



BANK FOR INTERNATIONAL SETTLEMENTS

Original sin in corporate bond markets

Eli Remolona

Guest Speaker Seminar
University of Tokyo
Tokyo, 9 October 2018

This is based on joint work with Paul Mizen, Frank Packer and Serafeim Tsoukas.
The views expressed are our own and do not necessarily reflect those of the BIS.



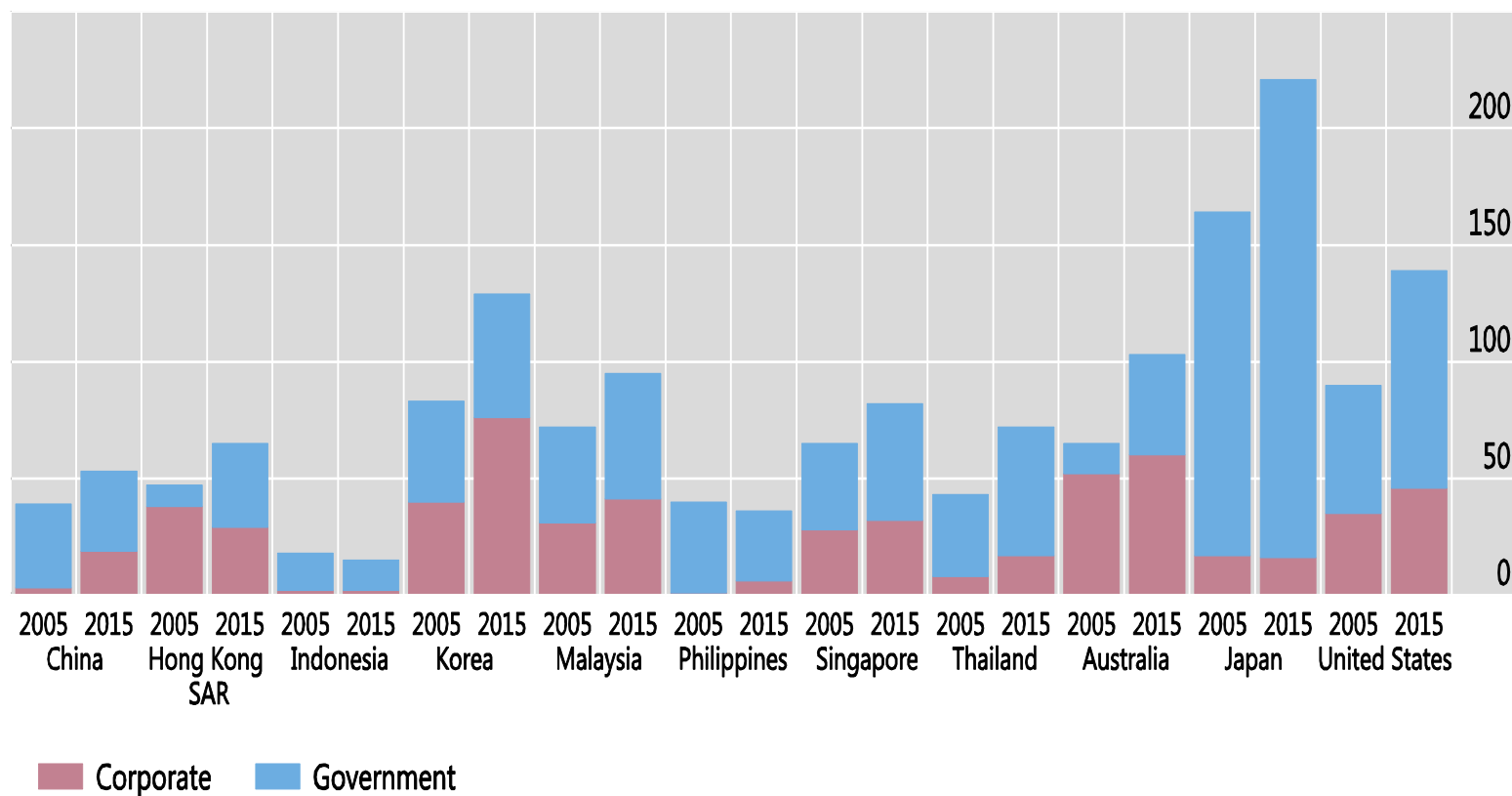
Original sin

**Eichengreen, Hausmann and Panizza (2005):
Emerging market governments are unable
to issue offshore in their own currency**



Size and growth of local currency debt markets

Amount of debt securities outstanding as a percentage of nominal GDP, government and corporate issuers, nine countries, 2005 and 2015



Issues in developing local-currency bond markets

Benchmark yield curve

- IMF and World Bank (2001) advice building benchmark government yield curve
- Does local corporate bond market need a government curve?

Role of credit ratings

- To what extent can corporate bond market accommodate lower-rated issuers?
- In some markets, investment regulations allow only highly rated firms

"Original sin" or "shiri ga aoi"

- What firms find difficulty issuing in either the onshore market or offshore market?



Benchmark government bonds in eight countries

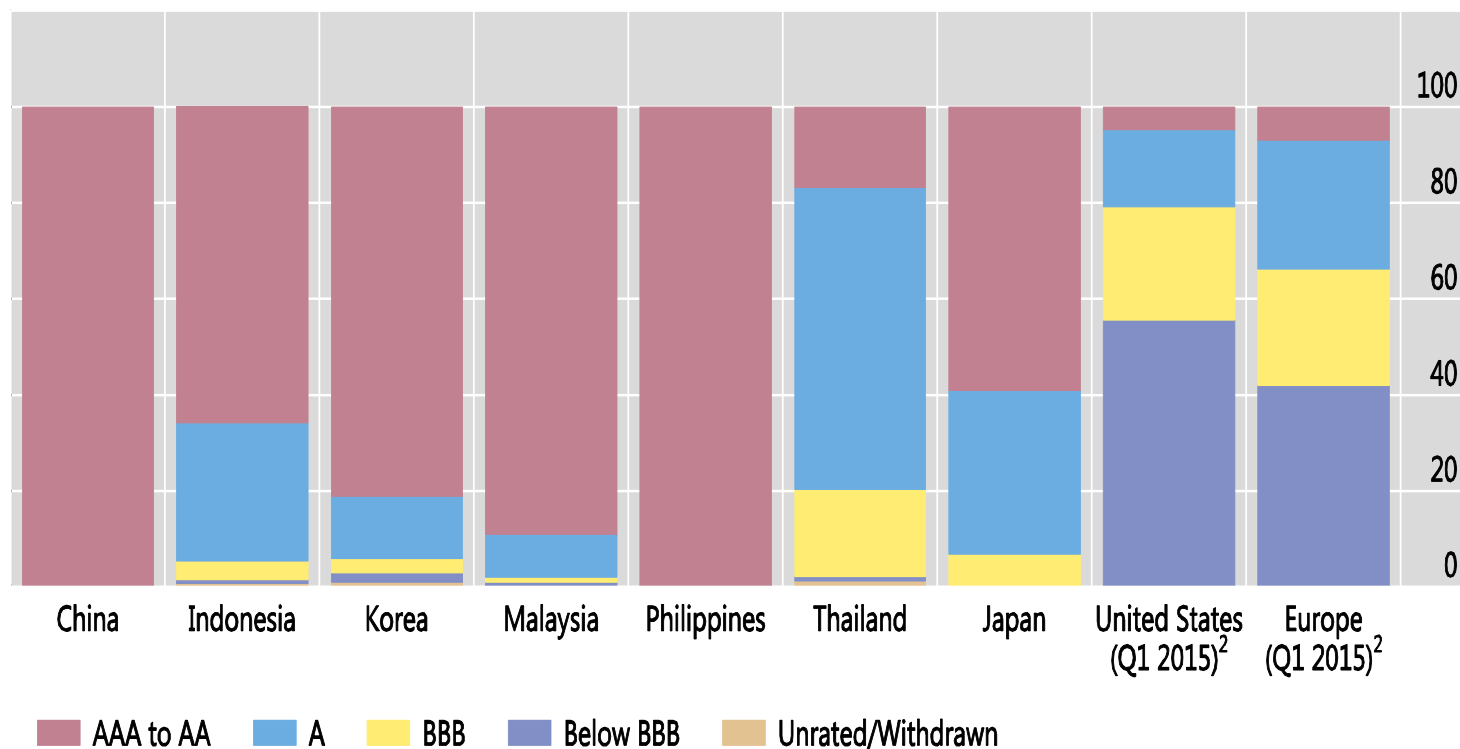
Maturities of 2 years or longer, de jure (= DJ) and de facto (=DF)

	Maturities (years)										
	2	3	4	5	7	10	15	20	25	30	50
Japan JGBs						DF					
UK Gilts				DF		DF		DF		DF	
US Treasuries	DF			DF		DF				DF	
Indonesia				DJ		DJ	DJ	DJ			
Malaysia		DJ		DJ	DJ	DJ	DJ	DJ		DJ	
Philippines	DJ	DJ	DJ	DJ	DJ	DJ		DJ	DJ		
Thailand				DJ		DJ	DJ	DJ		DJ	DJ

Source: Remolona and Yetman (2018): The rise of benchmark bonds in emerging Asia

Credit ratings for local-currency corporate bonds

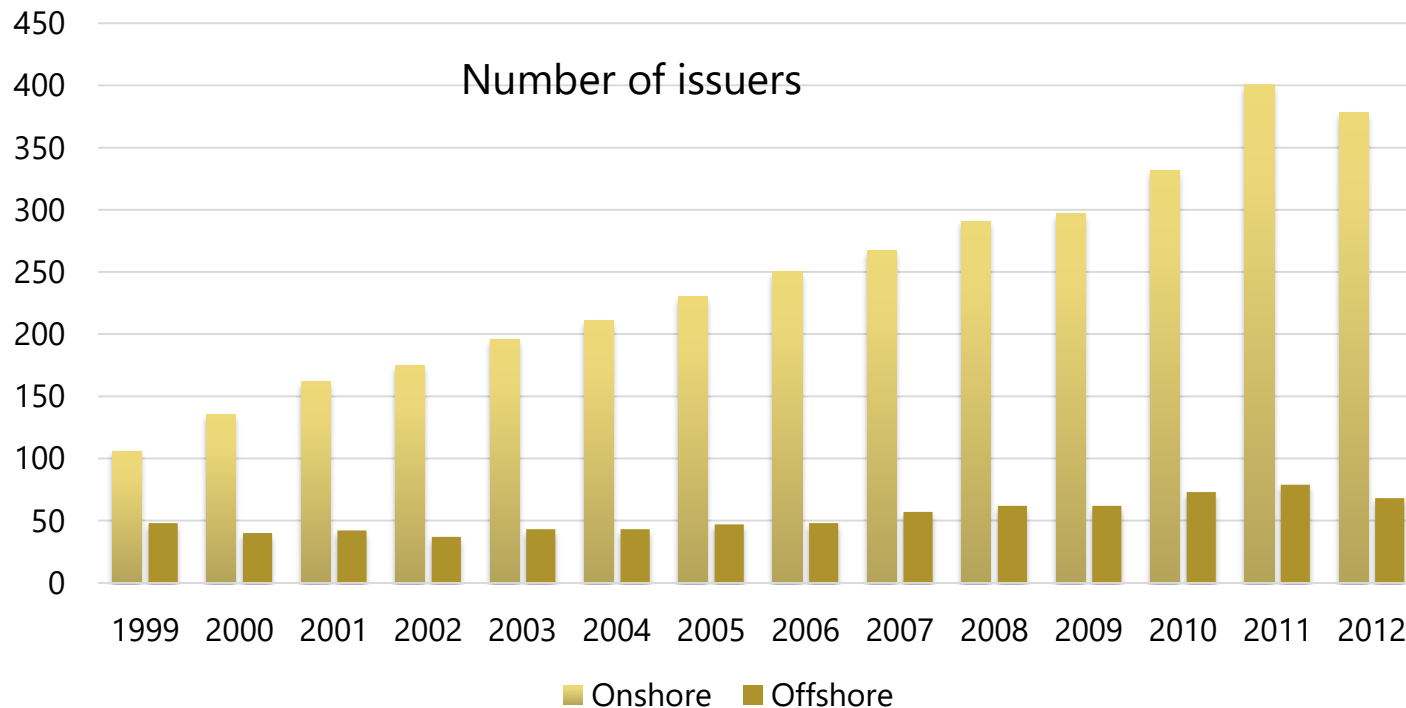
Credit ratings by local rating agencies, as a percentage of number of local-currency corporate bonds issued, 2010–Q3 2015



Source: Amstad, Kong, Packer and Remolona (2016): A spare tire for capital markets: Fostering corporate bond markets in Asia

Number of issuers in onshore and offshore markets

Total number of issuers from seven home countries in emerging Asia, 1999-2012



Source: Mizen, Packer, Remolona and Tsoukas (2018): Original sin in corporate finance: new evidence from Asian bond issuers in onshore and offshore markets. University of Nottingham CFCM.

Original sin in corporate finance: new evidence from Asian bond markets in onshore and offshore markets

- ❑ Why do some firms choose to issue offshore rather than onshore?
- ❑ Empirically model two decisions
 - ❑ The decision to issue
 - ❑ The choice of market in which to issue
- ❑ Consider three sets of factors.
 - ❑ Country-specific structural factors
 - ❑ Global and local cyclical market conditions
 - ❑ Firm-specific characteristics
- ❑ Data
 - ❑ 5,500 financing decisions, matching bond issuance data with issuing firm data
 - ❑ Seven emerging economies: Hong Kong SAR, Indonesia, Korea, Malaysia, the Philippines, Singapore, Thailand
 - ❑ Covering 1999-2012: 14 years of onshore market development



Model of two decisions

❑ The decision to issue

$$Pr(BOND_{ijt} = 1) = \alpha_{1i} + Z_{jt}\beta_1 + X_{ijt}\gamma_{1i} + \epsilon_{1ijt}$$

where market level variables are

$$Z_{jt} \in \{ ONSHORE, OFFEXP, STOCKCAP, SID, WITHTAX, DERIV \}$$

and firm-level controls are

$$X_{ijt} \in \{ SIZE, INVA, LEVER, PROF, COLL, PREVDOM, PREVFOR \}.$$

❑ The choice of market

$$Pr(FOREIGN_{ijt} = 1) = \alpha_{2i} + Z_{jt}\beta_2 + X_{ijt}\gamma_{2i} + \epsilon_{2ijt}$$

$$Z_{jt} \in (ONSHORE, OFFEXP, STOCKCAP, SID, WITHTAX, DERIV, CHINN - ITO, \\ CHINN - ITO * ONSHORE, CHINN - ITO * SIZE)$$

$$X_{ijt} \in \{ SIZE, INVA, LEVER, PROF, COLL, PREVDOM, PREVFOR \}$$



Market development variables

	Hong Kong (1)	Indonesia (2)	Korea (3)	Malaysia (4)	Philippines (5)	Singapore (6)	Thailand (7)
ONSHORE	75.204 (51.7)	71.490 (58.77)	805.569 (866.93)	146.358 (133.03)	40.559 (41.12)	91.687 (96.38)	134.030 (117.49)
OFFEXP	50.497 (44.98)	12.466 (6.57)	94.845 (101.59)	21.280 (23.64)	26.586 (28.6)	34.990 (39.74)	9.164 (8.9)
STOCKCAP	846.996 (889.6)	147.704 (91)	708.812 (835.2)	243.401 (190)	78.220 (52.1)	247.210 (276.3)	149.824 (124.9)
SID	-0.142 (-0.25)	9.610 (6.76)	2.874 (2.68)	2.750 (0.73)	3.688 (3.61)	-1.468 (-1.19)	0.449 (0.09)
CPIS	90.580 (97.85)	28.569 (27.60)	91.110 (95.46)	149.438 (153.23)	148.463 (149.30)	215.231 (218.52)	25.753 (27.04)
DERIV	11.581 (11.67)	7.017 (7.13)	9.530 (6.67)	6.710 (5.99)	6.335 (11.79)	11.708 (7.52)	8.107 (8.28)
SIZE	7.947 (7.66)	13.203 (13.46)	12.614 (12.403)	19.471 (5.63)	5.871 (8.44)	8.502 (15.32)	5.511 (5.15)
INVA	0.286 (0.19)	0.512 (0.49)	0.501 (0.51)	0.486 (0.47)	0.422 (0.30)	0.437 (0.36)	0.578 (0.56)
LEVER	0.091 (0.04)	0.137 (0.07)	0.105 (0.07)	0.086 (0.04)	0.106 (0.05)	0.091 (0.04)	0.111 (0.05)
PROF	0.046 (0.04)	0.066 (0.06)	0.016 (0.04)	0.038 (0.04)	0.036 (0.03)	0.053 (0.05)	0.060 (0.06)
COLL	0.203 (0.13)	0.326 (0.30)	0.323 (0.32)	0.318 (0.30)	0.270 (0.19)	0.272 (0.23)	0.328 (0.31)

Firm-specific variables

	All firms (1)	Issuers (2)	Non-Issuers (3)	Onshore (5)	Offshore (6)	Seasoned (8)	Unseasoned (9)
<i>SIZE</i>	8.365 (7.44)	9.874 (7.15)	8.286 (11.02)	10.154 (17.32)	10.598 (11.42)	10.465 (10.98)	8.257 (7.40)
<i>INVA</i>	0.488 (0.46)	0.456 (0.47)	0.489 (0.47)	0.491 (0.48)	0.373 (0.38)	0.413 (0.43)	0.498 (0.47)
<i>LEVER</i>	0.102 (0.05)	0.122 (0.07)	0.100 (0.04)	0.122 (0.07)	0.124 (0.07)	0.113 (0.07)	0.097 (0.05)
<i>PROF</i>	0.051 (0.05)	0.051 (0.04)	0.050 (0.04)	0.053 (0.03)	0.045 (0.04)	0.044 (0.04)	0.047 (0.04)
<i>COLL</i>	0.309 (0.29)	0.310 (0.30)	0.294 (0.28)	0.315 (0.30)	0.261 (0.23)	0.308 (0.27)	0.271 (0.29)
<i>Observations</i>	41,974	8,805	33,167	7,125	1,870	2,481	40,077

The decision to issue

	(1)	(2)	(3)	(4)	(5)	(6)
PREVDM	1.424*** (52.01)	1.419*** (51.03)	1.418*** (51.12)	1.419*** (51.03)	1.423*** (50.48)	1.394*** (49.19)
PREVFOR	0.951*** (17.48)	0.890*** (16.19)	0.894*** (16.37)	0.890*** (16.19)	0.883*** (16.02)	0.883*** (15.99)
ONSHORE		0.002 (0.07)	0.073*** (2.89)	0.002 (0.07)	0.016 (0.65)	0.054* (1.90)
OFFEXP		0.176*** (8.78)	0.154*** (7.29)	0.176*** (8.78)	0.177*** (8.83)	0.161*** (7.87)
STOCKCAP		-0.112*** (-5.89)	-0.113*** (-5.72)	-0.112*** (-5.89)	-0.100*** (-5.04)	-0.158*** (-7.14)
SID		-0.028*** (-6.02)		-0.028*** (-6.02)	-0.027*** (-5.87)	-0.028*** (-5.66)
WITHTAX			-0.167*** (-4.34)			
ONSHORE*SIZE					-0.066 (-1.29)	
DERIV						0.028*** (3.54)
SIZE	0.024*** (6.73)	0.059*** (11.83)	0.054*** (11.27)	0.059*** (11.83)	0.064*** (9.89)	0.061*** (11.87)
INVA	-0.031 (-0.42)	0.062 (0.84)	0.075 (1.01)	0.062 (0.84)	0.067 (0.90)	0.059 (0.78)
LEVER	0.499*** (5.44)	0.466*** (5.01)	0.473*** (5.08)	0.466*** (5.01)	0.449*** (4.76)	0.493*** (5.23)
PROF	0.083 (0.54)	0.116 (0.72)	0.108 (0.68)	0.116 (0.72)	0.099 (0.62)	0.108 (0.66)
COLL	-0.153 (-1.30)	-0.235** (-1.97)	-0.244** (-2.04)	-0.235** (-1.97)	-0.233* (-1.95)	-0.221* (-1.81)
Observations	41,973	41,659	41,659	41,659	41,629	40,635
R-squared	0.270	0.278	0.277	0.278	0.278	0.278

The choice of market I

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ONSHORE		-0.372*** (-5.99)	-0.128** (-2.01)	-0.372*** (-5.99)	-0.338*** (-5.60)	-0.355*** (-5.72)	-0.446*** (-5.23)
OFFEXP		0.264*** (3.43)	0.018 (0.24)	0.264*** (3.43)	0.221*** (2.98)	0.302*** (3.90)	0.195** (2.46)
STOCKCAP		0.130*** (2.61)	-0.053 (-0.98)	0.130*** (2.61)	0.215*** (4.21)	0.092* (1.80)	0.033 (0.51)
SID		-0.041*** (-2.64)		-0.041*** (-2.64)	-0.024 (-1.57)	-0.048*** (-2.95)	-0.020 (-1.42)
WITHTAX			-1.022*** (-8.77)				
CHINN-ITO	0.233*** (7.67)	0.120*** (3.11)	0.199*** (5.50)	0.120*** (3.11)	0.258*** (5.78)	0.534*** (3.34)	0.143*** (3.41)
CHINN-ITO*ONSHORE					-0.001*** (-5.00)		
CHINN-ITO*SIZE						-0.039*** (-2.75)	
DERIV							0.097*** (3.78)
SIZE	0.043*** (4.34)	0.077*** (5.49)	0.131*** (8.78)	0.077*** (5.49)	0.067*** (4.89)	0.084*** (5.69)	0.085*** (6.00)
INVA	-0.656** (-2.53)	-0.509** (-1.99)	-0.327 (-1.32)	-0.509** (-1.99)	-0.563** (-2.17)	-0.497* (-1.93)	-0.394 (-1.55)
LEVER	0.651** (2.50)	0.653** (2.35)	0.496* (1.74)	0.653** (2.35)	0.541* (1.94)	0.553** (1.97)	0.551* (1.95)
PROF	-0.228 (-0.44)	-0.327 (-0.62)	-0.367 (-0.69)	-0.327 (-0.62)	-0.552 (-1.06)	-0.377 (-0.71)	-0.274 (-0.52)
COLL	0.413 (1.00)	0.316 (0.77)	0.244 (0.61)	0.316 (0.77)	0.435 (1.05)	0.295 (0.71)	0.283 (0.69)
Observations	1,925	1,921	1,921	1,921	1,921	1,921	1,849
R-squared	0.073	0.095	0.129	0.095	0.113	0.100	0.106

The choice of market: seasoning matters



Proportions of unseasoned issuers in onshore and offshore markets

Percent of total number of issuers from seven home countries in emerging Asia, 1999-2012



Source: Mizen, Packer, Remolona and Tsoukas (2018): Original sin in corporate finance: new evidence from Asian bond issuers in onshore and offshore markets, University of Nottingham CFCM.



Takeaways

- ❑ The decision to issue
 - ❑ Individual and collective issuing experience counts
 - ❑ Taxes and availability of derivatives matter
- ❑ The choice of market
 - ❑ Absolute size of onshore market is important, especially for unseasoned firms
 - ❑ Openness helps onshore market as it gets larger
 - ❑ Firms violate uncovered interest parity
- ❑ Shiri ga aoi
 - ❑ Even with onshore markets, unseasoned firms often find it easier to issue offshore
 - ❑ Market development overcomes shiri ga aoi
 - ❑ Seasoning also overcomes shiri ga aoi, and seasoned issuers choose market favored by interest differentials



References

- ❑ Amstad, M., S. Kong, F. Packer and E. Remolona (2016): A spare tire for capital markets: fostering corporate bond markets in Asia. BIS Papers No 85 (June).
- ❑ Eichengreen, B., R. Hausmann and U. Panizza (2005): The pain of original sin, in Eichengreen and Hausmann (eds), *Other People's Money: Debt Denomination and Financial Instability in Emerging Market Economies*, University of Chicago Press.
- ❑ IMF and World Bank (2001): Developing benchmark issues, Chapter 4 in *Developing Government Bond Markets: A Handbook*, pp 117-150.
- ❑ McCauley, R. (2001). Benchmark tipping in the money and bond markets. *BIS Quarterly Review*.
- ❑ McCauley, R and E Remolona (2000): The size and liquidity of government bond markets. *BIS Quarterly Review*.
- ❑ Mizen, P., F. Packer, E. Remolona and S. Tsoukas (2018): Original sin in corporate finance: new evidence from Asian bond issuers in onshore and offshore markets. University of Nottingham, Centre for Finance, Credit and Macroeconomics (CFCM) Discussion Papers 2018/04
- ❑ Remolona, E. and J. Yetman (2018): The rise of benchmark bonds in emerging Asia (work in progress, preliminary slides available from the authors).

