COVID-19, Nonperforming Loans, and Cross-Border Bank Lending

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SERD: Learnings for Economics and Policy Analysis (LEAP) Series 5
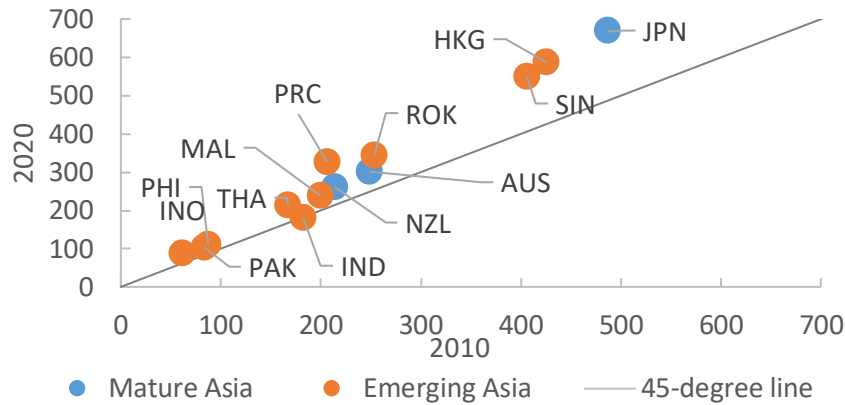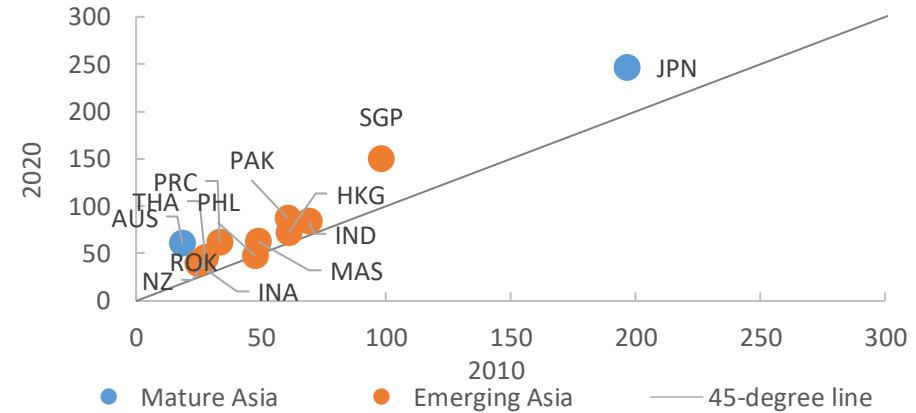28 July 2021 | Virtual

Pandemic results in sizeable deficits and higher debt

Sectoral Debt, 2010 vs 2020 (% of GDP)

Total Debt

Sovereign Debt

Corporate Debt
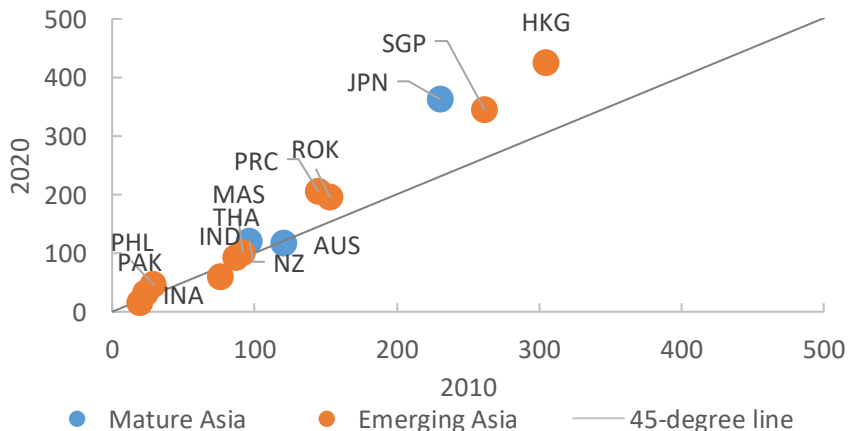
Household Debt
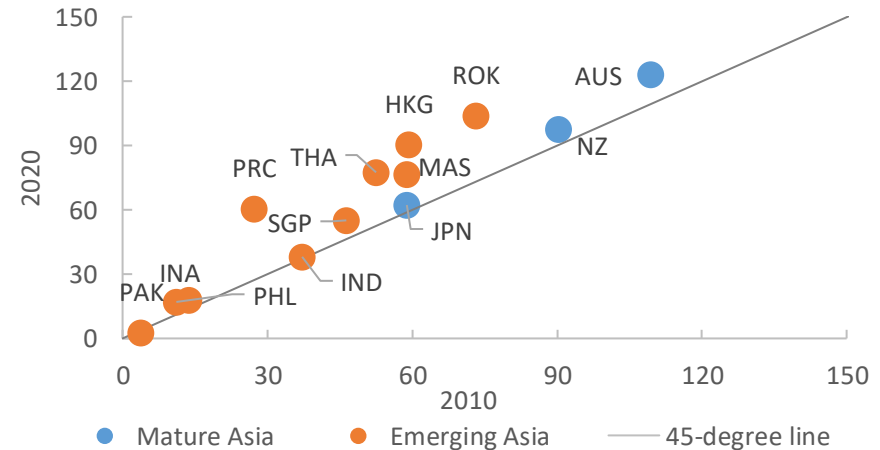
AUS = Australia; GDP = gross domestic product; HKG = Hong Kong, China; IND = India; INO = Indonesia; JPN = Japan, KOR = Republic of Korea; NZL = New Zealand;   PAK = Pakistan; PHI = Philippines; PRC = People's Republic of China; SIN = Singapore; THA = Thailand.
Notes: Economy grouping based on Institute of International Finance definition. Emerging Asia includes HKG, IND, INO, KOR, MAL, PAK, PHI, PRC, SIN and THA. Mature Asia includes AUS, JPN and NZL.
Source: ADB calculations using data from Institute of International Finance.

Outstanding NPLs of Asian banks are considerable and growing

NPLs held by banks in selected Asian economies, 2016 and 2020 ($ billion)
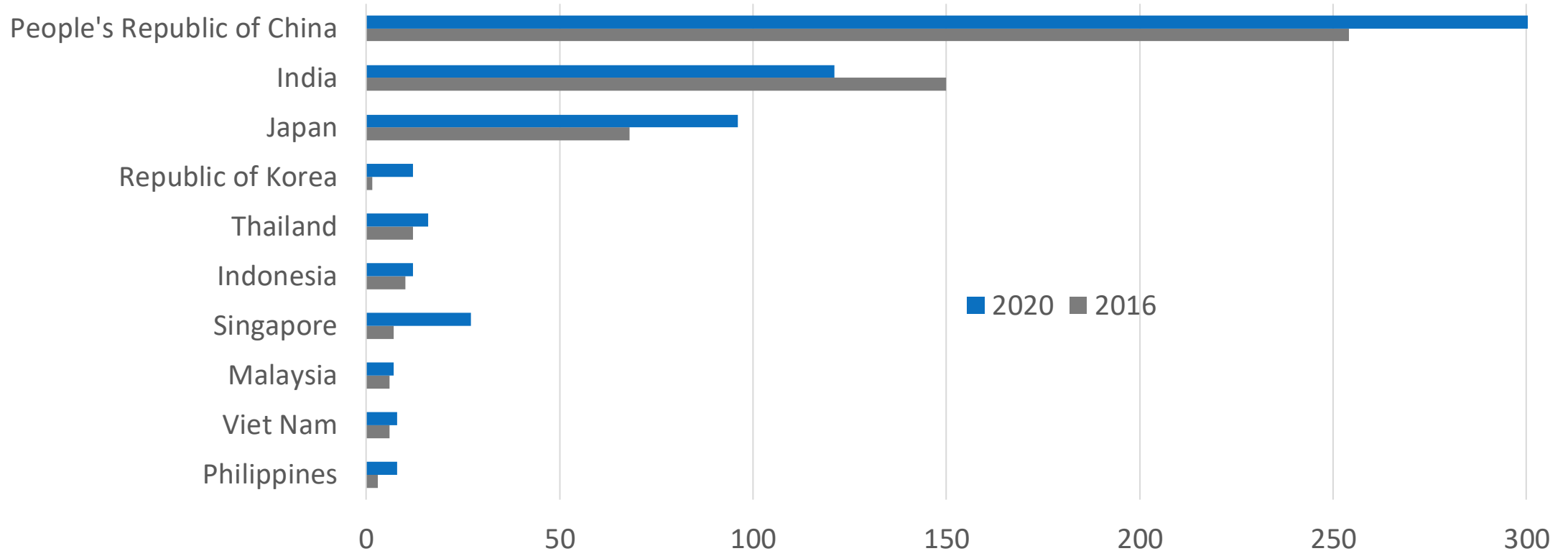
NPL = nonperforming loan.
Note: 2016 NPL data was based on 2017 data for the People's Republic of China and the Republic of Korea.
Sources: Data is from Deloitte (2018, 2021).

Rising NPLs have the potential to derail COVID-19 recovery and undermine stability

- In some economies in Central, East, and South Asia, NPL ratios are elevated and have been rising recently

- Fiscal stimulus has helped prevent corporate defaults, while regulatory forbearance has relieved pressure from banks in addressing NPLs

- But the post-pandemic corporate default risks expose banks to high NPLs, with harmful macrofinancial feedback effects.

- High NPLs also pose risks of cross-border spillovers and contagion effects through global banking networks

Development of NPL Ratios in Asia, 2015 vs. 2020
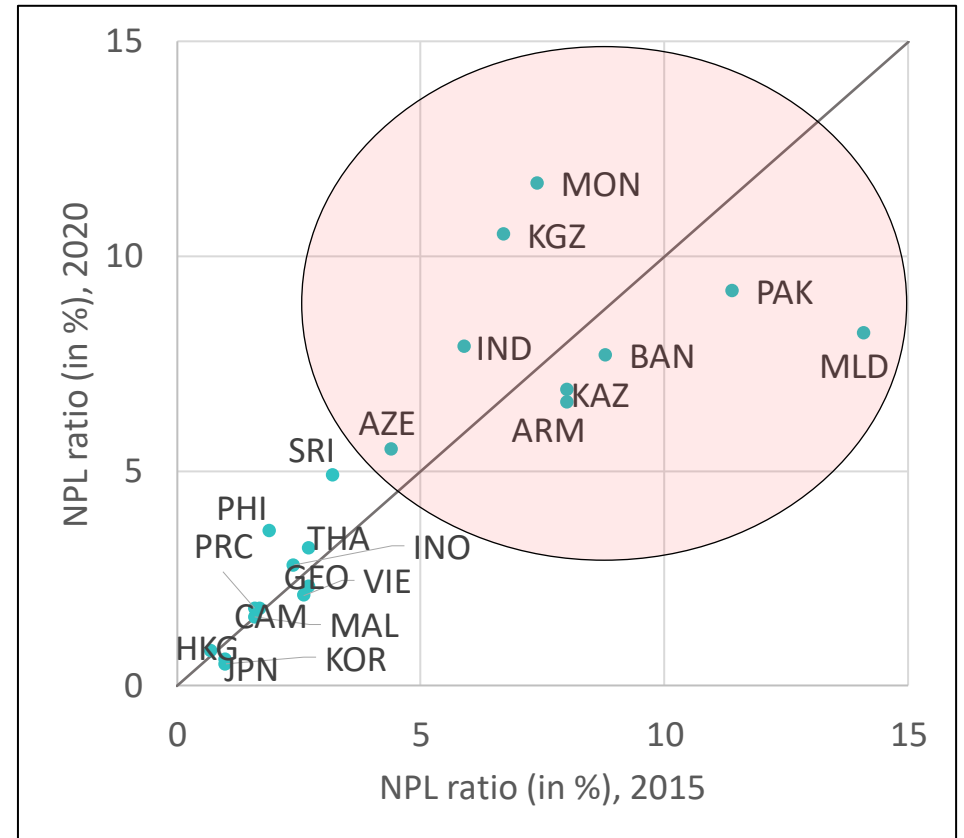
Note: Data for Japan as of 2019.
Source: ADB calculations using data from Bank of Mongolia; CEIC Database; International Monetary Fund Financial Soundness Indicators. https://data.imf.org/; and World Bank World Development Indicators. http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators (accessed May 2021).

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What this paper does: main findings

- Estimate the impact of rising NPLs in both lender and borrower economies on banking outflows from emerging market economies.

- Annual data of **29 BIS reporting lenders and 67 emerging market economies as borrowers** are analyzed for the sample period from 2000Q1 to 2017Q4.

- A rise in the NPL ratio of both lender and borrower economies is positively associated with increased banking outflows from emerging market economies:
  - ✓ Financial accelerator models imply that a rise in the NPL ratio in banks of lender economies forces them to shrink their balance sheets and withdraw funds from EMEs.
  - ✓ A rise in the NPL ratio in EME signals a greater risk, prompting the lender to withdraw funds from them.
  - ✓ But the pattern and magnitude of banking outflows differs subject to the lender's position in EMEs and dollar denomination of EME liabilities.

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The Benchmark Empirical Methodology

$$Koutflow_{ijt} = \alpha_1 NPLr_{jt} + \alpha_2 NPLr_{it} + X_{it}\beta + +\vartheta_{ij} + \gamma_t + \varepsilon_{ijt}$$

- $Koutflow_{ij} = \frac{FC_{ij,t} - FC_{ij,t+f}}{FC_{ij,t}}$: the bilateral banking outflows from EME i to lender country j at time t

- $NPLr_{jt}$ and $NPLr_{it}$: the NPL ratio of lender country j and EME i, respectively, in year t

- X_{it} is a vector of economic fundamental variables of EME i in year t: We include the increase in the ratio of current account deficits to GDP over the past 3 years, real exchange rate appreciation over the past 3 years, the increase in the total credit-to-GDP ratio over the past 3 years, and the ratio of reserves to the M2 money supply. Variables for GDP growth, inflation, the rule of law, market concentration, and the share of foreign-owned bank assets were also included

Table 3. Impact of Nonperforming Loans (NPLs) on Banking Outflows from Emerging Markets

A. Adjusted CBS Total Foreign Claims on an Immediate Counterparty Basis

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Lenders' NPL ratio	0.8***	0.9***	0.4*	0.8***	0.4	1.6***	1.9***	0.4	1.3***	0.2
	[0.1]	[0.2]	[0.2]	[0.2]	[0.3]	[0.3]	[0.4]	[0.5]	[0.4]	[0.6]
Borrowers' NPL ratio		0.4***	0.4***	0.4***	0.2		0.4*	0.3	0.3	0.2
		[0.1]	[0.1]	[0.1]	[0.1]		[0.2]	[0.2]	[0.3]	[0.2]
Increase in CA deficit				0.4*	0.0				0.2	-0.3
				[0.2]	[0.2]				[0.3]	[0.2]
Real exchange rate change				0.8***	0.3				0.9***	0.2
				[0.2]	[0.2]				[0.2]	[0.2]
Difference Credit				-0.0	-0.1				0.0	0.0
				[0.1]	[0.1]				[0.1]	[0.1]
Reserve/M2				9.2	8.2				3.1	-6.6
				[6.1]	[5.4]				[11.9]	[9.8]
GDP growth				0.0	-0.6**				0.4	0.2
				[0.2]	[0.2]				[0.3]	[0.4]
Inflation				-0.3	0.2				-1.0**	0.3
				[0.2]	[0.2]				[0.5]	[0.4]
Rule of law				1.5	2.3**				16.4	11.0
				[1.2]	[1.1]				[12.3]	[9.2]
Year fixed effects	No	No	Yes	No	Yes	No	No	Yes	No	Yes
R-squared	0.025	0.034	0.258	0.085	0.267	0.122	0.133	0.379	0.204	0.397
Observations	9,033	5,310	5,310	3,860	3,860	9,033	5,310	5,310	3,860	3,860

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Table 3. Impact of Nonperforming Loans (NPLs) on Banking Outflows from Emerging Markets

B. LBS Total Cross-Border Foreign Claims

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Lenders' NPL ratio	1.0***	1.0***	0.6***	1.0***	0.6***	1.1***	0.9**	0.4	0.7	-0.6
	[0.1]	[0.2]	[0.2]	[0.2]	[0.2]	[0.4]	[0.4]	[0.3]	[0.6]	[0.6]
Borrowers' NPL ratio		1.3***	0.8***	1.4***	1.2***		1.0***	0.9***	1.9***	1.9***
		[0.1]	[0.1]	[0.3]	[0.2]		[0.2]	[0.2]	[0.4]	[0.3]
Increase in CA deficit				0.4	-0.3				0.8	-0.2
				[0.3]	[0.3]				[0.5]	[0.3]
Real exchange rate change				0.4*	0.1				0.2	-0.3
				[0.2]	[0.2]				[0.2]	[0.2]
Difference Credit				-0.1	-0.1*				-0.1	-0.1
				[0.1]	[0.1]				[0.1]	[0.1]
Reserve/M2				15.3*	14.2**				41.0***	13.2
				[9.0]	[6.4]				[14.9]	[15.5]
GDP growth				0.7***	0.2				1.0***	0.8**
				[0.2]	[0.3]				[0.2]	[0.4]
Inflation				0.0	0.6*				0.3	1.3**
				[0.4]	[0.3]				[0.8]	[0.6]
Rule of law				2.9*	3.1**				7.6	4.9
				[1.7]	[1.5]				[13.4]	[10.0]
Bank concentration		-0.1		-0.0	0.1*				-0.2**	0.1
		[0.1]		[0.0]	[0.0]				[0.1]	[0.1]
Foreign share		0.0		0.0	0.0				-0.4	-0.3
		[0.0]		[0.0]	[0.0]				[0.4]	[0.3]
Year Fixed effects	No	No	Yes	No	Yes	No	No	Yes	No	Yes
R-squared	0.018	0.084	0.251	0.112	0.311	0.100	0.116	0.343	0.246	0.457
Observations	10,312	3,065	5,950	2,360	2,360	10,312	5,950	5,950	2,360	2,360

Table 3

- The coefficients of the NPL ratio of both lender (Lenders' NPL ratio) and borrower (Borrowers' NPL ratio) economies are positive and highly statistically significant in most columns.

- Generally, other coefficients of economic fundamentals of emerging market economies are estimated consistently with theory.
  - ➢ Appreciation of the real exchange rate over the past three years are associated with capital outflows.

- Overall, the results suggest that a rise in the NPL ratio of both lender and borrower economies is positively associated with increased banking outflows from emerging market economies.
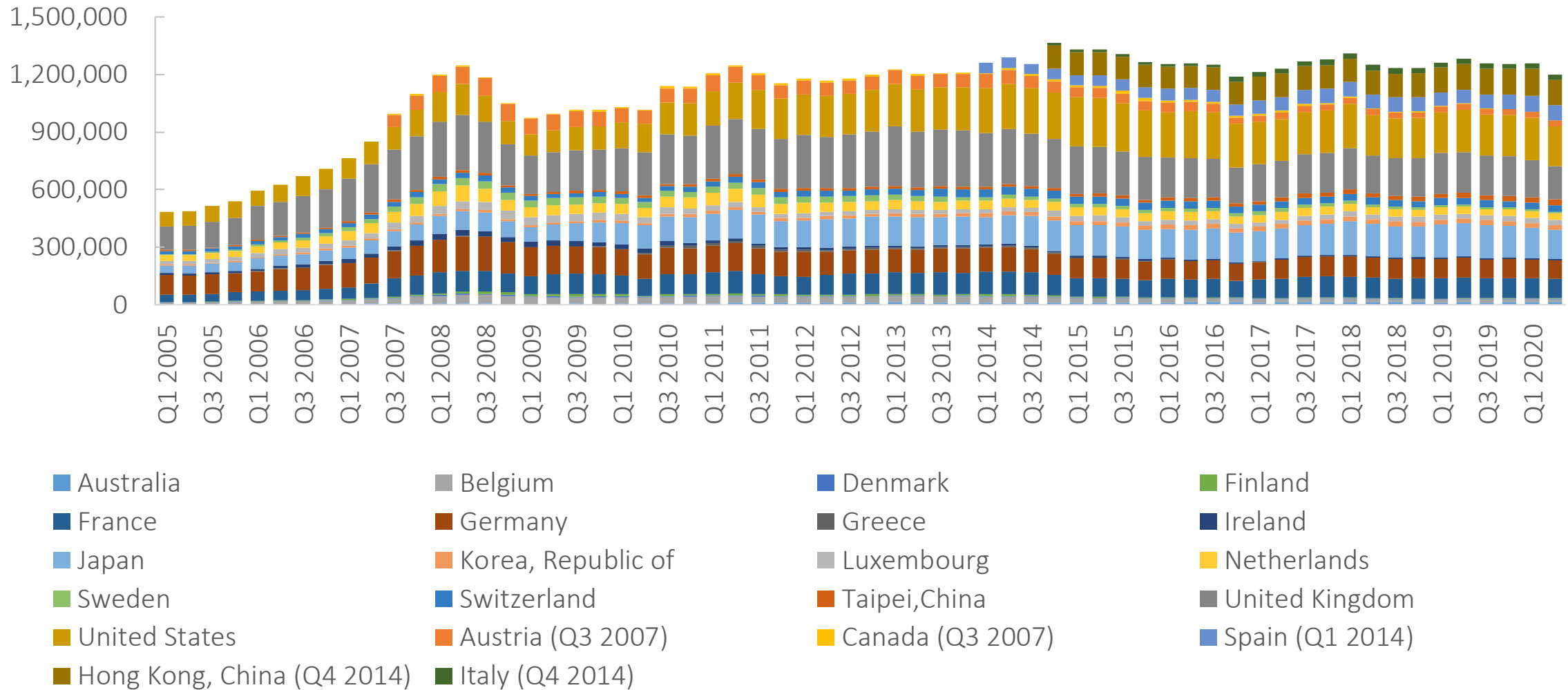
Information Frictions and Lenders in the Same Region

- Cross-border lending is highly sensitive to information frictions.
- The extent to which lenders possess information on borrowers is not explicitly observable.
  - As Portes and Rey (2005) shows, distance is a good proxy for information costs.
- Recent BIS data show that, after the global financial crisis, PRC, Japan, Singapore, and Republic of Korea have substituted European economies in lending to Asian economies.
- Will the same-region lenders act as a stabilizing force during times of financial crisis?

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Figure 3: Global Lenders' Claims on Emerging Market Economies

A. Global Lenders' Claims on Total Emerging Market Economies ($ million)

Legend:
- Australia
- Belgium
- Denmark
- Finland
- France
- Germany
- Greece
- Ireland
- Japan
- Korea, Republic of
- Luxembourg
- Netherlands
- Sweden
- Switzerland
- Taipei,China
- United Kingdom
- United States
- Austria (Q3 2007)
- Canada (Q3 2007)
- Spain (Q1 2014)
- Hong Kong, China (Q4 2014)
- Italy (Q4 2014)

Source: Authors' calculations using data from Bank for International Settlements. Locational Banking Statistics. https://www.bis.org/statistics/bankstats.htm (accessed October 2020).

Figure 3: Global Lenders' Claims on Emerging Market Economies

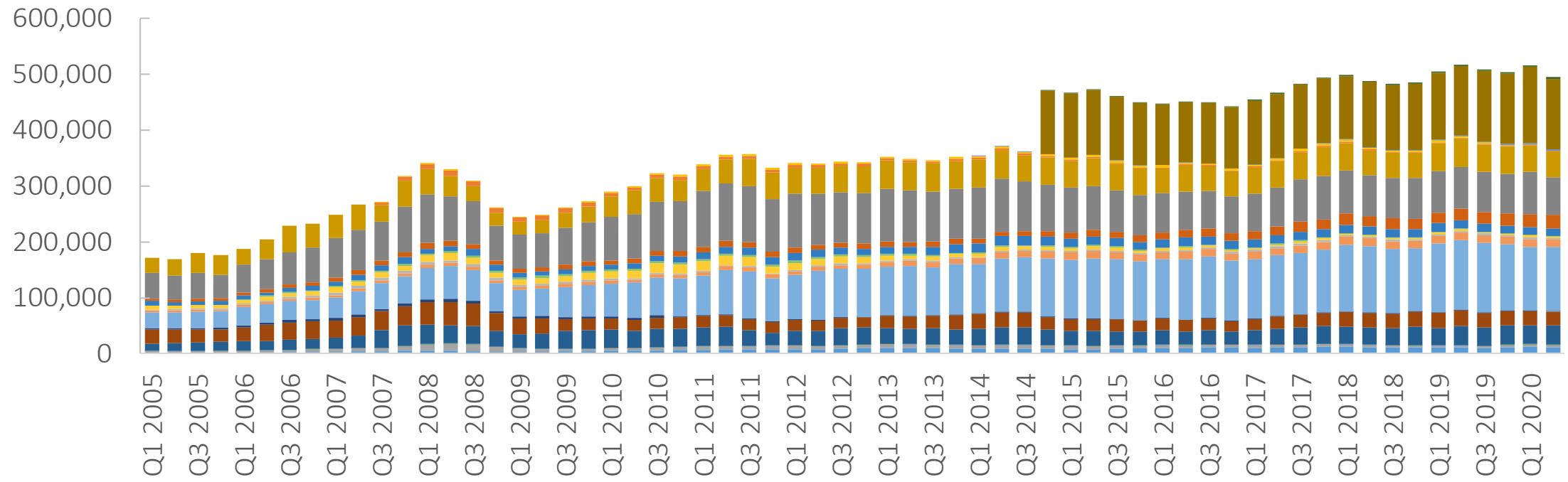## B. Global Lenders' Claims on Emerging Market Economies in Asia ($ million)

Legend:
- Australia
- Belgium
- Denmark
- Finland
- France
- Germany
- Greece
- Ireland
- Japan
- Korea, Republic of
- Luxembourg
- Netherlands
- Sweden
- Switzerland
- Taipei,China
- United Kingdom
- United States
- Austria (Q3 2007)
- Canada (Q3 2007)
- Spain (Q1 2014)
- Hong Kong, China (Q4 2014)
- Italy (Q4 2014)

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Table 4. Regional Linkages and the Impact of NPLs on Banking Outflows from EMEs
A. Adjusted CBS Total Foreign Claims on an Immediate Counterparty Basis

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Lenders' NPL ratio	1.3***	1.4***	0.1	1.2**	-0.0	2.3***	0.0
	[0.4]	[0.5]	[0.4]	[0.5]	[0.5]	[0.6]	[0.5]
Lenders' NPL ratio*region	-0.6	-0.7	0.4	-0.5	0.5	-2.0***	-0.0
	[0.4]	[0.5]	[0.5]	[0.6]	[0.5]	[0.6]	[0.6]
Borrowers' NPL ratio		-0.0	0.0	0.0	-0.1	-0.5*	-0.7**
		[0.1]	[0.1]	[0.1]	[0.1]	[0.3]	[0.3]
Borrowers' NPL ratio*region		0.8***	0.8***	0.7***	0.6***	1.7***	1.3***
		[0.2]	[0.2]	[0.2]	[0.2]	[0.3]	[0.3]
Region	1.3	-2.0	-5.4***	-2.7	-5.8***	-1.1	-6.3**
	[1.8]	[2.3]	[2.1]	[2.4]	[2.2]	[3.2]	[3.0]
Increase in CA deficit				0.3	0.0	0.4*	0.1
				[0.2]	[0.2]	[0.3]	[0.2]
Real exchange rate change				0.8***	0.2	0.4*	0.1
				[0.2]	[0.2]	[0.2]	[0.2]
Difference Credit				-0.0	-0.1	-0.1*	-0.1
				[0.1]	[0.1]	[0.1]	[0.1]
Reserve/M2				9.5	8.6	8.9	10.0
				[6.2]	[5.6]	[7.0]	[6.5]
GDP growth				0.1	-0.5**	0.4	-0.2
				[0.2]	[0.3]	[0.2]	[0.3]
Inflation				-0.4	0.2	0.3	1.0***
				[0.2]	[0.2]	[0.4]	[0.3]
Rule of law				1.1	2.0*	1.9	3.3**
				[1.3]	[1.1]	[1.5]	[1.3]
Bank concentration						0.0	0.1***
						[0.1]	[0.0]
Foreign share						0.0	0.1***
						[0.0]	[0.0]
Year Fixed effects	No	No	Yes	No	Yes	No	Yes
R-squared	0.027	0.043	0.266	0.093	0.274	0.090	0.259
Observations	9,033	5,310	5,310	3,860	3,860	2,368	2,368

Table 4. Regional Linkages and the Impact of NPLs on Banking Outflows from EMEs

B. LBS Total Cross-Border Foreign Claims

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Lenders' NPL ratio	0.3	0.2	-0.3	-0.0	-0.5	0.5	-0.5
	[0.3]	[0.4]	[0.3]	[0.4]	[0.4]	[0.6]	[0.5]
Lenders' NPL ratio*region	0.8**	0.7	1.1***	0.5***	0.4***	0.5	1.3**
	[0.4]	[0.4]	[0.4]	[0.1]	[0.1]	[0.6]	[0.6]
Borrowers' NPL ratio		0.4***	0.4***	0.9*	1.3***	0.8**	0.8**
		[0.1]	[0.1]	[0.5]	[0.5]	[0.4]	[0.4]
Borrowers' NPL ratio*region		0.8***	0.8***	0.7***	0.5***	0.8*	0.5
		[0.2]	[0.1]	[0.2]	[0.2]	[0.4]	[0.4]
Region	-2.2	-6.2***	-7.9***	-8.0***	-9.7***	-8.8***	-10.9***
	[1.6]	[2.1]	[1.7]	[2.2]	[1.9]	[3.2]	[2.7]
Increase in CA deficit				0.5**	0.0	0.4	-0.3
				[0.2]	[0.2]	[0.3]	[0.3]
Real exchange rate change				0.8***	0.2	0.3*	0.1
				[0.1]	[0.1]	[0.2]	[0.2]
Difference Credit				-0.0	-0.1	-0.1	-0.1
				[0.1]	[0.1]	[0.1]	[0.1]
Reserve/M2				15.8**	16.5***	18.0*	18.0***
				[8.0]	[5.7]	[9.2]	[6.5]
GDP growth				0.2	-0.6**	0.7***	0.2
				[0.2]	[0.2]	[0.2]	[0.3]
Inflation				-0.3	0.3	0.0	0.7**
				[0.2]	[0.2]	[0.4]	[0.3]
Rule of law				1.4	2.9**	3.0*	3.5**
				[1.4]	[1.2]	[1.7]	[1.5]
Bank concentration						-0.0	0.1
						[0.0]	[0.0]
Foreign share						0.0	0.0
						[0.0]	[0.0]
Year Fixed Effects	No	No	Yes	No	Yes	No	Yes
R-squared	0.019	0.055	0.263	0.104	0.308	0.121	0.324
Observations	10,312	5,950	5,950	3,825	3,825	2,360	2,360

Table 4

- Both tables show that the coefficient of the region dummy is negative and generally statistically significant.
- The *"reversion to the mean"* effect: Same-region lenders are more sensitive to a rise in the NPL ratios of borrowers.
  - The results are consistent with Galstyan and Lane (2013) and Mehigan (2018), who find that during the acute crisis period, investors disproportionately disinvested from destinations where their positions had been largest.
  - The results are also consistent with the well-known behavior of Japanese banks, which accelerated their withdrawal of funds from Asia during the 1997 financial crisis.

The Role of US Dollar in EME borrowing and Banking Outflows

- Cross-border banking transactions are mainly denominated in US dollars.
  - ➤ The average share of US-dollar denomination in reporting economies' total claims across all counterparty economies is 57.9%.

- Will LCY borrowing help protect EMEs from a sudden reversal in capital flows?

- We investigate how the share of US-dollar-denominated assets and liabilities will influence lenders' behavior toward emerging market borrowers in response to a rise in their own NPL ratio as well as that in the banking sectors of their borrowers.

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Majority of banks' international liabilities denominated in US dollars

USD Share of Banks' International Liabilities of Selected Asian Economies, 2016 and 2020 (% of total liabilities)
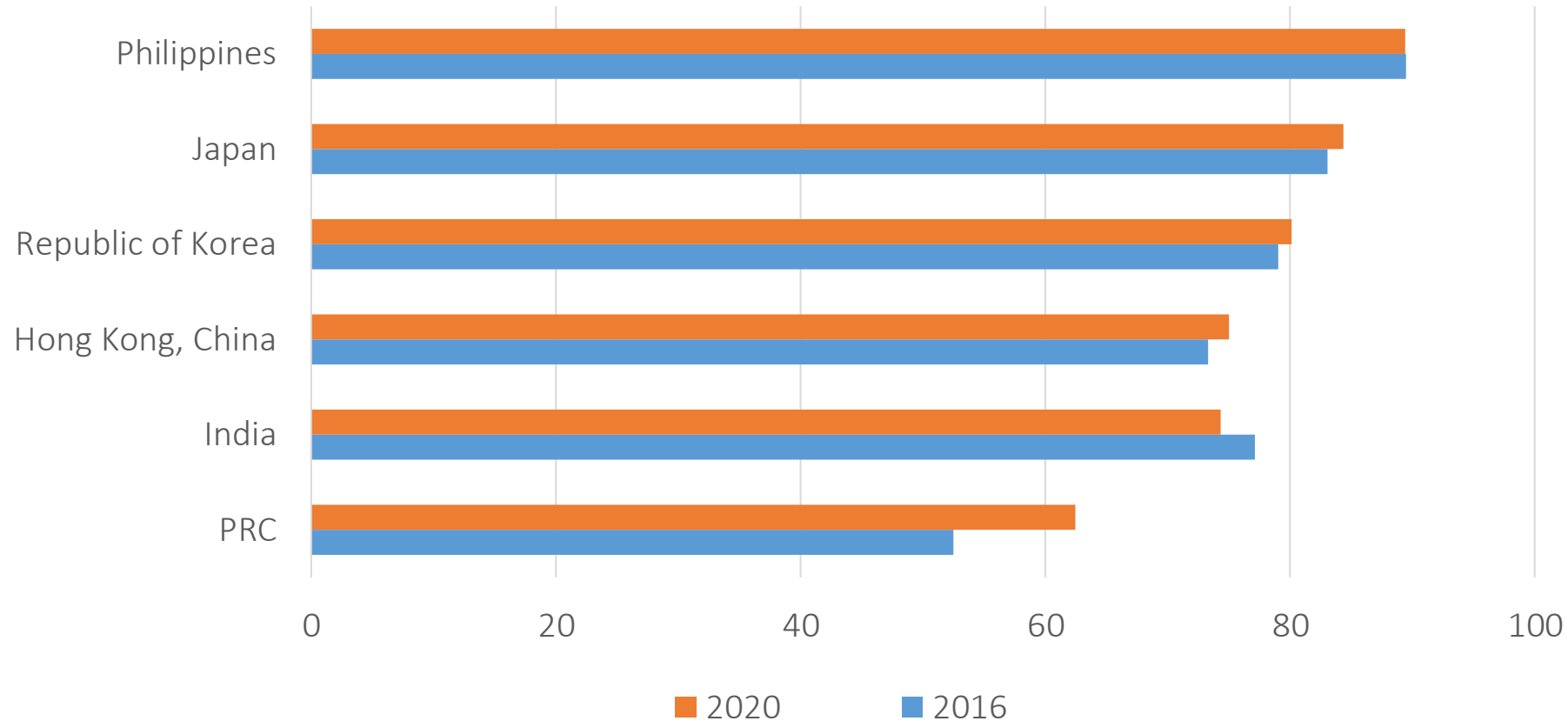
Legend: ■ 2020 ■ 2016

Source: Bank for International Settlements, Locational Banking Statistics.

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Table 5: Impact of NPLs on Banking Outflows from Emerging Market Economies: US-Dollar Share Considered

A. Adjusted CBS Total Foreign Claims on an Immediate Counterparty Basis: Weighted Regressions after Adjustments

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Lenders' NPL ratio	1.9**	3.9***	2.0***	3.1***	2.0**	-0.5	0.2
	[0.96]	[0.72]	[0.68]	[0.69]	[0.89]	[1.72]	[1.59]
Lenders' NPL ratio*USD share	0.00	-0.04**	-0.02	-0.03	-0.03	0.03	-0.00
	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.04]	[0.04]
Lenders' USD share	1.0***	1.6***	0.5*	1.2***	0.5	-0.1	-0.2
	[0.36]	[0.38]	[0.26]	[0.31]	[0.32]	[0.46]	[0.50]
Borrowers' NPL ratio		1.8***	1.3***	1.9***	1.6***	2.1***	2.0***
		[0.32]	[0.40]	[0.54]	[0.51]	[0.55]	[0.55]
Borrowers' NPL ratio*USD share		-0.03***	-0.02**	-0.03***	-0.02**	-0.03	-0.02
		[0.01]	[0.01]	[0.01]	[0.01]	[0.02]	[0.01]
borrowers' USD share		0.3	0.2	0.5	0.3	0.8**	0.6**
		[0.28]	[0.17]	[0.30]	[0.20]	[0.39]	[0.22]
Increase in CA deficit				-0.2	-0.3	-0.1	-0.2
				[0.33]	[0.33]	[0.53]	[0.42]
Real exchange rate change				0.5*	-0.1	-0.2	-0.5
				[0.26]	[0.25]	[0.32]	[0.31]
Difference Credit				0.1	0.1	-0.1	0.0
				[0.11]	[0.11]	[0.12]	[0.13]
Reserve/M2				-8.7	-12.2	34.9**	3.9
				[16.18]	[13.89]	[13.90]	[11.20]
GDP growth				0.5	0.3	1.0***	0.9*
				[0.35]	[0.54]	[0.31]	[0.50]
Inflation				-0.6	0.5	0.1	0.9*
				[0.44]	[0.37]	[0.62]	[0.49]
Rule of law				14.1	6.5	37.2**	29.8**
				[12.97]	[9.43]	[16.35]	[11.62]
Bank concentration						-0.3**	0.0
						[0.11]	[0.12]
Foreign share						-0.8	-0.5
						[0.48]	[0.33]
Year fixed effects	No	No	Yes	No	Yes	No	Yes
R-squared	0.175	0.213	0.412	0.259	0.433	0.363	0.508
Observations	6,063	3,752	3,752	2,789	2,789	1,528	1,528

B. LBS Total Cross-Border Foreign Claims

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Lenders' NPL ratio	0.7	2.2**	0.1	2.2	0.7	-2.7	-1.2
	[0.8]	[1.0]	[1.2]	[1.8]	[1.8]	[2.5]	[2.3]
Lenders' NPL ratio*USD share	0.02	-0.02	0.01	-0.03	-0.01	0.08	0.02
	[0.02]	[0.02]	[0.03]	[0.04]	[0.04]	[0.06]	[0.05]
Lenders' USD share	0.7***	1.0***	0.1	0.8**	0.2	-0.3	-0.3
	[0.2]	[0.3]	[0.2]	[0.3]	[0.3]	[0.3]	[0.3]
Borrowers' NPL ratio		2.0***	1.9***	2.7***	2.5***	2.6***	2.8***
		[0.5]	[0.3]	[0.5]	[0.4]	[0.5]	[0.4]
Borrowers' NPL ratio*USD share		-0.02**	-0.02***	-0.03***	-0.03***	-0.02	-0.02*
		[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Borrowers' USD share		0.1	0.2	0.3	0.3	0.5	0.5***
		[0.3]	[0.2]	[0.3]	[0.2]	[0.3]	[0.2]
Increase in CA deficit				0.4	-0.1	0.9	0.0
				[0.3]	[0.2]	[0.5]	[0.3]
Real exchange rate change				0.6***	-0.0	0.2	-0.3
				[0.2]	[0.2]	[0.2]	[0.2]
Difference Credit				0.1	0.1	-0.1	-0.0
				[0.1]	[0.1]	[0.1]	[0.1]
Reserve/M2				-6.3	-11.1	40.4**	9.1
				[10.8]	[9.2]	[19.9]	[19.5]
GDP growth				0.2	0.3	0.8***	1.1**
				[0.2]	[0.4]	[0.3]	[0.5]
Inflation				-0.6	0.4	0.2	1.2
				[0.5]	[0.4]	[1.0]	[0.8]
Rule of law				6.2	5.8	20.2	21.9*
				[12.9]	[9.9]	[16.5]	[11.9]
Bank concentration						-0.2	0.1
						[0.1]	[0.1]
Foreign share						-0.2	-0.5
						[0.5]	[0.4]
Year Fixed effects	No	No	Yes	No	Yes	No	Yes
R-squared	0.147	0.161	0.365	0.232	0.428	0.262	0.463
Observations	8,768	5,085	5,085	3,291	3,291	1,945	1,945

Table 5

- Banking outflows are less sensitive to a rise in the NPL ratios of borrowers and lenders if the share of international loans are more USD denominated .

- The results are related to 'original sin redux' raised by Carstens and Shin (2019).
  - Borrowing in local currency does not insulate emerging market economies from the problem of currency mismatches. The mismatches will simply shift to the lenders' balance sheets if foreign investors do not hedge their investments.
  - In time of financial distress, increased capital outflows from emerging markets lead the local currency to depreciate and the returns in local currency into US dollars amplifies investors' losses.
  - If claims are mostly in US dollars, a falling local or other currency value does not necessarily amplify losses among foreign investors, who therefore would not rush to readjust their dollar-denominated portfolio assets.

Policy Implications

➢ The current pandemic leads to a substantial rise in debt levels, which are already quite elevated

➢ Recent rise in NPLs in some Asian economies, as well as the ongoing COVID-19 pandemic, calls for close monitoring

➢ Credit conditions and quality could deteriorate when temporary financial relief is lifted, and regulatory forbearance phased out

➢ An extended period of very low interest rates increase cyclical vulnerabilities (abnormal asset valuations, high leverage, historic low cost of financing by below investment grade corporates) pose greater risks to financial stability

➢ Need to strengthen the region's financial safety net arrangements and NPL resolution mechanisms

ADB

Rising asset prices

Stock Price Index—Selected Asian Economies (1 January 2019 = 100)
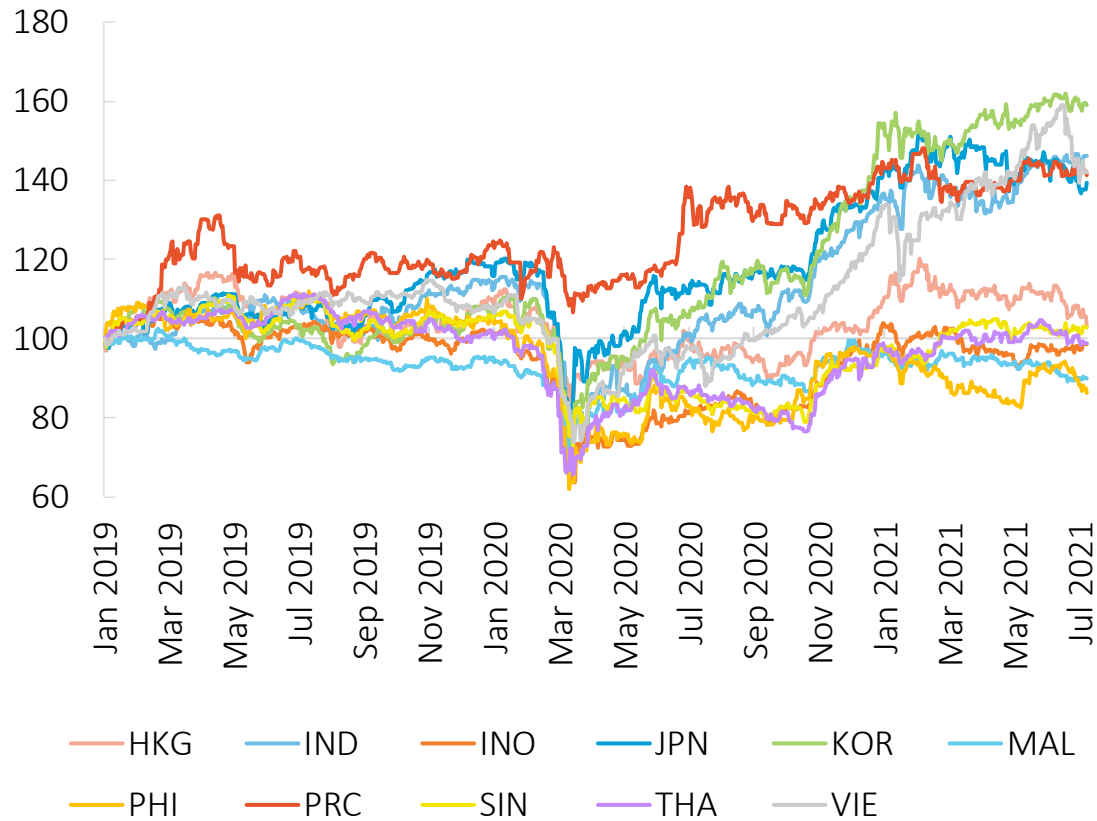
Source: ADB calculations using data from Bloomberg.

Housing Price Index—Selected Asian Economies (2019Q1 = 100)
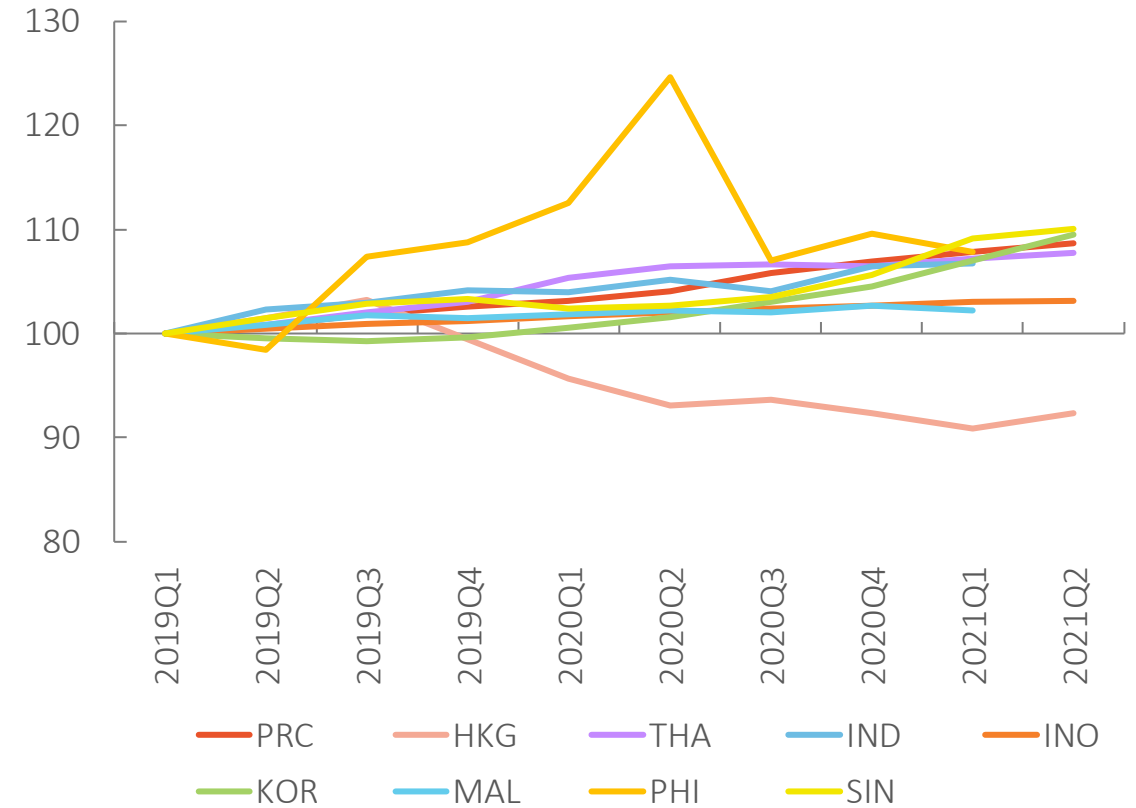
Source: ADB calculations using data from Haver Analytics.

Rising private sector debt and leverage
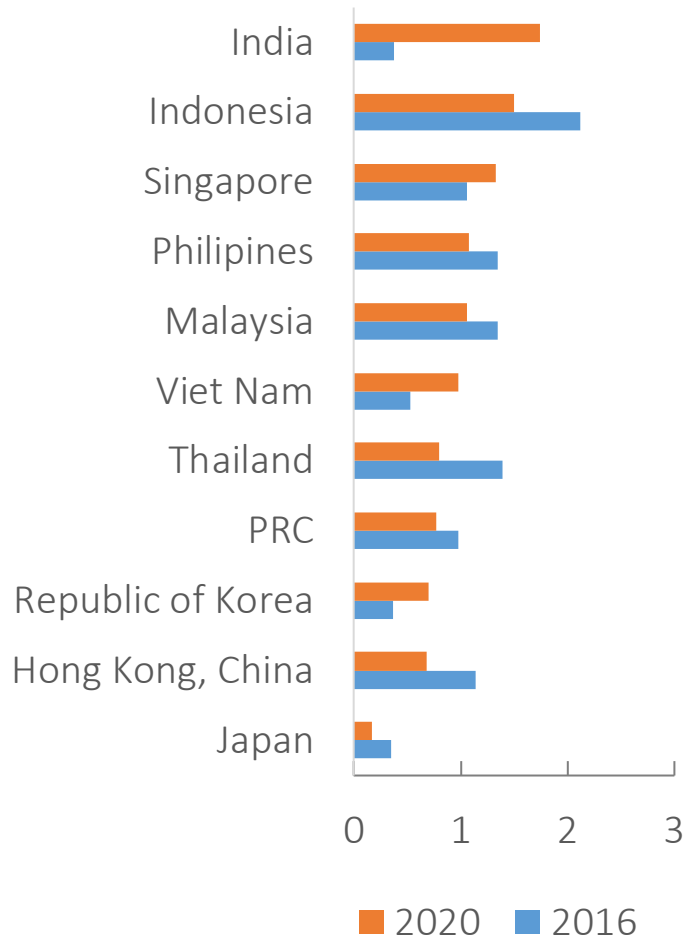

Credit to private sector (% of GDP)
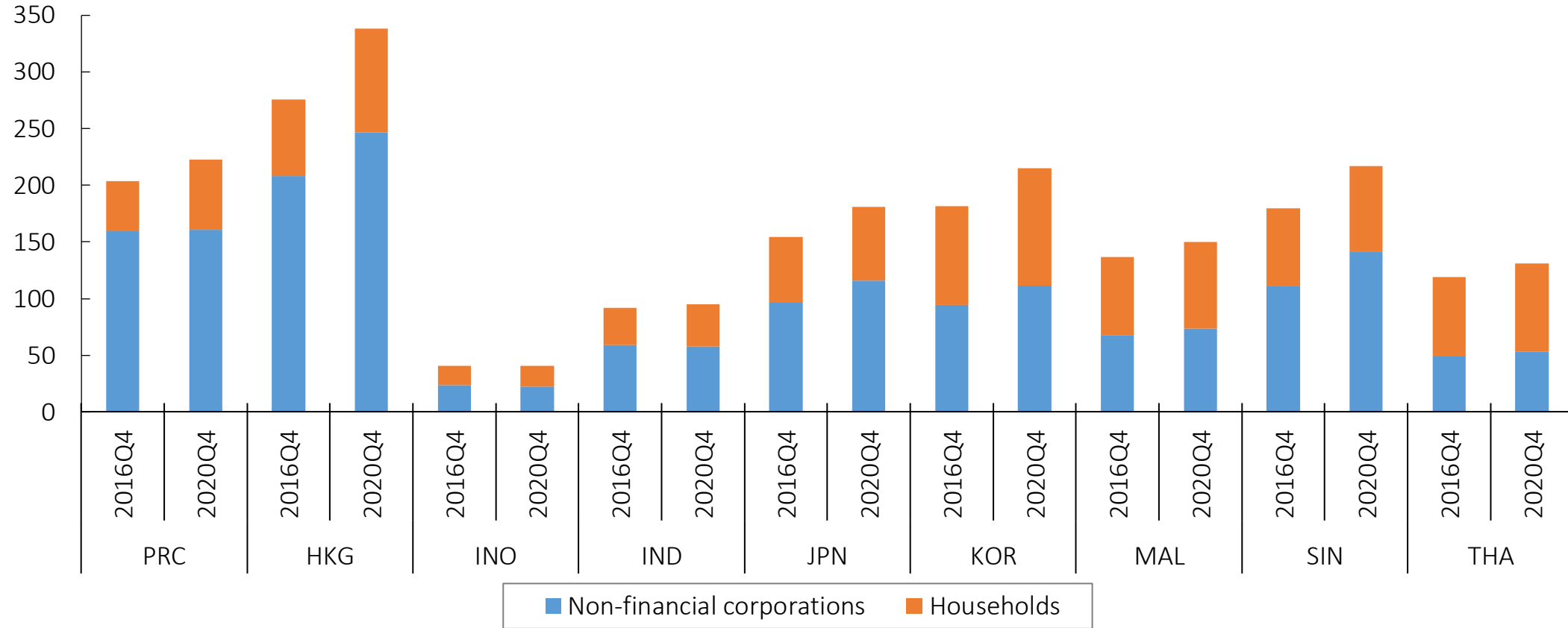
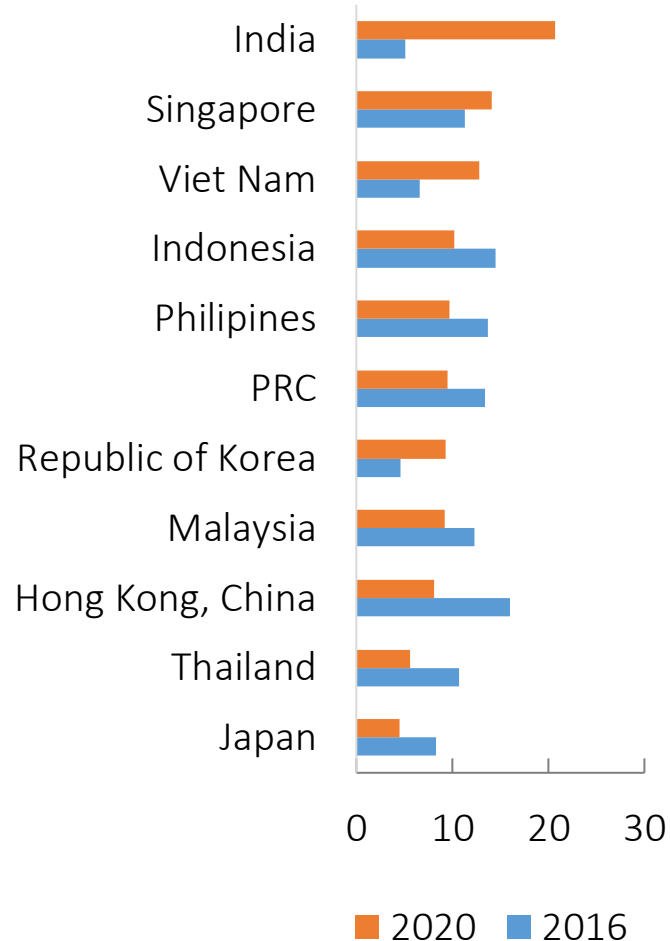Source: Bank for International Settlements.
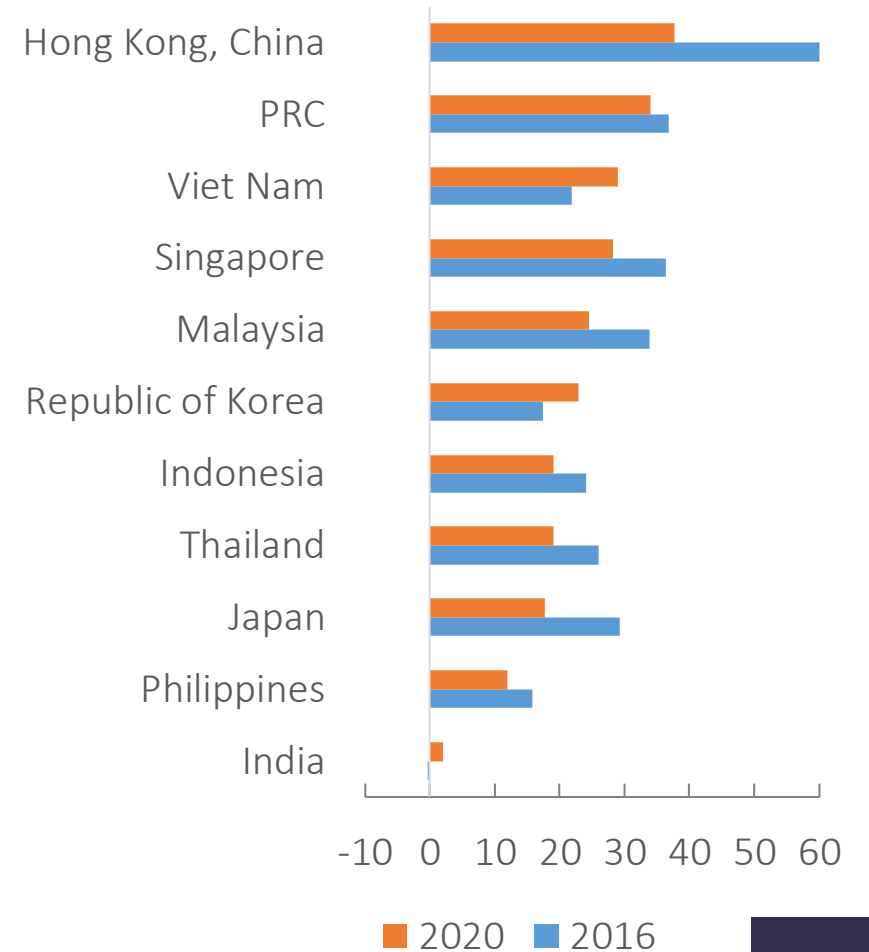
Bank profitability generally declined
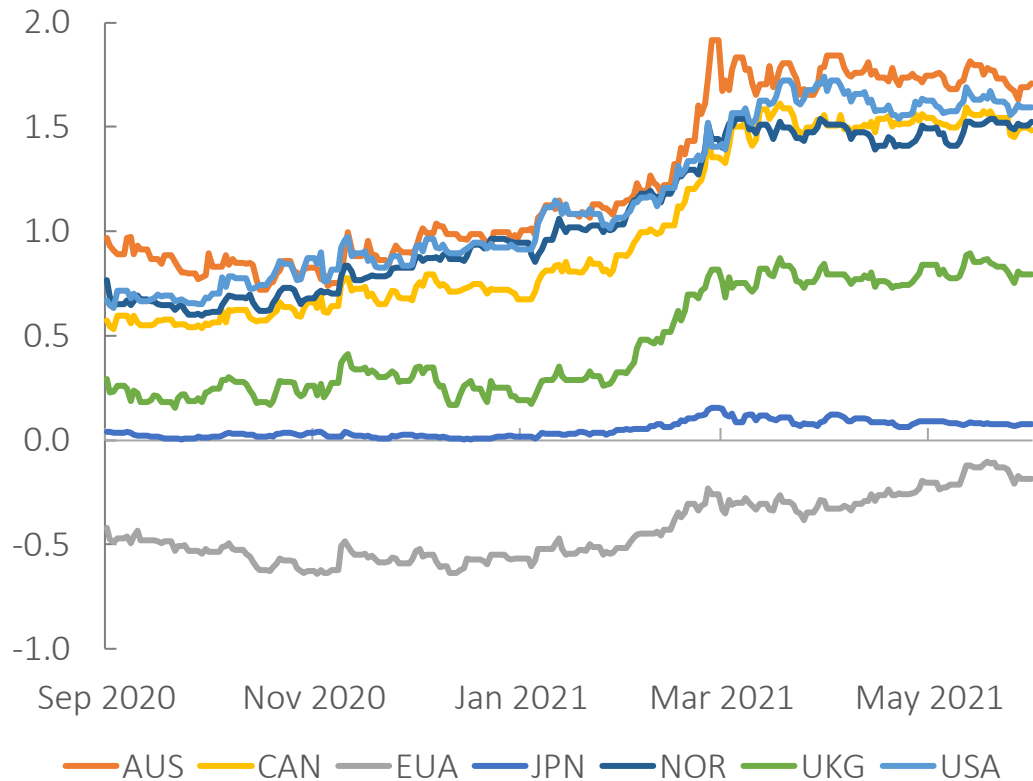

Return on Assets (%)

Return on Equity (%)

Net Profit Margin (%)

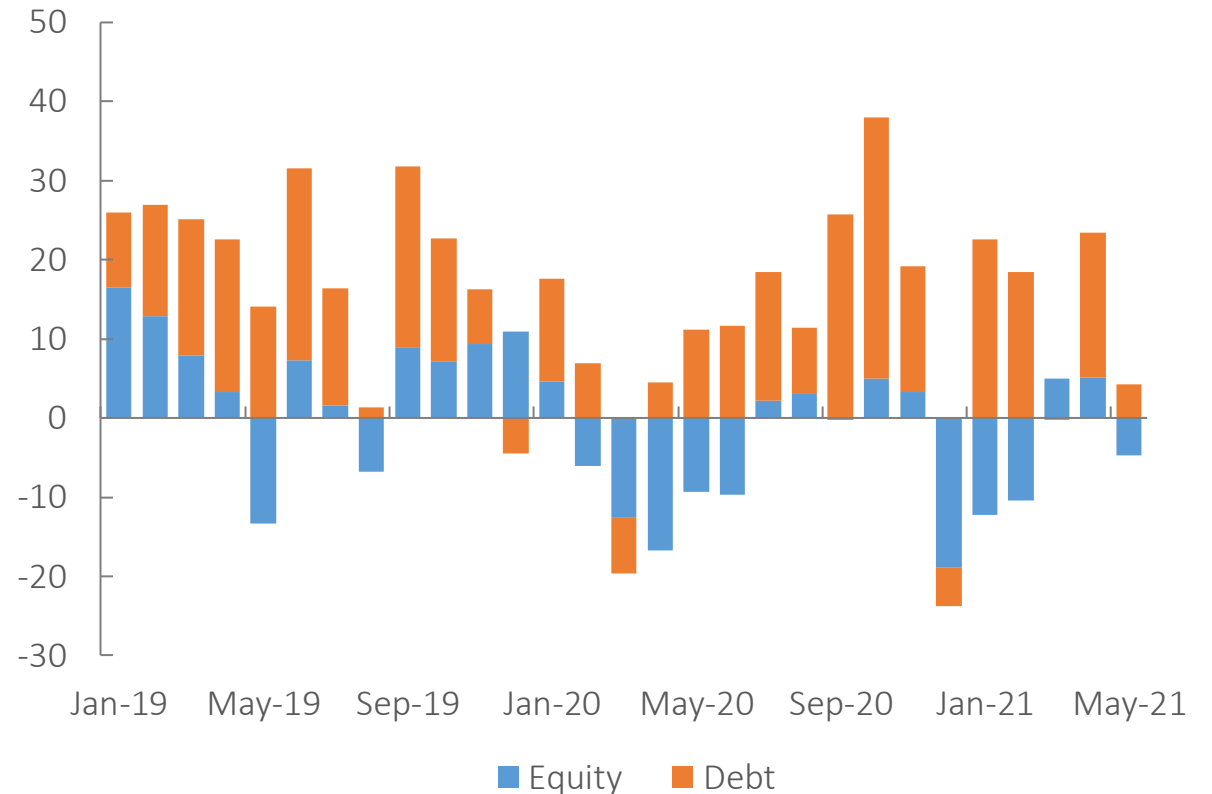# Rises in global bond yields could prompt a *taper tantrum* in EME financial markets

10-Year Treasury Bond Yields (%)

Nonresident Portfolio Flows—Emerging Asia ($ billion)

AUS = Australia, CAN = Canada, EUA = euro area, JPN = Japan, NOR = Norway, UKG = United Kingdom, USA = United States.
Source: Bloomberg.

Note: Emerging Asia includes India; Indonesia; Malaysia; the People's Republic of China; the Philippines; the Republic of Korea; Taipei,China; Thailand; and Viet Nam.
Source: Institute of International Finance. Capital Flows Tracker.
https://www.iif.com/Research/Capital-Flows-and-Debt/Capital-Flows-Tracker (accessed 3 June 2021).

Thank you!

Reporting Countries and Counterparty Emerging Market Economies by Region

Region	Reporting Economies	Emerging Market Economies
Asia and Oceania	Taipei,China; Hong Kong, China; Japan; Macao, China; Republic of Korea; Australia	India; Malaysia; Indonesia; Philippines; Bangladesh, Republic of Korea; Sri Lanka; Pakistan; Thailand; Armenia; Georgia; Israel; Kazakhstan; Lebanon
Europe	Austria; Belgium; Denmark; Finland; France; Germany; Greece; Ireland; Luxembourg; Netherlands; Spain; Switzerland; United Kingdom	Turkey; Hungary; Latvia; Lithuania; Macedonia FYR; Moldova; Poland; Russian Federation; Ukraine
North & South America	Canada; United States; Brazil; Chile; Mexico	Argentina; Brazil; Chile; Colombia; Costa Rica; Mexico; Paraguay; Peru; Uruguay
Africa	South Africa	Kenya; Mauritius; Nigeria; South Africa; Tanzania

Key elements for building an effective resolution framework

- Data availability, transparency and integrity are essential for effective resolution and policy intervention

- Public support to resolve NPLs, such as bank recapitalization, tax incentives, and in creating public asset management companies (AMCs)

- Policies for effective NPL resolution should be incentive compatible to prevent moral hazard

- National authorities for resolution frameworks should have oversight and contract enforcement powers, and strong governance

- Institutional quality is important for swift NPL resolution

- Harness advances in financial technology in regulation and supervision

ADB