The Impact of Introducing a (Nearly) Redundant Security: Evidence from Malaysian Corporate Bonds

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What happens when a redundant security becomes available?

- One may think that it should not be introduced because there is no demand for it.
- But demand could exist if the new security overcomes market frictions.
- Empirical research often shows a price impact on the existing security when the new redundant security is introduced (Conrad, 1998; Dannhauser, 2022).
- We consider the case of **Islamic corporate bonds**, which are
  - in positive net supply
  - expand the set of investment opportunities for a restricted clientele
  - have the potential to supplant conventional corporate bonds.

Related work

Redundant Securities Theory

- Rahi & Zigrand (1980); Gorton & Pennacchi (1988); Detemple & Selden (1982); Duffie & Rahi (1995); Bannerjee & Gravelline (2014); Zapatero (1998); Bhamra & Uppal (2009); Back (1993); Sambalaibat (2022)

Empirical Studies

- Conrad (1999); Dannhauser (2022); Litzenberger & Rolfo (1984); Cao, Jin, Pearson & Tang (2019); Oehmke & Zawadowski (2017); Figlewski & Webb (1993); Roll, Schwartz & Subrahmanyan (2010)

Clientele Effects

- Domowitz, Glen & Madhavan (1997); Bailey, Chung & Kang (1999); Chari & Henry (2004); Babina, Jotikasthira, Lundblad, & Ramadorai (2020); Gollier & Pouget (2022)

Islamic Securities

- Chen, Cherian, Shao & Subrahmanyam (2019); Godlewski, Turk-Ariss & Weill (2013); Asian Development Bank (2016); Jalil (2005); Herzi (2010)

Islamic bonds

- Because Islam does not approve of interest, Muslims in Malaysia generally do not invest in conventional corporate bonds. Shariah-compliant Islamic corporate bonds were introduced into the Malaysian corporate bond market in the 1990s.
- Large and persistent efforts of the federal government to make Malaysia into an international Islamic financing center (Asian Development Bank, 2016).
  - Islamic deposits through Islamic banking windows (1993–2005) and Islamic bank subsidiaries of conventional BHCs (post-2005).
- Issuance often involves setting up a special purpose vehicle to ring-fence assets with reliable operating profits. In theory, Islamic bond investors are owners of assets and paid a profit, not interest. Structure replicates the cash flows of conventional bonds (Godlewski, Turk-Ariss, and Weill, 2013).

Who can issue Islamic bonds?

- Islamic principles oppose not only interest payments, but also businesses that rely on them, such as commercial banks.
- Islam looks unfavourably upon activities that involve degrees of speculation, including casinos, stock trading and insurance.
- Food and alcohol are also subject to restrictions, with the latter impacting Islamic debt issuance by hotel operators and resorts.
- The Securities Commission and its Shariah Advisory Council oversee the issuance of Islamic securities, and have shown no inclination to water down the definition of a Shariah-compliant investment.

General equilibrium model w/ 2 bonds, 2 clienteles, dynamic

- Firm chooses funding while considering primary market responses and expected secondary market outcomes

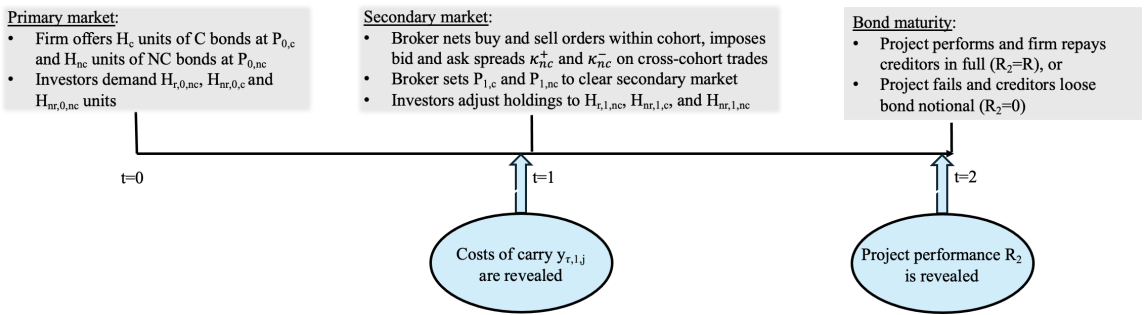


Figure: Timeline for bond issuance, trading and maturity

Potential equilibrium outcomes

1. **Segmented markets**
   - Religious (R) investors buy Islamic bonds, and non-religious (NR) investors only buy conventional bonds.
2. **Full integration**
   - R investors buy Islamic bonds, and NR investors own Islamic and conventional bonds both in the primary and secondary market.
3. **Corner solutions**
   - One or both types of bonds are not offered in the primary market.
   - Islamic bonds are not bought by NR investors in the primary market, but they do trade them in the secondary market.

Model Summary

- Firm decides how much to issue of each type of bond, taking into account issuance costs, the type of project and investors' demand
- Demand is lower if risk aversion is higher or project has higher default risk and zero for C bonds among R investors.
- NR investors trade off liquidity benefits of NC bonds against collateral benefits of C bonds in the repo the market
- Liquidity benefits arise when only one investor type experiences a liquidity shock and the other clientele is available to buy their NC bonds
- Firm may decide to sell both types of bonds at the same time in order to get the best funding for its project
- If high bid-ask spread and/or high NC offering price, NR buyers will not buy NC in primary market but may buy them in secondary market

Data

- Bursa Malaysia's Electronic Trading Platform (ETP) secondary market trades (1997–2017)
- ETP identifies type of trader (e.g., Islamic bank, commercial bank, inv. bank)
- Government bond yields from Bloomberg
- Financial data for some issuers from Capital IQ and Oriana
- Industry classification from Capital IQ and hand collected data (e.g., Factiva)
- Ownership of 683 issuing entities collected from Factiva and annual reports
- MARC and RAM ratings in ETP updated via agency websites and Factiva.
- Repo transaction data from Bank Negara Malaysia's website

Summary statistics

Firms	NC only (n=176)	C only (n=159)	Mixed Issuers (n=94)
Log Assets (USD m.)	5.97**	6.97	8.24
ROA	0.03	0.03	0.03
Sales growth	0.20**	0.15	0.14
Leverage	0.33	0.30	0.32
Bonds	**NC (n=6,395)**	**C (n=6,486)**	
Face value (RM)	131.60**	120.36	
Maturity in years	4.96**	1.95	
AAA rated	0.37**	0.42	
Yield spread (%)	1.21**	1.51	
Amihud	0.03**	0.04	
Trading volume	67.85**	84.02	
No. of trades	8.36**	10.10	
Zero trading days	0.98**	0.97	
Repo active	0.03	0.04	

Hypotheses

H1: High relative fixed costs of issuing NC bonds tilts firm's funding choice away from NC bonds.

H2: Given comparable issuance costs, issuers may prefer to issue both types of bonds simultaneously, only Islamic bonds, or only conventional bonds.

H3: After the introduction of Islamic bonds, firms continue to issue C bonds, even without relative net benefits for C bonds. Depending on firm and project characteristics and investors' cost-benefit tradeoffs, the post-introduction issuer amount of C bonds either remains similar or shrinks compared to the pre-introduction amount.

H4: Offsetting benefits to NR investors to holding C and NC bonds result in comparable prices for both securities.

H5: Given issue amounts, the number of NC bonds held by NR investors is higher when their expected cost of secondary market trading is lower relative to that of R investors.

H6: The ability of issuing Islamic bonds leads to greater financial access.

H1—Impact of issuance costs on Islamic bond issuance

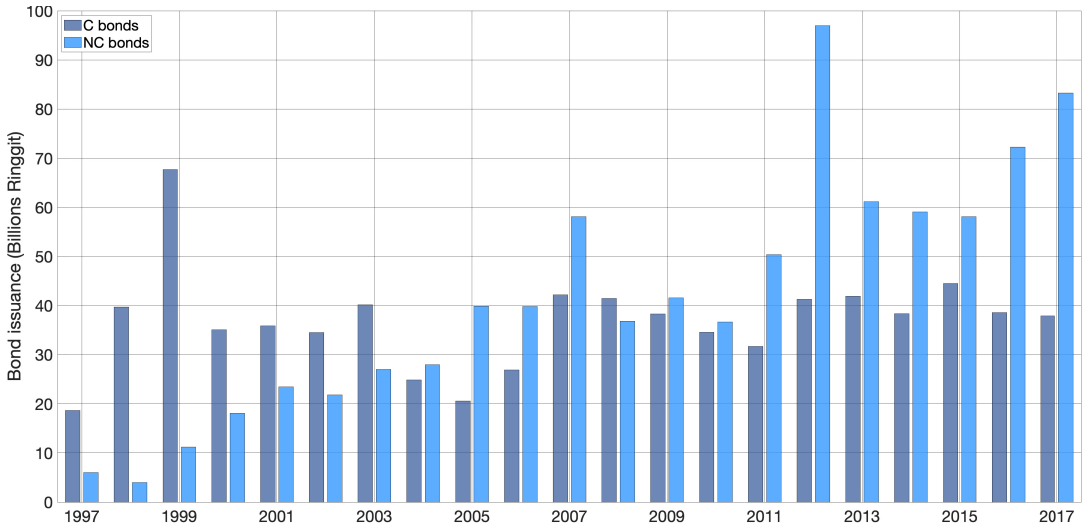
Dependent var	Annual Islamic issuance in years with issuance				
High issue cost	-2.024**	-1.909**	-1.880**	-1.989**	-2.269**
Intangible		-0.229*	-0.274*	-0.644**	-0.624**
AAA			0.297	0.344	0.064
AA			1.332**	0.943**	0.632*
A–BBB			0.748**	0.691*	0.551
Controls				✓	✓
Year FEs					✓
R-sqr	0.08	0.09	0.12	0.12	0.16
Obs	1555	1555	1551	961	958

H1: Shariah Advisory Council rule change in November 2013

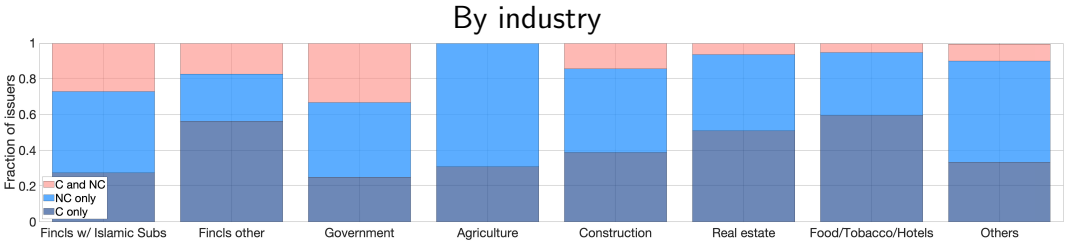
- Of 801 listed firms considered compliant in May, 158 removed from list in November
- Limits on business activities stricter
- Debt to assets capped at 33%

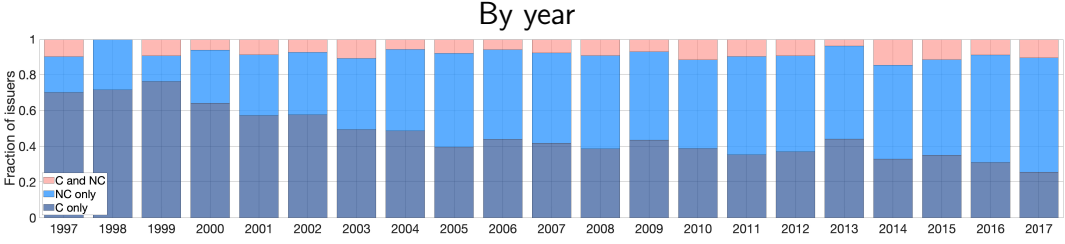
	Shariah-Compliant				**Removed**
	May		**November**		**from List**
High issue cost	-8.227**	-8.029**	-6.407**	-7.733**	
Leverage		1.075		-3.807**	6.707**
R-sqr	0.19	0.19	0.09	0.17	0.22
Obs	140	140	140	140	140

H2: Issuance of Islamic and conventional bonds over time



H2: Issuer preferences over time and across sectors





H3: C bond issuance after first NC bond issued

	New issuance amount			Number of new issues		
Mixed issuer × post	112.64	-389.46	-37.54	0.00	-2.07*	-2.23*
Maturity	16.38	56.87*	39.25	-0.22**	0.07	0.00
AAA-rated	-259.78	-2469.71	-1610.51	-2.83*	1.28	1.90
AA-rated	-258.11	-1453.39	-1041.78	-1.12	3.34**	0.67
A to BBB-rated	-322.74	-1631.44	-1207.53	-1.73	2.46*	1.78
Sales growth	52.69	33.30	-126.37	0.80**	-0.79	-0.90
Leverage	1028.75**	4299.44	2386.31	9.32**	6.79	9.57*
ROA	95.40	772.59	814.16	-1.19	3.80	1.98
Log (Assets)	267.51**	191.46	413.50*	1.38*	2.50*	5.11**
Firm and Year FEs	✓	✓	✓	✓	✓	✓
R-sqr	0.46	0.86	0.71	0.60	0.85	0.67
Obs	1322	282	396	1322	282	396

H4: Primary market pricing by mixed issuers

	1–2 yrs	2–3 yrs	3–5 yrs	5–7 yrs	7–12 yrs	> 12 yrs
Panel A: ETP primary market yield spreads						
Islamic	-0.033**	-0.025*	0.035**	0.002	0.009	-0.008
Log (Size)	0.009	0.003	-0.001	-0.008	0.038**	-0.078**
R-sqr	0.96	0.99	0.95	0.99	0.94	0.95
Obs	202	232	299	307	440	429
Panel B: SDC offering yields						
Islamic	-0.061	0.010	-0.084	-0.035	0.006	-0.064
Log (Size)	-0.011	0.003	0.031	0.026	-0.068	-0.042
R-sqr	0.99	1.00	0.98	1.00	0.99	0.97
Obs	14	48	42	27	39	42

H5: NR purchases of NC bonds in the primary market

	(1)	(2)	(3)	(4)	(5)
Repo active	8.850**	21.928**	2.074	8.102**	21.981**
Volume	0.079**				
Turnover		77.980**			
No. of trades			0.954**		
Zero trading days				-247.454**	
Amihud					-0.397
Rating & maturity FEs	✓	✓	✓	✓	✓
R-sqr	0.46	0.30	0.53	0.43	0.29
Obs	2,481	2,481	2,481	2,481	1,177

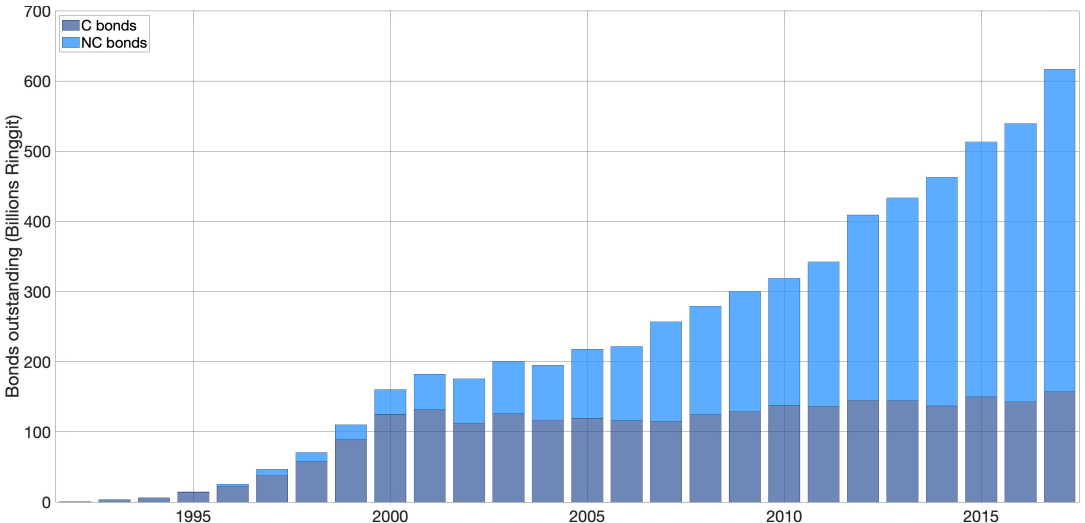
H5: Trading across clientele in liquidity shock episodes

	No. trades	No. days	Volume	No. trades	No. trades	No. trades
Greek crisis	0.16**	0.08**	2.25**	0.35**		
Islamic × Greek crisis				-0.27**		
Taper tantrum					0.20**	-0.00
Islamic × Taper tantrum						0.27**
Islamic	-0.27**	-0.12**	-2.28**	-0.25**	-0.31**	-0.32**
Bond age	-0.00**	-0.00**	-0.00**	-0.00**	-0.00**	-0.00**
Log (Size)	0.41**	0.18**	4.34**	0.41**	0.44**	0.44**
Islamic	-0.27*	-0.12**	-2.28**	-0.25**	-0.31**	-0.32**
Controls & Year FE	✓	✓	✓	✓	✓	✓
R-sqr	0.11	0.15	0.02	0.11	0.12	0.12
Obs	147,381	147,381	147,381	147,381	153,557	153,557

H5: Buyers and sellers in liquidity shock episodes

	R no.	NR no.	R net buys	NR net buys	R no.	NR no.	R net buys	NR net buys
Greek crisis	-0.005	0.29**	0.17**	-0.17**				
Taper					0.10**	0.37**	-0.37**	0.37**
Bond age	-0.00**	-0.00**	-0.00	0.00	-0.00**	-0.00**	-0.00	0.00
Log (Size)	0.07**	0.54**	0.03	-0.03	0.09**	0.62**	0.00	-0.00
Cntrls & Yr FE	✓	✓	✓	✓	✓	✓	✓	✓
R-sqr	0.03	0.08	0.00	0.00	0.04	0.10	0.00	0.00
Obs	109,261	109,261	109,261	109,261	110,232	110,232	110,232	110,232

H6: Increased access to bond funding



H6: Increased access to bond funding

- Compare firms that only issue C bonds with those that only issue NC bonds
- Must have financial data in the year before issuance (145 firms)
- C-bond issuers' year of mean year of issuance 2004 compared to 2007
- Insignificant differences but point estimates show NC issuers are smaller, lower rated, younger, and higher ROA
- NC-bond issuers are significantly more likely to default later on
- Consistent with greater access to financing for firms once NC bonds available

Summary

- A nearly redundant security can exist with its twin and does not necessarily drive out the original security. Conventional bonds have not disappeared from the Malaysian market.
- Increasing popularity of Islamic bonds, with both NR and R buyers in the primary market.
- Mixed issuers exist throughout the sample and account for most issuance activity.
- Islamic bonds appeal to NR investors for their liquidity benefits but are less valuable collateral in the repo market.
- Government push to grow Islamic finance has led to increase corporate bond funding and may have relaxed constraints for riskier borrowers.