



New spare tires: local currency credit as a global shock absorber

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The views expressed are those of the authors and do not necessarily reflect those of the Bank for International Settlements

Spare tires in the financial system?

“The failure to have backup forms of intermediation was of little consequence. The lack of a spare tire is of no concern if you do not get a flat. East Asia had no spare tires.”

– Alan Greenspan (19 Oct. 1999)

- The **dramatic increase in dollar debt** over the past 20 years is well documented
 - Sensitivity of dollar debt to global factors well established
- **EME financial systems have also grown dramatically** over the same period
- **Local currency debt of EME corporates is much less studied**
 - Local currency debt is typically locally sourced, but could still be impacted by global shocks via domestic banks borrowing from abroad
- **How has local currency corporate debt evolved in the last two decades?**
- **Is local currency credit a spare tire for emerging market firms?**

Existing work focuses mainly on sovereign/dollar/external debt

- **Original Sin (+ Redux):** Eichengreen and Hausmann (1999); Burger et al (2012); Carsten and Shin (2019), Hofmann et al (2022), Onen et al. (2023); Bertaut et al (2023)
 - External borrowing by sovereigns in their own currency
- **Impacts of the dollar:** Bruno and Shin (2015); Avdjiev (2019a,2019b); Hoffman, Shim and Shin (2020), Hoffman and Park (2020); Erik et al (2020)
 - Bank lending, firm investment, dollar/external debt decline
- **Corporate local currency debt:** Abraham et al (2021); Avdjiev et al (2012)); Burger et al (2018); Hale et al (2020)
 - Some bond market development, but external participation not as extensive
- **Our paper:** comprehensive look at EME corporate debt: local and foreign currency; bonds and loans; domestic and external borrowing
 - Give due attention to firm heterogeneity

Roadmap

- **Data**

- **Stylized facts**

- Based on Dealogic data: Syndicated loans and bonds
- Trends in dollar and local currency debt

- **Empirical analysis**

- Based on Capital IQ data: firm-level, all sources of debt
- Impacts of dollar shocks on firm borrowing, by currency

Data

- **Dealogic**

- Syndicated loans and debt securities
 - Poor coverage of ST debt instruments, but consistent over time
- Aggregate by currency, (ultimate issuer) country, and (ultimate issuer) sector
- 2000q1-2020q4 (quarterly)

- **Capital IQ**

- Firm-level balance sheets
- Currency composition of debt by instrument → matches balance sheet total for 95% of obs
- Geographic allocation of sales and assets → measures of exports and FX assets (85% of sample)
- 2010-2019 (annual)
- 11k firms, but very unbalanced

- **Sample:** AR, BR, CL, CO, CZ, HU, ID, IN, KR, MX, MY, PE, PH, PL, RU, TH, TR, ZA (+CN, HK, SG, TW, SA)

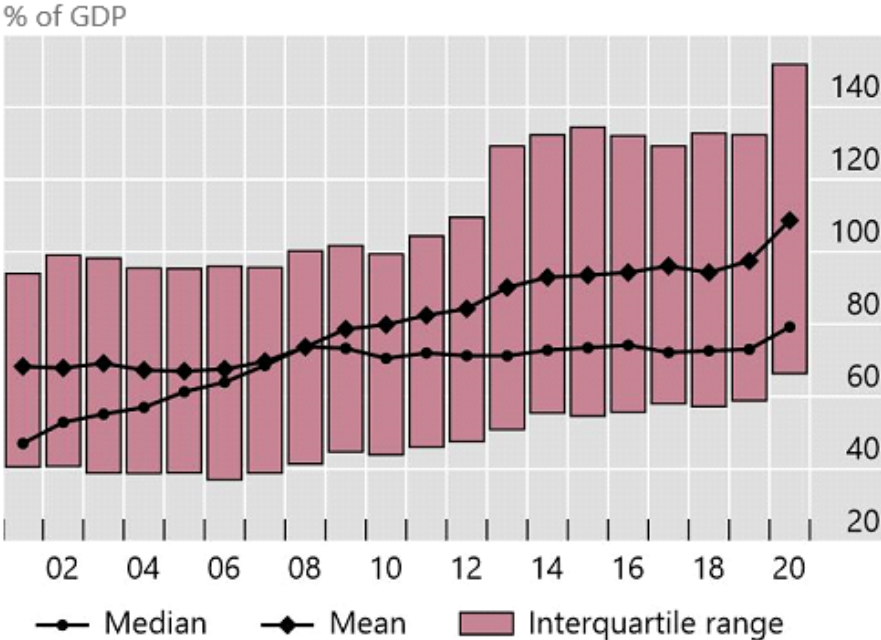
Emerging market financial systems have developed considerably

- **Domestic banking systems have expanded**
- **Greater capacity to provide (local currency) credit to domestic borrowers**

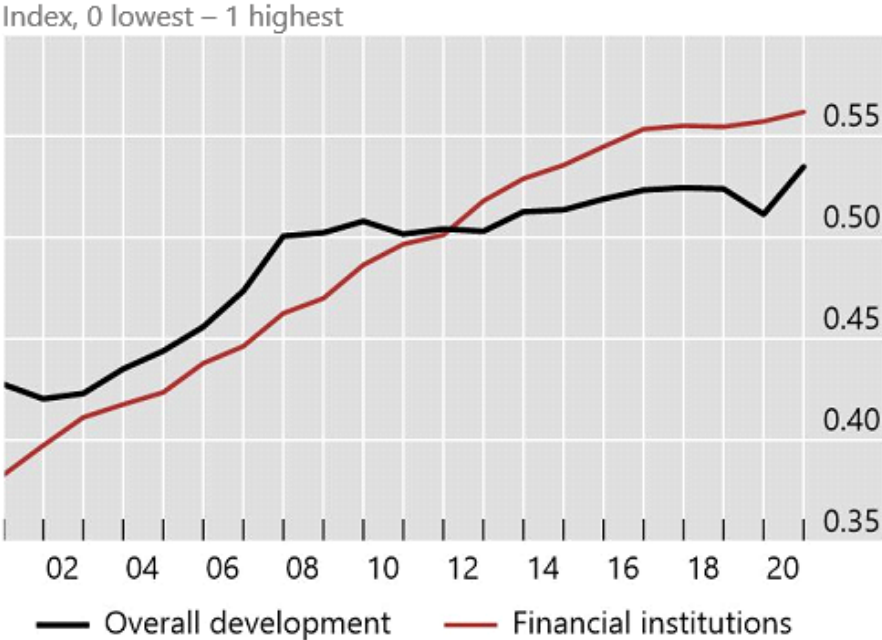
Financial development indicators

Graph 1

A. Banking sector assets¹



B. Financial development index²



¹ Balanced panel of 20 countries. Excluding AR, SA, and TW due to data availability. ² Simple average of the index for 22 emerging markets. Excluding TW due to data availability.

Sources: IMF; World Bank; authors' calculations.

Local currency debt expansion alongside dollar debt

- **Rapid expansion of dollar debt overshadowed equal expansion of local currency debt**

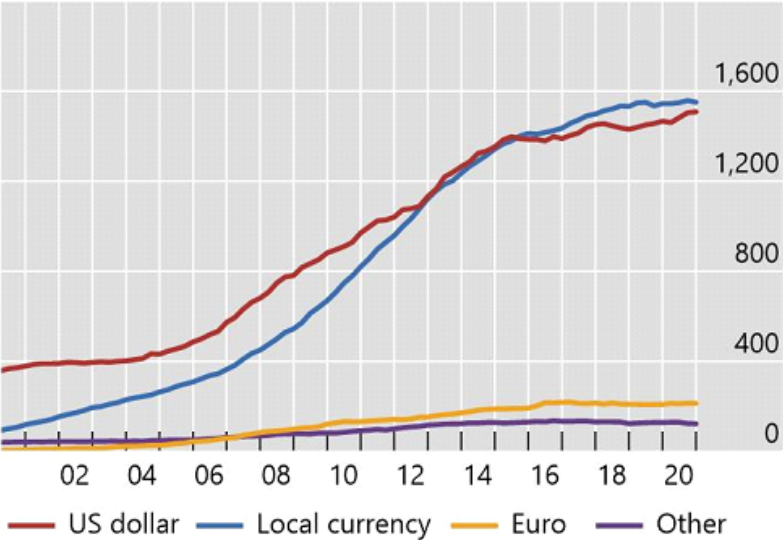
- **Holds for tradable and non-tradable sectors**
 - Non-tradable, a much larger local currency boom

Aggregate EME corporate debt¹

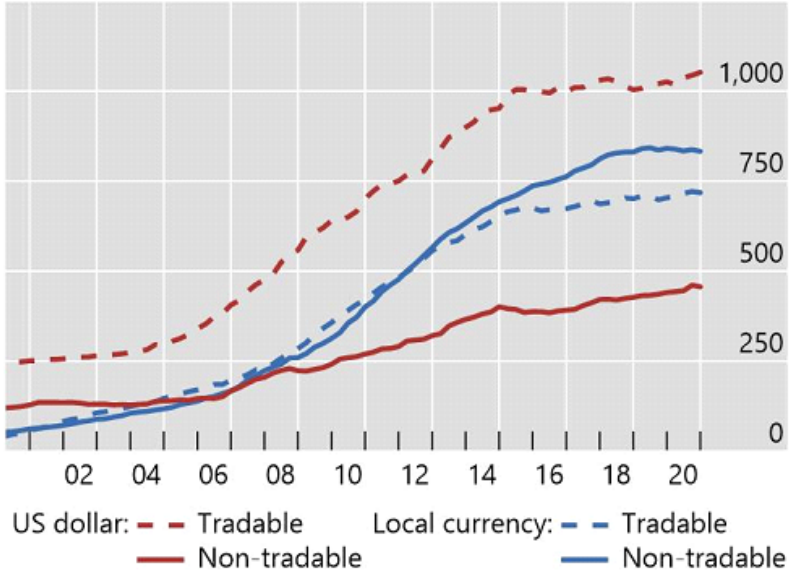
Outstanding amount of debt securities and loans, in billions of US dollars

Graph 2

A. By currency



B. By currency and sector



¹ Tradable: ultimate parent of the issuing firm is in a tradable sector such as manufacturing or agriculture. Non-tradable: ultimate parent of the issuing firm is in a non-tradable sector such as construction. For an unbalanced panel of firms headquartered in 22 emerging markets (excluding China) since Q1 2000. Includes debt securities and syndicated loans.

Sources: Dealogic; authors' calculations.

Trends by currency and instrument

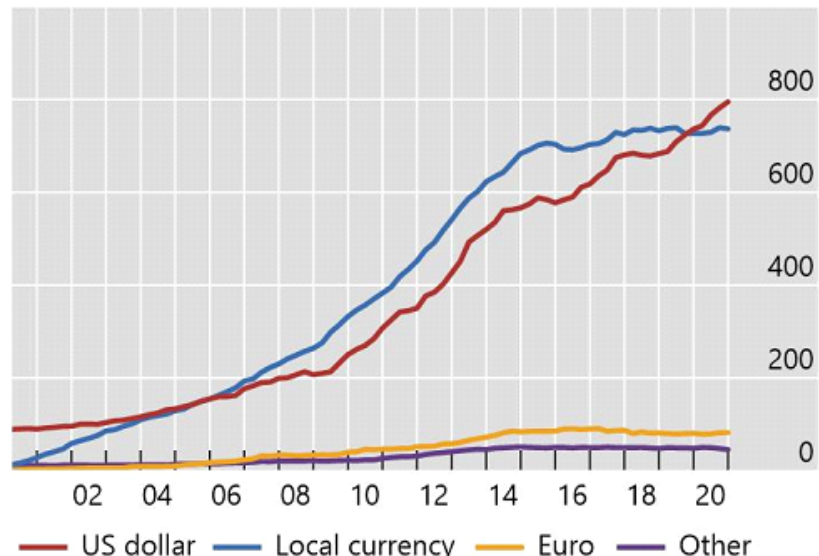
- **Holds for both bonds and syndicated loans**
- Recently
 - local currency bonds have levelled off (all firms)
 - dollar syndicated loans have declined (driven by tradable firms)

EME corporate debt by currency¹

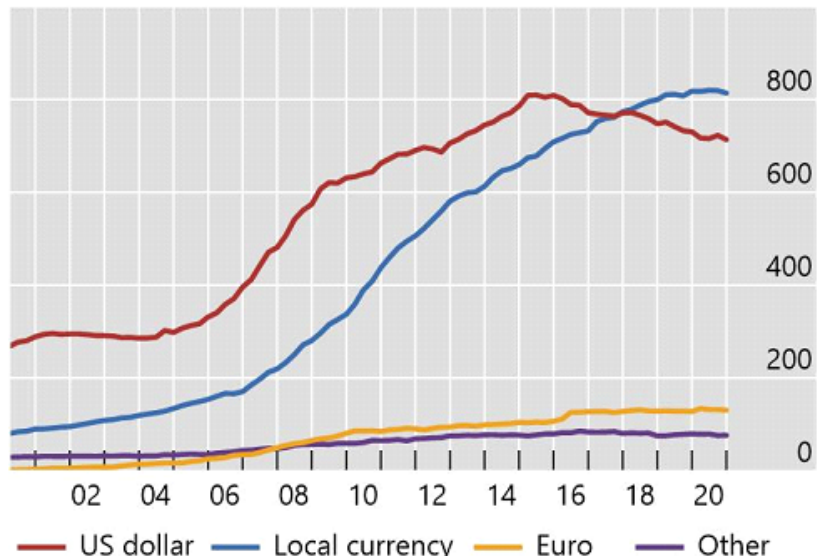
Outstanding amounts, in billions of US dollars

Graph 3

A. Bonds



B. Syndicated loans



¹ For an unbalanced panel of firms headquartered in 22 emerging markets (excluding China) since Q1 2000. Includes debt securities and syndicated loans.

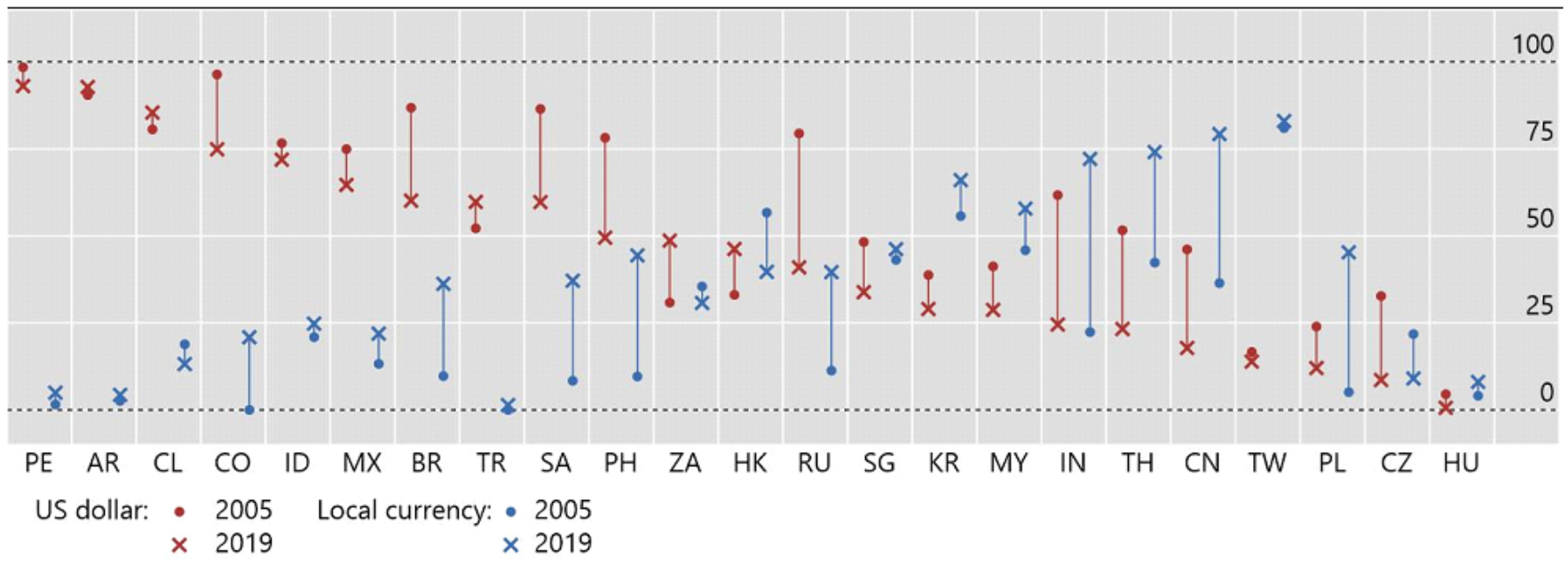
Sources: Dealogic; authors' calculations.

Cross-country comparison of local currency share of debt

- **Increase in LC share of debt occurred across most EMEs**
- **Strongest increase in Asian EMEs**

US dollar and local currency share in total debt¹
 As a percentage of total debt outstanding

Graph 5



¹ Dates correspond to the fourth quarter of 2005 and 2019. Total debt represents the total outstanding amount of bonds and syndicated loans in the Dealogic dataset.

Sources: Dealogic; authors' calculations.

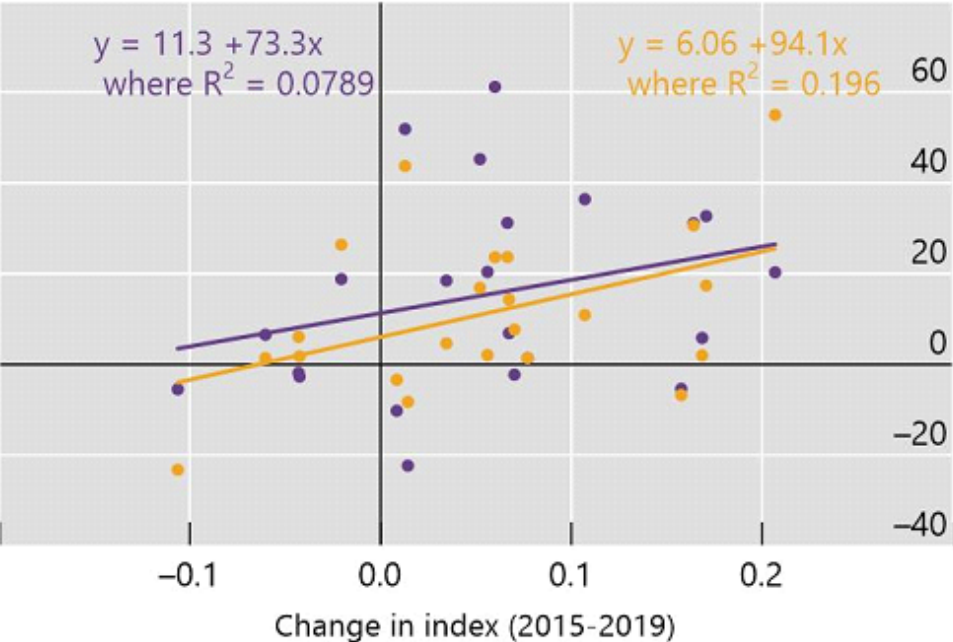
Relationship between financial development and local currency debt

- **Greater financial development associated with rising share of credit in local currency**

Financial development and change in local currency borrowing¹

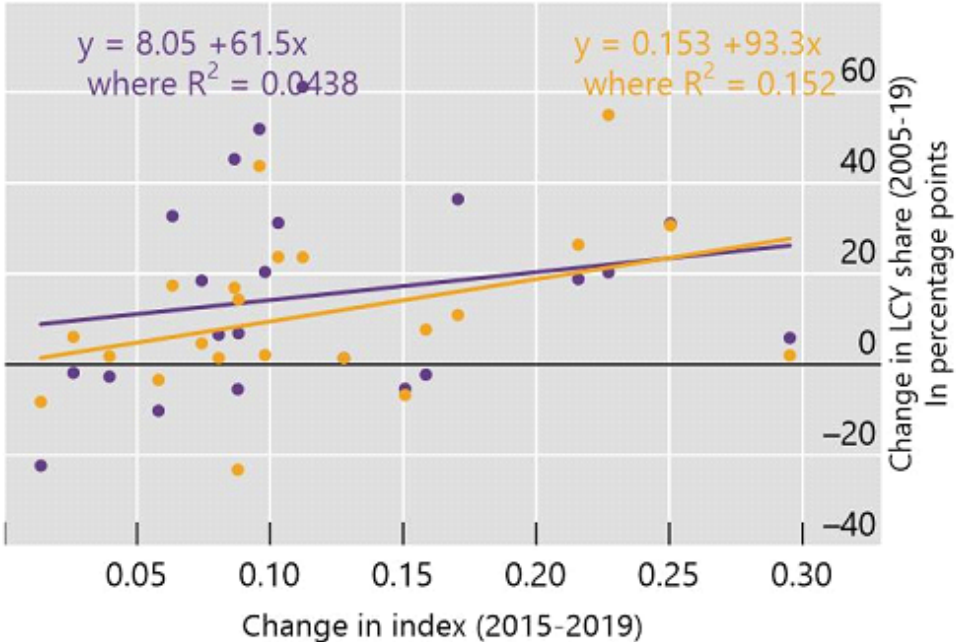
Graph 6

Financial development index



• Tradable • Non-tradable

Financial institutions index



• Tradable • Non-tradable

¹ Excluding AR, SA, and TW due to data availability. HK and SG are also excluded as outliers from their status as financial centres.

Sources: IMF; World Bank; authors' calculations.

Relationship between financial development and local currency debt

- Formalize in a fixed effect regression:

$$\frac{LC\ Debt_{cjt}}{Total\ Debt_{cjt}} = \alpha_{cj} + \alpha_{jt} + \theta\ FinDev_{ct} + \varepsilon_{cjt}$$

- More developed financial institutions → more local currency loans**
- More developed financial system → more local currency bonds**

Table 1: Financial Development and Local Currency Debt Share

Annual Data, Dealogic, 2000-2019

By Industry, Country, and Type of Debt

	All debt	All debt	Loans	Loans	Bonds	Bonds
Financial Development Index	0.907** (0.426)		0.417 (0.403)		0.850** (0.306)	
Financial Institutions Index		0.579* (0.295)		0.734** (0.298)		0.200 (0.212)
R^2	0.74	0.74	0.73	0.74	0.77	0.76
N	8,546	8,546	8,027	8,027	5,519	5,519
Country-Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry-year FE	Yes	Yes	Yes	Yes	Yes	Yes

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Firm-level analysis: dollar shocks on firm debt

- **Examine impact of global dollar shocks on corporate debt:**

$$DG_{i,c,t} = \alpha_i + \beta BDI_t + \delta X_{i,t-1} + \varphi Y_{i,t} + \varepsilon_{i,t}$$

- Where DG is debt growth of firm i in currency c (dollar vs LC, currency valuation effects removed)
 - Key variable: growth rate of broad dollar index (BDI)
 - Firm controls in X: revenues, log assets, leverage
 - Country controls in Y: bilateral exchange rate (orthogonalized), real GDP growth, MSCI stock return, local MP rate, inflation
 - Dummy for 2019 (change in accounting standards driving surge in LC leases on balance sheet)
- Grouping: exports/sales, profits, size
- **Ex ante theoretical impact of BDI appreciation on LC debt not clear**
 - Currency mismatches → balance sheet shock → reduce all debt (especially dollar)
 - Dollar invoicing → contraction of global trade → reduce debt (especially dollar)
 - Interest rate differentials → local currency debt cheaper → increase LC debt

Baseline results

- **Stronger broad dollar index →**
 - **Fall in dollar debt**
 - **Rise in LC debt**
- **No impact on firms with no FX debt**
- For remainder of presentation
 - Focus on firms with some dollar debt
 - Omit controls from slides

Table 3. Currency Splits
Annual NFC All debt growth 2010-2019

	Firms with USD debt			No FX Debt
	All cur	USD	LC	LC
<u>ΔBDI_t</u>	-0.093 (0.059)	-0.168*** (0.038)	0.097* (0.056)	0.052 (0.068)
<u>$\Delta Revenues_{it}$</u>	0.065*** (0.007)	0.022*** (0.004)	0.051*** (0.006)	0.030*** (0.004)
Log Assets _{it-1}	-0.163*** (0.008)	-0.048*** (0.005)	-0.127*** (0.008)	-0.173*** (0.007)
Leverage _{it-1}	-0.868*** (0.023)	-0.219*** (0.012)	-0.670*** (0.021)	-0.823*** (0.021)
<u>$\Delta Bilat XR_{ct}$</u> , <u>orthog_{ct}</u>	0.198*** (0.028)	-0.009 (0.019)	0.236*** (0.027)	0.284*** (0.034)
Real GDP <u>Growth_{ct}</u>	0.478*** (0.120)	0.033 (0.073)	0.455*** (0.116)	0.869*** (0.148)
Stock <u>Return_{ct}</u>	-0.086*** (0.015)	-0.041*** (0.011)	-0.037*** (0.014)	-0.111*** (0.020)
Policy Rate _{ct}	-0.006*** (0.001)	-0.002** (0.001)	-0.004*** (0.001)	-0.003 (0.002)
<u>Inflation_{ct}</u>	0.007*** (0.001)	0.002** (0.001)	0.005*** (0.001)	0.006*** (0.002)
2019=1	0.044*** (0.008)	-0.016*** (0.004)	0.064*** (0.008)	0.032*** (0.010)
Constant	1.285*** (0.047)	0.370*** (0.029)	0.992*** (0.045)	0.907*** (0.031)
R ²	0.26	0.16	0.22	0.26
N	32,810	32,810	32,810	37,525

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Low vs Medium vs High: Exports, Size, Profits

- **Low firms:** drop in dollar debt, no substitution to LC debt → drop in total debt
- **Medium firms:** drop in dollar debt, substitution to LC debt → no decline in total debt
- **High firms:** unaffected

	All	Non-exporters USD	LC	All	< 50% exports USD	LC	All	> 50% exports USD	LC
ΔBDI_t	-0.061 (0.121)	-0.237*** (0.076)	0.157 (0.117)	-0.057 (0.079)	-0.172*** (0.047)	0.164** (0.075)	-0.123 (0.140)	-0.047 (0.111)	-0.055 (0.126)
R^2	0.29	0.19	0.24	0.26	0.14	0.23	0.26	0.17	0.20
N	8,135	8,135	8,135	18,946	18,946	18,946	5,729	5,729	5,729

	Small Firms			Medium Firms			Large Firms		
	All debt	USD debt	LC debt	All debt	USD debt	LC debt	All debt	USD debt	LC debt
ΔBDI_t	-0.291* (0.149)	-0.249*** (0.081)	-0.059 (0.143)	-0.101 (0.084)	-0.235*** (0.056)	0.144* (0.080)	0.086 (0.101)	-0.009 (0.070)	0.161* (0.093)
R^2	0.24	0.14	0.20	0.27	0.17	0.23	0.29	0.17	0.25
N	8,208	8,208	8,208	16,375	16,375	16,375	8,227	8,227	8,227

	All	Low Profit USD	LC	All	Medium Profit USD	LC	All	High Profit USD	LC
ΔBDI_t	-0.200* (0.116)	-0.258*** (0.073)	0.015 (0.113)	0.074 (0.078)	-0.121** (0.050)	0.242*** (0.076)	-0.124 (0.130)	-0.111 (0.087)	0.020 (0.120)
R^2	0.28	0.19	0.23	0.29	0.16	0.25	0.24	0.15	0.21
N	8,191	8,191	8,191	16,370	16,370	16,370	8,249	8,249	8,249

Are these the same firms? Crossing the groups

- We focus on just the non-exporters with dollar debt, then split again by size and profits
- We see a similar pattern:
 - **Low firms:** drop in dollar debt, no substitution to LC debt → drop in total debt
 - **Medium firms:** drop in dollar debt, substitution to LC debt → no decline in total debt
 - **High firms:** unaffected

	Small non-exporters			Medium non-exporters			Large non-exporters		
	Total	USD	LC	Total	USD	LC	Total	USD	LC
ΔBDI_t	-0.691** (0.329)	-0.445** (0.189)	-0.389 (0.314)	0.142 (0.168)	-0.285*** (0.110)	0.430*** (0.165)	0.129 (0.195)	0.033 (0.123)	0.124 (0.187)
R^2	0.25	0.21	0.21	0.30	0.19	0.25	0.32	0.19	0.28
N	1,789	1,789	1,789	4,043	4,043	4,043	2,303	2,303	2,303
	Low Profit non-exporters			Medium Profit non-exporters			High Profit non-exporters		
	Total	USD	LC	Total	USD	LC	Total	USD	LC
ΔBDI_t	-0.430* (0.231)	-0.282** (0.136)	-0.210 (0.225)	0.237 (0.167)	-0.207* (0.107)	0.493*** (0.165)	-0.083 (0.259)	-0.191 (0.170)	-0.025 (0.249)
R^2	0.31	0.25	0.25	0.30	0.17	0.26	0.29	0.18	0.25
N	2,321	2,321	2,321	3,889	3,889	3,889	1,925	1,925	1,925

Extensions: Balance sheet channel and market size

- Interact BDI with the share of debt in USD (time invariant)
 - **Firms with more dollar debt drive the patterns in all groups**
- Group firms by being in dollar reliant vs less reliant countries
 - **Firms able to switch to LC only in less dollar reliant countries**

	Non-exporters			All	< 50% exports		All	> 50% exports	
	All	USD	LC		USD	LC		USD	LC
$\Delta BDI_t * USDshare_i$	-0.601* (0.316)	-1.066*** (0.279)	0.420* (0.245)	-0.165 (0.273)	-0.809*** (0.233)	0.684*** (0.210)	0.139 (0.387)	-0.480 (0.330)	0.407 (0.295)
ΔBDI_t	0.077	0.007	0.061	-0.028	-0.026	0.040	-0.166	0.101	-0.180
R^2	0.29	0.19	0.24	0.26	0.14	0.23	0.26	0.17	0.20
N	8,135	8,135	8,135	18,946	18,946	18,946	5,729	5,729	5,729

	Highly Dollar Reliant (AR, CL, PE, ID, MX)			Less Dollar Reliant (More extensive LC debt)		
	All cur	USD	LC	All cur	USD	LC
ΔBDI_t	-0.353*** (0.131)	-0.341*** (0.105)	-0.002 (0.114)	-0.024 (0.067)	-0.157*** (0.039)	0.165** (0.065)
R^2	0.29	0.21	0.24	0.26	0.14	0.23
N	6,222	6,222	6,222	26,588	26,588	26,588
$\# firms$	993	993	993	3,849	3,849	3,849

Summary

- **Local currency debt has grown dramatically, important for corporates**
- **Can serve as a spare tire to dollar debt**
 - Most important for “Medium” firms: by size, by profitability, by export status
 - But only in countries where local currency credit is more extensive (eg Asia)
- **Development of domestic financial systems can help mitigate impacts of global shocks**
- Role of external investors less clear
 - Corporates overcoming original sin? Facing OS Redux risk?

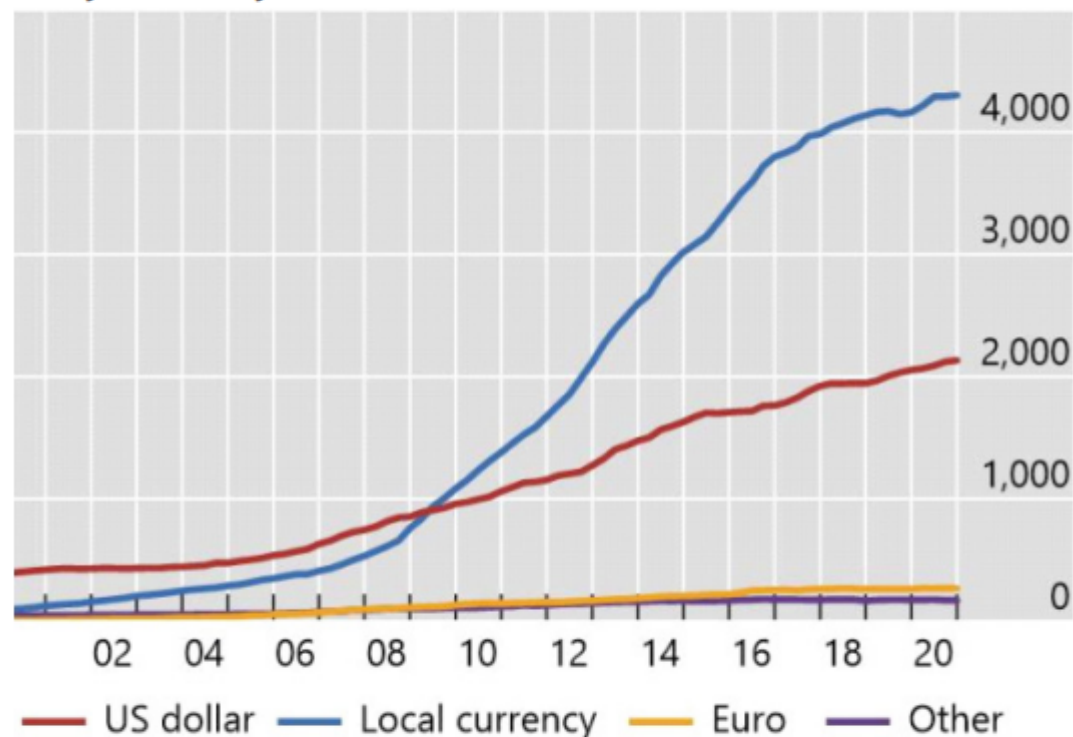
Annex

Aggregate EME corporate debt, including China¹

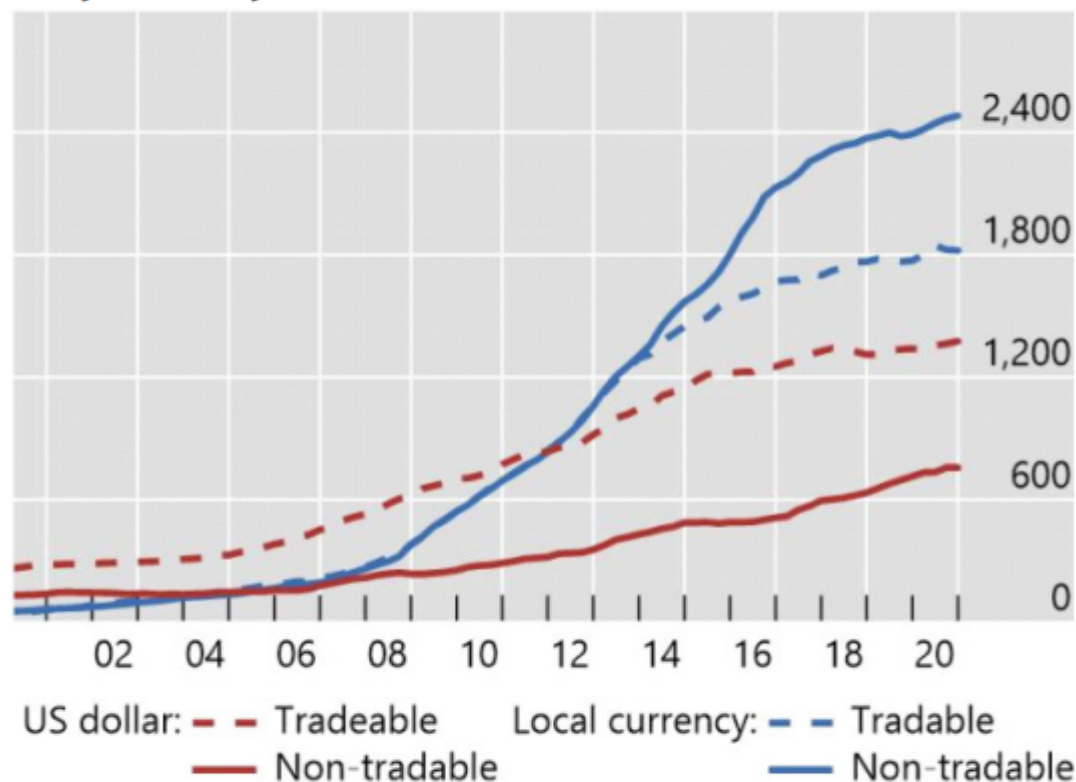
Outstanding amount of debt securities and loans, in billions of US dollars

Graph A1

A. By currency



B. By currency and sector



¹ Tradable: ultimate parent of the issuing firm is in a tradable sector such as manufacturing or agriculture. Non-tradable: ultimate parent of the issuing firm is in a non-tradable sector such as construction. For an unbalanced panel of firms headquartered in 23 emerging markets since Q1 2000. Includes debt securities and syndicated loans.

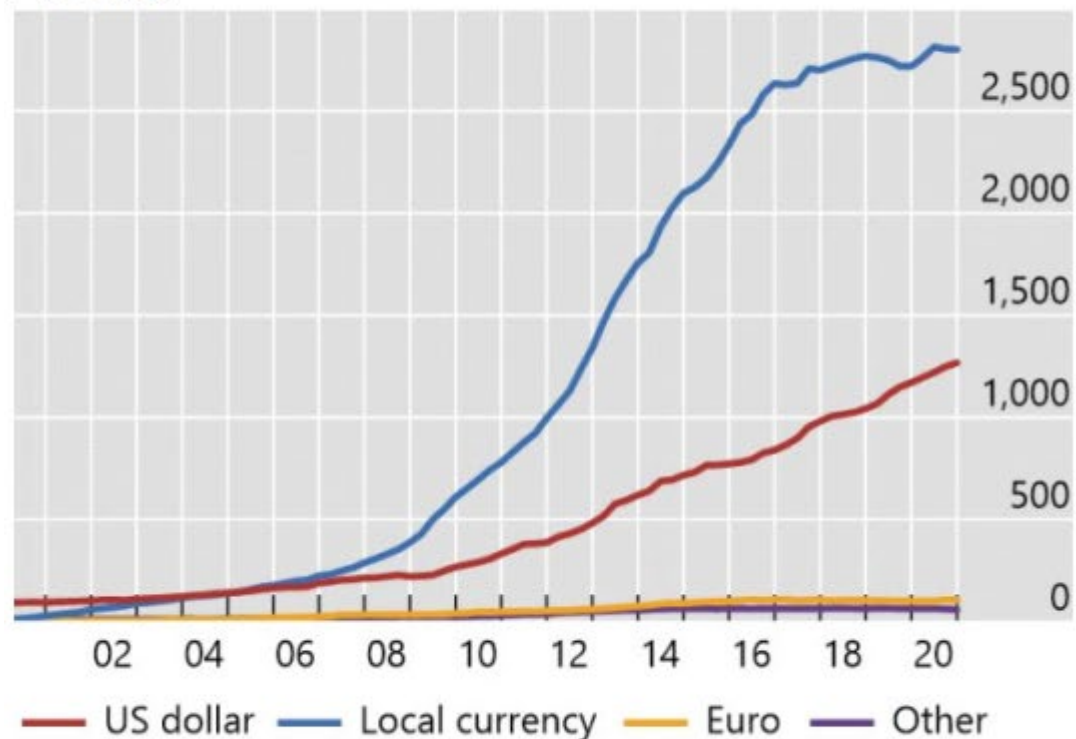
Sources: Dealogic; authors' calculations.

EME corporate debt by currency, including China¹

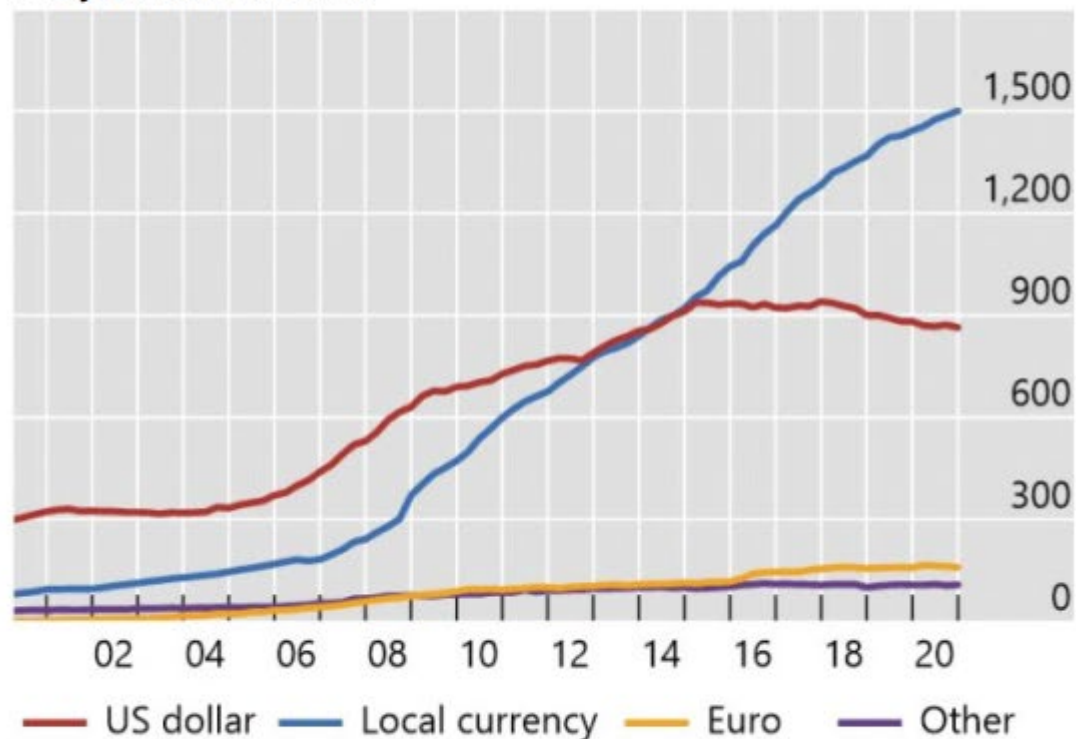
Outstanding amounts, in billions of US dollars

Graph A2

A. Bonds



B. Syndicated loans



¹ For an unbalanced panel of firms headquartered in 23 emerging markets since Q1 2000. Includes debt securities and syndicated loans.

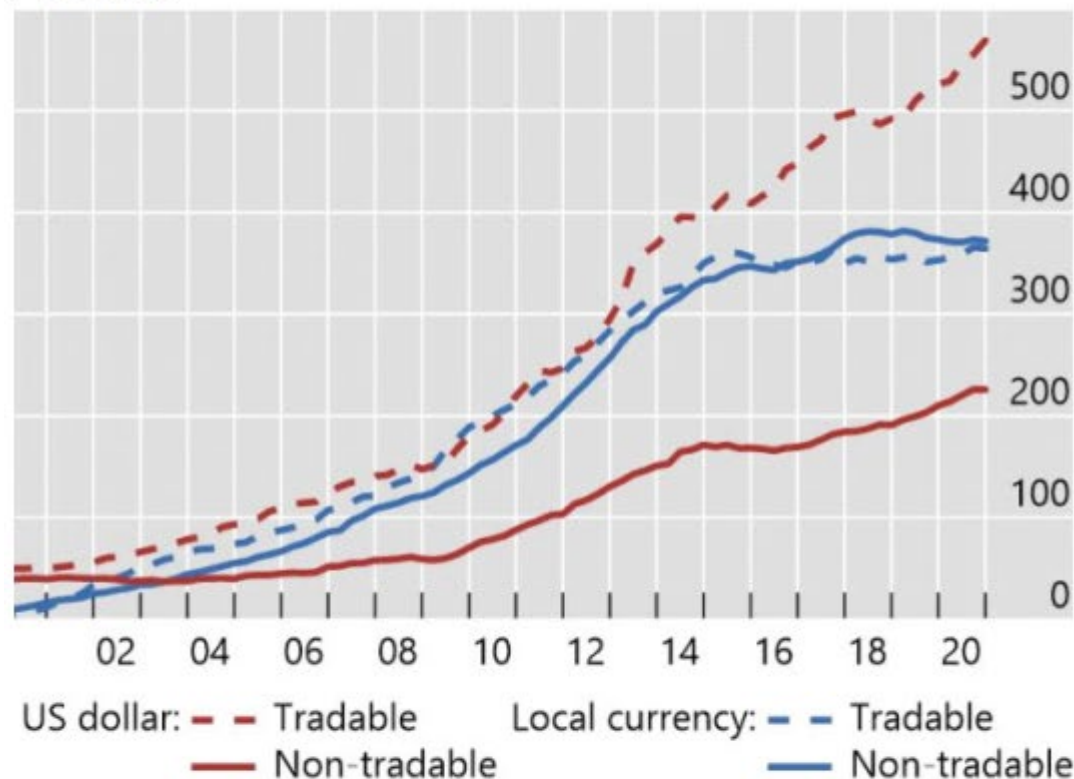
Sources: Dealogic; authors' calculations.

EME corporate debt by currency and sector¹

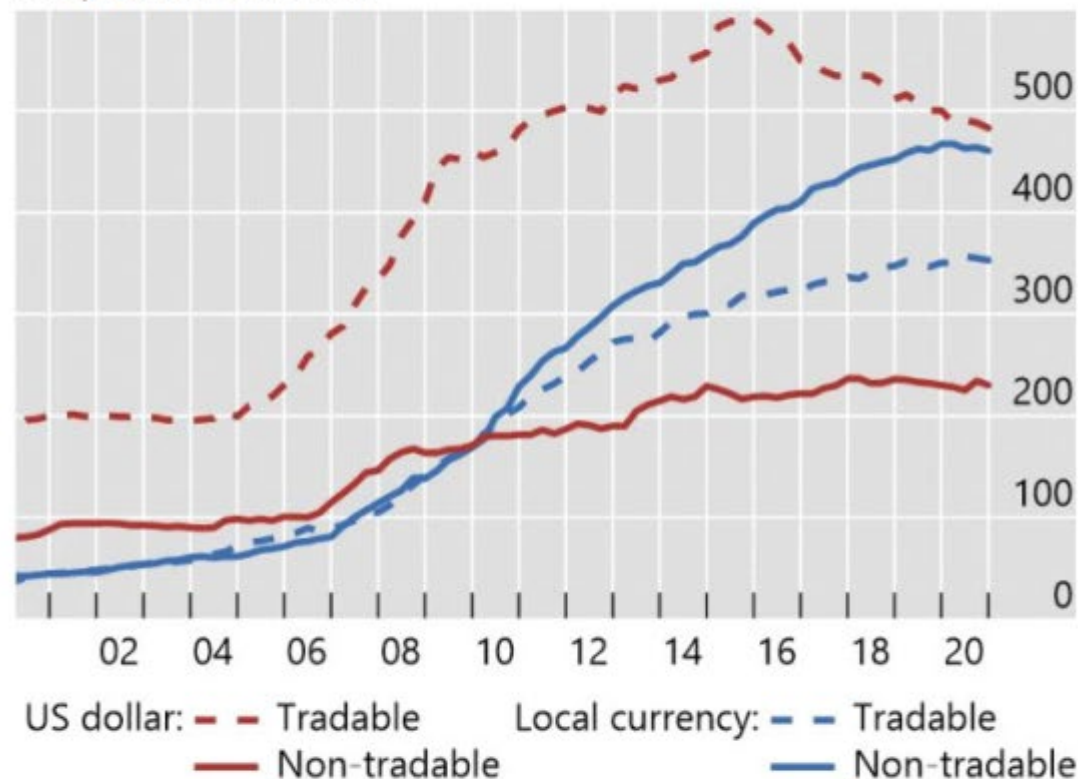
Outstanding amounts, in billions of US dollars

Graph 4

A. Bonds



B. Syndicated loans



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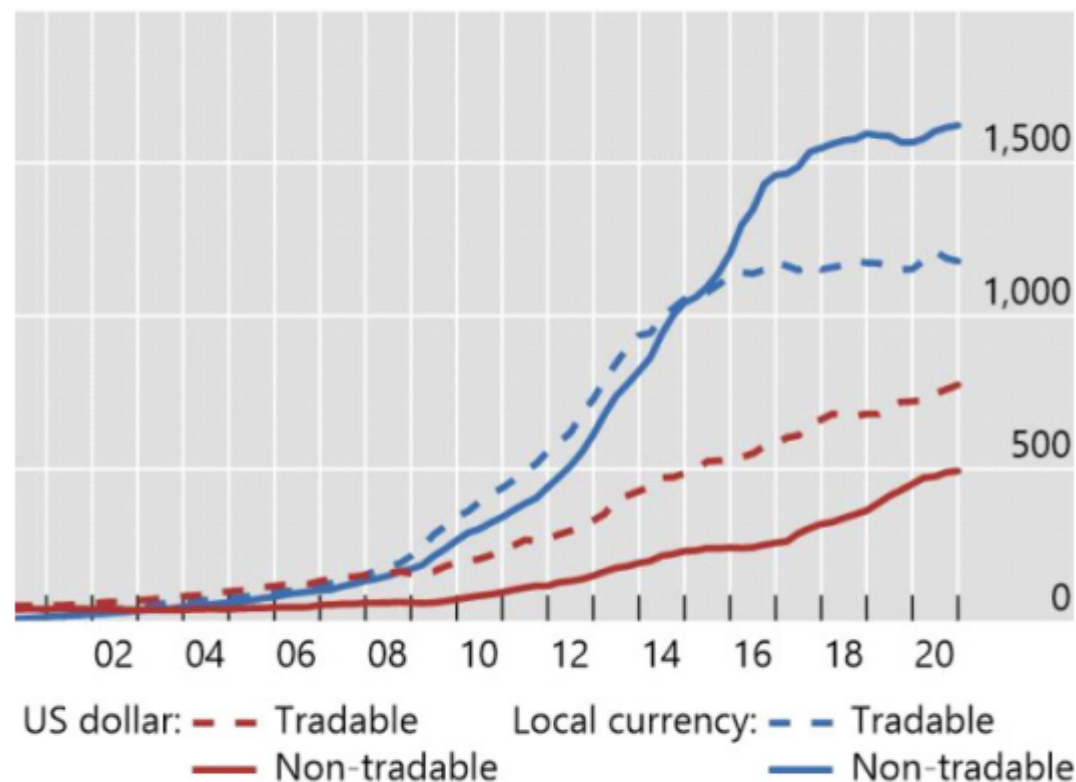
Sources: Dealogic; authors' calculations.

EME corporate debt by currency and sector, including China¹

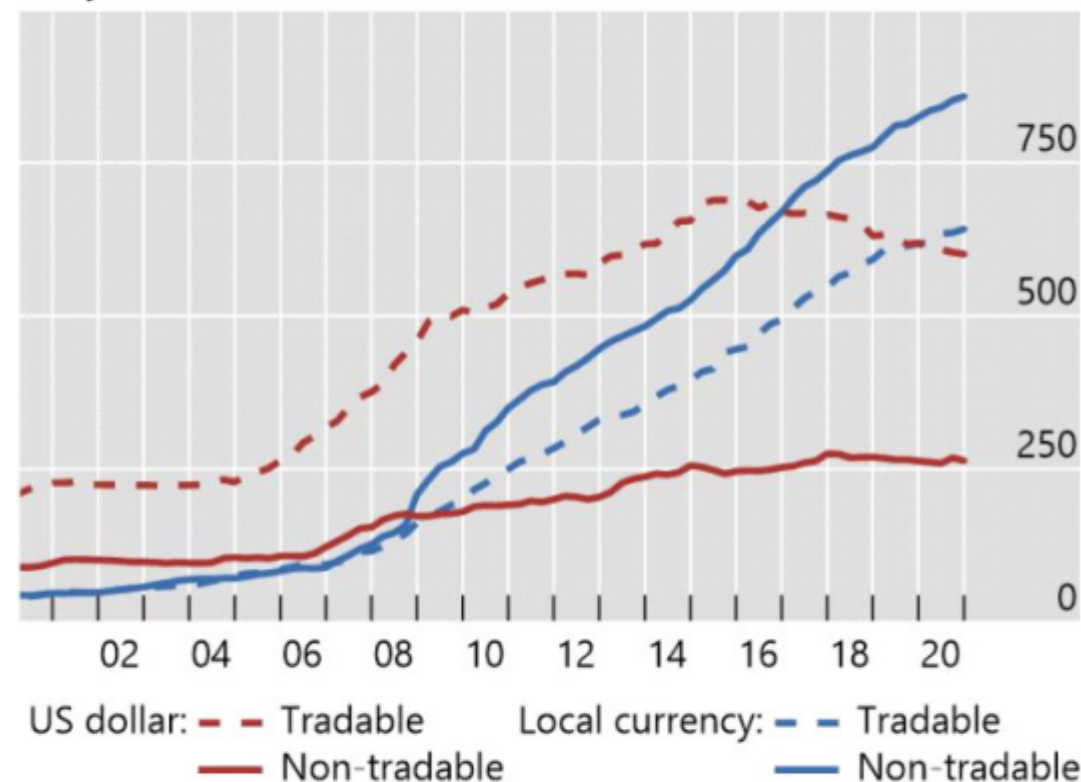
Outstanding amounts, in billions of US dollars

Graph A3

A. Bonds



B. Syndicated loans



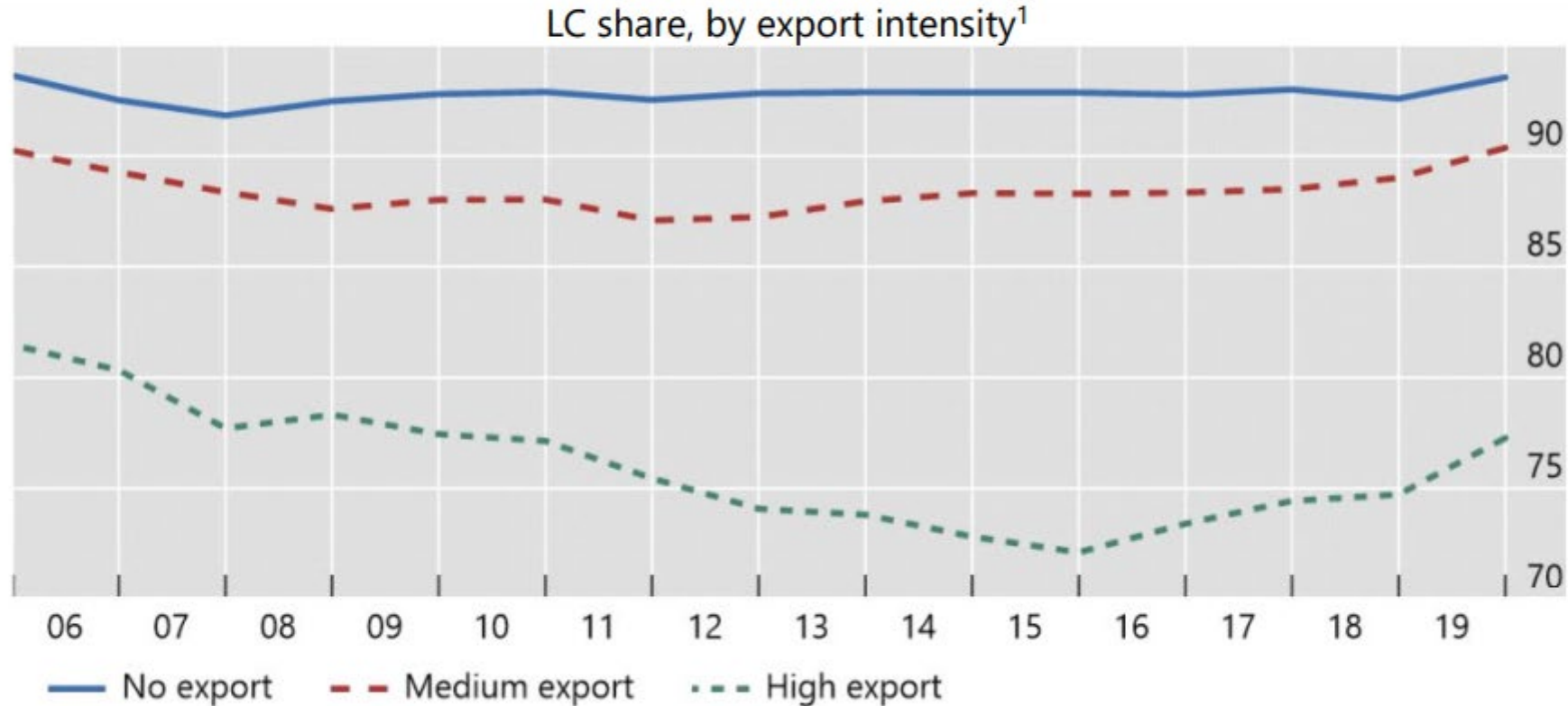
¹ Tradable: ultimate parent of the issuing firm is in a tradable sector such as manufacturing or agriculture. Non-tradable: ultimate parent of the issuing firm is in a non-tradable sector such as construction. For an unbalanced panel of firms headquartered in 23 emerging markets since Q1 2000. Includes debt securities and syndicated loans.

Sources: Dealogic; authors' calculations.

Local currency share of debt in capital IQ data

Average in each year, unbalanced sample

Graph 7



¹ High export intensity is >50% of sales as exports, medium is 0-50%, and non-exporter is 0%.

Source: Capital IQ, authors' calculations

Table 2. Expected effects of a broad USD appreciation on EME NFC issuance
By currency of issuance (USD vs LC) and issuer industry (tradeable vs non-tradeable)

Channel	USD-All	USD-trade	USD-nontrade	LC-All	LC-trade	LC-nontrade	LC-nontrade/ <u>NoFXdebt</u>
Financial Channel of FX rates	--	--	---	-	-	-	-
• Direct (<i>through FX mismatches on issuer balance sheets</i>)	-	-	--	X	X	X	X
• Indirect (<i>through tightening of global financial conditions</i>)	-	-	-	-	-	-	-
Trade channel (dominant currency invoicing)	-	-	X	-	-	X	X
Substitution channel (<i>working indirectly, through the interest rate, rather than directly, through the FX rate</i>)	-	-	-	+	+	+	+
Overall impact	--	--	---	?	?	?	?

Bank vs Bond Debt Growth

	All	USD	LC	All	USD	LC	All	USD	LC
	Non-exporters			< 50% exports			> 50% exports		
ΔBDI_t	0.120	-0.164**	0.251**	-0.184**	-0.147***	-0.008	-0.125	-0.054	-0.055
Bank Loans	(0.117)	(0.069)	(0.108)	(0.075)	(0.044)	(0.070)	(0.139)	(0.105)	(0.118)
ΔBDI_t	-0.235***	-0.086*	-0.149**	0.098*	-0.015	0.135***	0.041	-0.058	0.056
Bonds	(0.085)	(0.046)	(0.075)	(0.053)	(0.027)	(0.048)	(0.093)	(0.065)	(0.061)
	Small Firms			Medium Firms			Large Firms		
ΔBDI_t	-0.355**	-0.276***	-0.106	-0.132	-0.181***	0.042	0.093	0.038	0.102
Bank Loans	(0.138)	(0.077)	(0.131)	(0.084)	(0.054)	(0.078)	(0.092)	(0.062)	(0.081)
ΔBDI_t	-0.074	0.030	-0.106	-0.044	-0.082***	0.044	0.051	-0.013	0.075
Bonds	(0.146)	(0.053)	(0.138)	(0.053)	(0.027)	(0.047)	(0.070)	(0.043)	(0.057)
	Low Profit			Medium Profit			High Profit		
ΔBDI_t	-0.146	-0.210***	0.012	0.031	-0.083*	0.152**	-0.218*	-0.096	-0.124
Bank Loans	(0.111)	(0.066)	(0.102)	(0.077)	(0.048)	(0.072)	(0.124)	(0.082)	(0.113)
ΔBDI_t	-0.180**	-0.103**	-0.076	0.032	-0.036	0.070	0.127	0.012	0.152*
Bonds	(0.079)	(0.044)	(0.069)	(0.055)	(0.029)	(0.048)	(0.089)	(0.050)	(0.079)
	Highly Dollar Reliant Countries						Less Dollar Reliant Countries		
ΔBDI_t	-0.333**	-0.325***	-0.002				-0.028	-0.160***	0.164**
Bank Loans	(0.130)	(0.105)	(0.113)				(0.067)	(0.039)	(0.065)
ΔBDI_t	-0.216	-0.241**	0.068				0.015	-0.100**	0.139*
Bonds	(0.139)	(0.116)	(0.119)				(0.079)	(0.045)	(0.076)