3.224)	24.6650*** (2.963)	22.8751 (1.592)	25.3023*** (4.628)	34.4729*** (4.074)	21.9989*** (3.006)
FOR <sub>t-1</sub> xGR	-0.0800 (-0.663)	0.0128 (0.109)	0.4575** (2.257)	-0.1769 (-1.220)	-0.0605 (-0.392)	-0.8534** (-2.110)	0.0118 (0.100)	0.4588** (2.269)	-0.1802 (-1.246)
SOE <sub>t-1</sub> xDollar Index	-0.0487 (-0.836)	0.0216 (0.335)	0.0429 (0.374)	0.0170 (0.219)	-0.0040 (-0.047)	0.1656 (0.939)	-0.0325 (-0.474)	0.0260 (0.209)	-0.0945 (-1.200)
FOR <sub>t-1</sub> xDollar Index	-0.2310*** (-4.258)	-0.2320*** (-4.306)	-0.2624*** (-3.347)	-0.2384*** (-3.223)	-0.2438*** (-2.916)	-0.2167 (-1.445)	-0.2256*** (-4.203)	-0.2610*** (-3.337)	-0.2206*** (-2.986)
Ln(assets) <sub>t-1</sub>	-13.3211*** (-20.233)	-11.5431*** (-11.331)	-15.4837*** (-17.371)	-14.3444*** (-14.572)	-20.3702*** (-11.047)	-16.9061*** (-12.315)	-12.5394*** (-7.352)	-23.9364*** (-10.197)	-23.9364*** (-10.197)
(Cust. Dep/Assets) <sub>t-1</sub>	-0.0040 (-0.206)	0.0067 (0.251)	0.0166 (-0.601)	-0.0046 (-0.155)	-0.0046 (-0.155)	-0.0040 (-0.616)	-0.0047 (-0.245)	0.0055 (0.206)	-0.0136 (-0.492)

(continued on next page)

**Table A4 (continued)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Equity/Assets) <sub>t-1</sub>		0.0654*** (3.302)	-0.0276 (-0.350)	0.0814*** (3.573)	0.0738*** (3.449)	0.3060*** (2.601)	0.0652*** (3.302)	-0.0270 (-0.342)	0.0811*** (3.581)
(Liquid Assets /Dep & ST Funding) <sub>t-1</sub>		-0.0000 (-0.980)	-0.0000 (-0.993)	-0.0000 (-0.751)	-0.0000 (-0.827)	0.0088*** (5.738)	-0.0000 (-0.937)	-0.0000 (-0.980)	-0.0000 (-0.673)
Ln(assets) <sub>t-1</sub> xGR							-0.0065 (-0.237)	0.0322 (0.821)	0.0132 (0.336)
Ln(assets) <sub>t-1</sub> xDollar Index							0.0409*** (0.107)		0.0949*** (0.336)
N. Obs	-0.5513	-5.6886	-8.1517	-4.1385	-4.3109	2.2108	-0.8864	-6.5460	5.8081
R2	78,795	75,068	42,372	32,696	25,465	7231	75,068	42,372	32,696
Sample	0.360	0.392	0.332	0.435	0.413	0.524	0.393	0.332	0.436
Bank FE	ALL	ALL	AE	EMDE	MIC	LIC	ALL	AE	EMDE
Countries	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CY FE	175	175	48	127	71	56	127	71	56
	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust *t*-statistics clustered at the bank level in parentheses;

\*\*\* *p* < 0.01,.

\*\* *p* < 0.05,.

\* *p* < 0.1.

**Table A5**  
ROA Local projections with asymmetries.

	<i>h</i> = 0	<i>h</i> = 1	<i>h</i> = 2	<i>h</i> = 3
SOExGR	0.0070 (0.832)	0.0068 (0.743)	0.0165* (1.773)	-0.0015 (-0.166)
SOExGRxD	-0.0120 (-0.691)	0.0206 (1.015)	-0.0246 (-1.291)	-0.0187 (-0.854)
FORxGR	-0.0264*** (-3.589)	-0.0231*** (-2.660)	-0.0232*** (-2.639)	-0.0234** (-2.568)
FORxGRxD	0.0437*** (3.351)	0.0299** (1.995)	-0.0035 (-0.226)	-0.0021 (-0.130)
SOExDollar Index	0.0180** (2.429)	0.0183** (2.378)	0.0198** (2.485)	0.0239*** (3.034)
FORxDollar Index	-0.0027 (-0.572)	-0.0078 (-1.437)	-0.0108* (-1.826)	-0.0128** (-2.259)
SOExDollar IndexxD	0.0047*** (3.379)	0.0050*** (3.327)	0.0044*** (3.079)	0.0040*** (3.016)
FORxDollar IndexxD	-0.0007 (-0.777)	-0.0016 (-1.639)	-0.0017* (-1.746)	-0.0015 (-1.497)
EMDE				
SOExGR	0.0104 (0.992)	0.0082 (0.722)	0.0184 (1.633)	-0.0011 (-0.100)
SOExGRxD	-0.0214 (-1.017)	0.0202 (0.796)	-0.0219 (-0.919)	-0.0242 (-0.954)
FORxGR	-0.0258*** (-2.795)	-0.0214* (-1.796)	-0.0232** (-1.996)	-0.0304** (-2.453)
FORxGRxD	0.0257 (1.296)	0.0228 (1.023)	-0.0080 (-0.346)	0.0115 (0.450)
SOExDollar Index	0.0229** (2.111)	0.0242** (2.127)	0.0223* (1.898)	0.0356*** (3.029)
FORxDollar Index	-0.0060 (-0.745)	-0.0191** (-2.192)	-0.0259*** (-2.853)	-0.0230*** (-2.675)
SOExDollar IndexxD	0.0056*** (2.820)	0.0061*** (2.759)	0.0045** (2.105)	0.0056*** (2.871)
FORxDollar IndexxD	-0.0018 (-1.227)	-0.0039** (-2.538)	-0.0046*** (-3.036)	-0.0027* (-1.859)
MIC				
SOExGR	0.0136 (1.216)	0.0138 (1.201)	0.0206* (1.788)	-0.0070 (-0.591)
SOExGRxD	-0.0331 (-1.340)	0.0157 (0.542)	-0.0299 (-1.123)	-0.0250 (-0.913)
FORxGR	-0.0337*** (-3.224)	-0.0282** (-2.117)	-0.0206 (-1.588)	-0.0342** (-2.420)
FORxGRxD	0.0392* (1.723)	0.0317 (1.228)	0.0016 (0.062)	0.0456* (1.792)
SOExDollar Index	0.0248** (2.074)	0.0269** (2.229)	0.0303** (2.446)	0.0382*** (3.056)
FORxDollar Index	-0.0021 (-0.224)	-0.0172* (-1.739)	-0.0231** (-2.253)	-0.0211** (-2.207)
SOExDollar IndexxD	0.0060*** (2.903)	0.0065*** (2.838)	0.0060*** (2.739)	0.0061*** (2.955)
FORxDollar IndexxD	-0.0012 (-0.673)	-0.0034* (-1.942)	-0.0041** (-2.377)	-0.0025 (-1.505)

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Table A5 (continued)

	$h = 0$	$h = 1$	$h = 2$	$h = 3$
LIC				
SOExGR	-0.0032 (-0.118)	-0.0269 (-0.737)	0.0025 (0.070)	0.0539* (1.833)
SOExGRxD	0.0303 (0.824)	0.0662 (1.251)	0.0506 (1.017)	-0.0378 (-0.826)
FORxGR	0.0043 (0.232)	0.0132 (0.498)	-0.0289 (-1.204)	-0.0010 (-0.051)
FORxGRxD	-0.0250 (-0.773)	-0.0104 (-0.262)	-0.0507 (-1.180)	-0.1567*** (-3.617)
SOExDollar Index	0.0082 (0.308)	0.0023 (0.073)	-0.0237 (-0.733)	0.0226 (0.719)
FORxDollar Index	-0.0180 (-1.163)	-0.0240 (-1.421)	-0.0379** (-1.997)	-0.0301 (-1.645)
SOExDollar IndexxD	0.0032 (0.530)	0.0032 (0.452)	-0.0042 (-0.666)	0.0030 (0.528)
FORxDollar IndexxD	-0.0036 (-1.281)	-0.0050* (-1.852)	-0.0070** (-2.232)	-0.0041 (-1.246)

Table A6

NPL Local projections with asymmetries.

	$h = 0$	$h = 1$	$h = 2$	$h = 3$
SOExGR	0.0218 (0.450)	0.0378 (0.530)	-0.0753 (-0.908)	-0.1358 (-1.418)
SOExGRxD	0.0467 (0.513)	-0.1443 (-1.178)	-0.1867 (-1.472)	-0.0253 (-0.142)
FORxGR	0.0752* (1.941)	0.0920 (1.476)	0.1318** (2.217)	0.1732*** (2.847)
FORxGRxD	-0.0799 (-1.235)	-0.2072** (-2.049)	-0.0931 (-0.797)	-0.1475 (-1.302)
SOExDollar Index	-0.0031 (-0.115)	0.0167 (0.410)	0.0728 (1.329)	0.0801 (1.327)
FORxDollar Index	-0.0111 (-0.446)	0.0249 (0.695)	0.0458 (1.118)	0.0396 (0.831)
SOExDollar IndexxD	-0.0075 (-1.426)	-0.0108 (-1.334)	-0.0018 (-0.176)	0.0037 (0.352)
FORxDollar IndexxD	-0.0022 (-0.479)	0.0043 (0.678)	0.0074 (1.068)	0.0052 (0.666)
EMDE				
SOExGR	0.0678 (1.095)	0.1178 (1.239)	-0.0608 (-0.537)	-0.1473 (-1.146)
SOExGRxD	0.0814 (0.668)	-0.2037 (-1.246)	-0.2255 (-1.284)	-0.0165 (-0.068)
FORxGR	0.0846* (1.731)	0.0694 (0.849)	0.1022 (1.342)	0.1450* (1.886)
FORxGRxD	-0.0338 (-0.378)	-0.1974 (-1.391)	-0.0657 (-0.401)	-0.1697 (-1.087)
SOExDollar Index	0.0142 (0.394)	0.0461 (0.840)	0.1049 (1.430)	0.0912 (1.117)
FORxDollar Index	-0.0233 (-0.669)	0.0072 (0.146)	0.0381 (0.678)	0.0387 (0.595)
SOExDollar IndexxD	-0.0103 (-1.484)	-0.0141 (-1.306)	-0.0026 (-0.198)	0.0004 (0.025)
FORxDollar IndexxD	-0.0034 (-0.524)	0.0040 (0.454)	0.0088 (0.928)	0.0083 (0.771)
MIC				
SOExGR	2.7427 (0.732)	0.5271 (0.105)	-2.6506 (-0.476)	0.7704 (0.116)
SOExGRxD	0.0610 (1.415)	0.0416 (0.663)	0.0590 (0.818)	0.1613** (2.043)
FOR	-0.0097 (-0.105)	-0.2414* (-1.831)	0.0015 (0.009)	-0.1789 (-1.157)
FORxGR	-0.0064 (-0.164)	0.0072 (0.128)	0.0827 (1.129)	0.0842 (1.102)
FORxGRxD	-0.0306 (-0.795)	-0.0111 (-0.215)	0.0298 (0.523)	-0.0028 (-0.041)
SOExDollar Index	-0.0111 (-1.568)	-0.0181* (-1.676)	-0.0052 (-0.407)	-0.0006 (-0.048)
FORxDollar Index	-0.0050 (-0.733)	-0.0007 (-0.075)	0.0055 (0.567)	-0.0004 (-0.037)
LIC				
SOExGR	0.1576	0.1784	-0.0842	-0.4521*

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**Table A6** (continued)

	$h = 0$	$h = 1$	$h = 2$	$h = 3$
SOExGRxD	(0.771) -0.1944 (-0.523)	(0.607) -0.0056 (-0.014)	(-0.296) -0.3738 (-1.063)	(-1.664) -0.0677 (-0.141)
FORxGR	0.2064 (1.152)	0.2358 (0.681)	0.2809 (1.077)	-0.0394 (-0.164)
FORxGRxD	-0.1298 (-0.508)	-0.0644 (-0.144)	-0.2697 (-0.591)	0.0371 (0.081)
SOExDollar Index	0.1239 (1.429)	0.1686 (1.009)	0.1699 (0.694)	0.0624 (0.198)
FORxDollar Index	0.0229 (0.288)	0.0917 (0.669)	0.0977 (0.563)	0.2672 (1.551)
SOExDollar IndexxD	-0.0034 (-0.177)	-0.0011 (-0.031)	0.0051 (0.113)	-0.0022 (-0.039)
FORxDollar IndexxD	0.0070 (0.414)	0.0272 (1.090)	0.0272 (1.016)	0.0517* (1.907)

**Table A7**

Net Interest Margin Local projections with asymmetries.

	$h = 0$	$h = 1$	$h = 2$	$h = 3$
SOExGR	0.0115 (1.100)	0.0248** (2.078)	0.0179 (1.304)	0.0159 (1.100)
SOExGRxD	0.0348 (1.248)	0.0570 (1.555)	-0.0444* (-1.891)	-0.0329 (-1.310)
FORxGR	-0.0107 (-1.394)	-0.0140 (-1.377)	-0.0146 (-1.345)	-0.0166 (-1.460)
FORxGRxD	-0.0106 (-0.799)	-0.0432** (-2.467)	-0.0221 (-1.291)	0.0094 (0.560)
SOExDollar Index	0.0275*** (3.323)	0.0172** (2.004)	0.0178** (2.103)	0.0295*** (3.025)
FORxDollar Index	-0.0022 (-0.459)	0.0005 (0.088)	0.0077 (1.227)	0.0001 (0.016)
SOExDollar IndexxD	0.0055*** (3.439)	0.0028* (1.878)	0.0013 (0.954)	0.0032* (1.919)
FORxDollar IndexxD	-0.0005 (-0.526)	-0.0009 (-0.840)	0.0009 (0.846)	-0.0002 (-0.131)
	EMDE			
SOExGR	0.0082 (0.601)	0.0219 (1.358)	0.0171 (0.919)	0.0138 (0.727)
SOExGRxD	0.0444 (1.144)	0.0691 (1.424)	-0.0648** (-1.984)	-0.0499 (-1.417)
FORxGR	-0.0148 (-1.346)	-0.0134 (-0.898)	-0.0160 (-1.035)	-0.0159 (-0.960)
FORxGRxD	-0.0228 (-0.985)	-0.0704** (-2.531)	-0.0409 (-1.493)	0.0020 (0.074)
SOExDollar Index	0.0405*** (3.203)	0.0276** (2.058)	0.0276** (2.069)	0.0449*** (2.876)
FORxDollar Index	-0.0055 (-0.610)	-0.0047 (-0.424)	0.0093 (0.821)	-0.0018 (-0.141)
SOExDollar IndexxD	0.0081*** (3.385)	0.0039* (1.722)	0.0024 (1.094)	0.0055** (2.042)
FORxDollar IndexxD	-0.0007 (-0.451)	-0.0021 (-1.067)	0.0014 (0.679)	-0.0004 (-0.163)
	MIC			
SOExGR	0.0097 (0.657)	0.0208 (1.215)	0.0150 (0.776)	0.0090 (0.453)
SOExGRxD	0.0592 (1.293)	0.0942* (1.664)	-0.0915** (-2.456)	-0.0599 (-1.511)
FORxGR	-0.0110 (-0.896)	-0.0107 (-0.650)	-0.0210 (-1.244)	-0.0183 (-0.993)
FORxGRxD	-0.0413 (-1.561)	-0.0848*** (-2.644)	-0.0488 (-1.522)	-0.0034 (-0.107)
SOExDollar Index	0.0415*** (2.919)	0.0219 (1.462)	0.0209 (1.424)	0.0444** (2.532)
FORxDollar Index	-0.0096 (-0.955)	-0.0079 (-0.645)	0.0114 (0.937)	-0.0053 (-0.383)
SOExDollar IndexxD	0.0079*** (2.954)	0.0022 (0.860)	0.0007 (0.270)	0.0048 (1.526)
FORxDollar IndexxD	-0.0018 (-0.988)	-0.0029 (-1.349)	0.0017 (0.785)	-0.0010 (-0.432)
	LIC			
SOExGR	-0.0146	0.0299	0.0568	0.0783

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Table A7 (continued)

	$h = 0$	$h = 1$	$h = 2$	$h = 3$
	(-0.453)	(0.631)	(0.901)	(1.309)
SOExGRxD	-0.0091 (-0.207)	-0.0700 (-1.148)	-0.0244 (-0.302)	-0.0578 (-0.659)
FORxGR	-0.0306 (-1.411)	-0.0220 (-0.693)	0.0163 (0.455)	0.0133 (0.408)
FORxGRxD	0.0730* (1.792)	-0.0125 (-0.272)	-0.0327 (-0.703)	0.0009 (0.021)
SOExDollar Index	0.0401 (1.449)	0.0653** (2.463)	0.0579** (1.991)	0.0379 (1.299)
FORxDollar Index	0.0091 (0.472)	0.0091 (0.346)	-0.0024 (-0.080)	0.0140 (0.453)
SOExDollar IndexxD	0.0095* (1.765)	0.0137*** (2.690)	0.0106** (2.353)	0.0082** (2.230)
FORxDollar IndexxD	0.0036 (0.971)	0.0016 (0.337)	-0.0003 (-0.048)	0.0029 (0.545)

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