

Search for Yield in Large International Corporate Bonds: Investor Behavior and Firm Responses

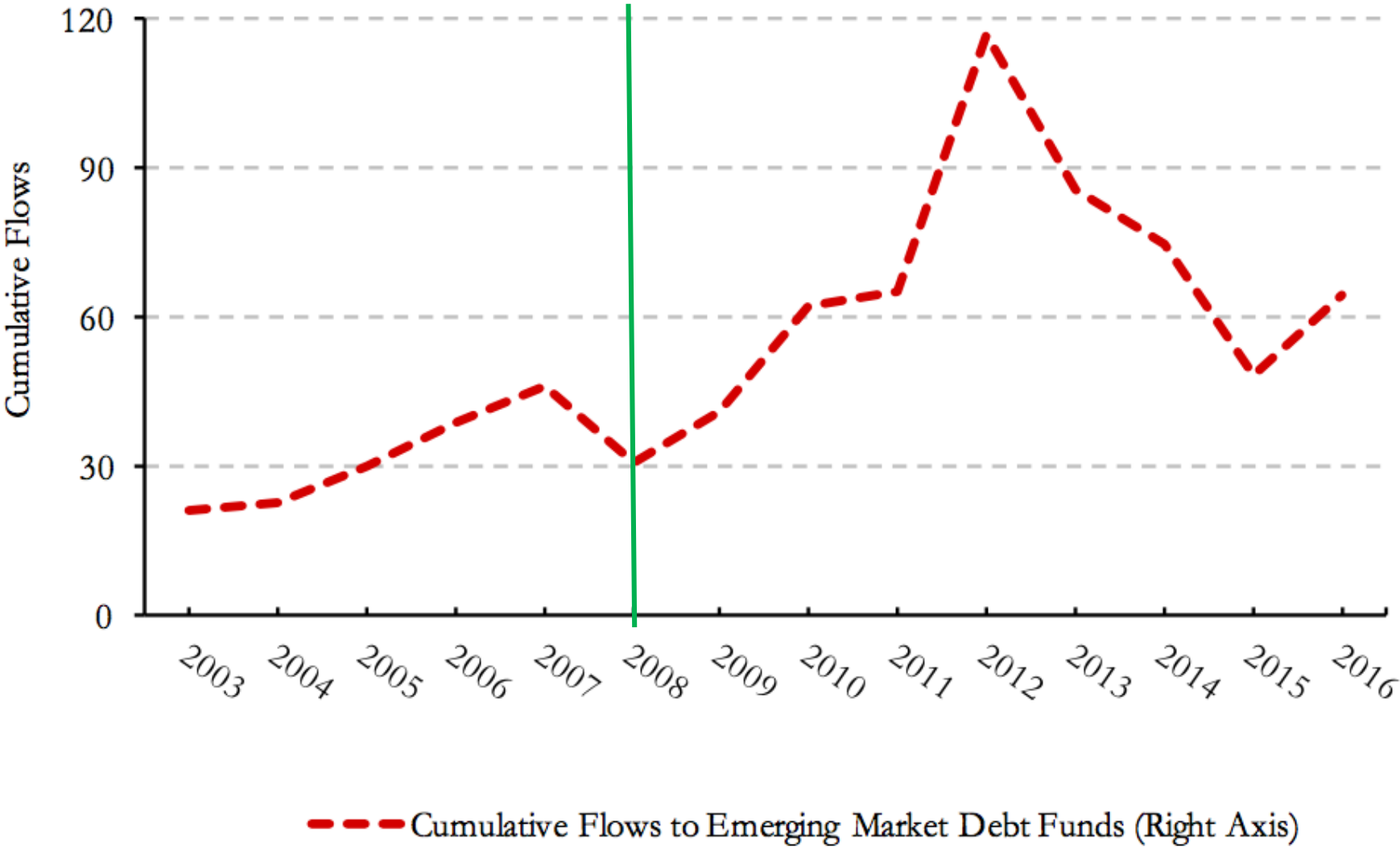
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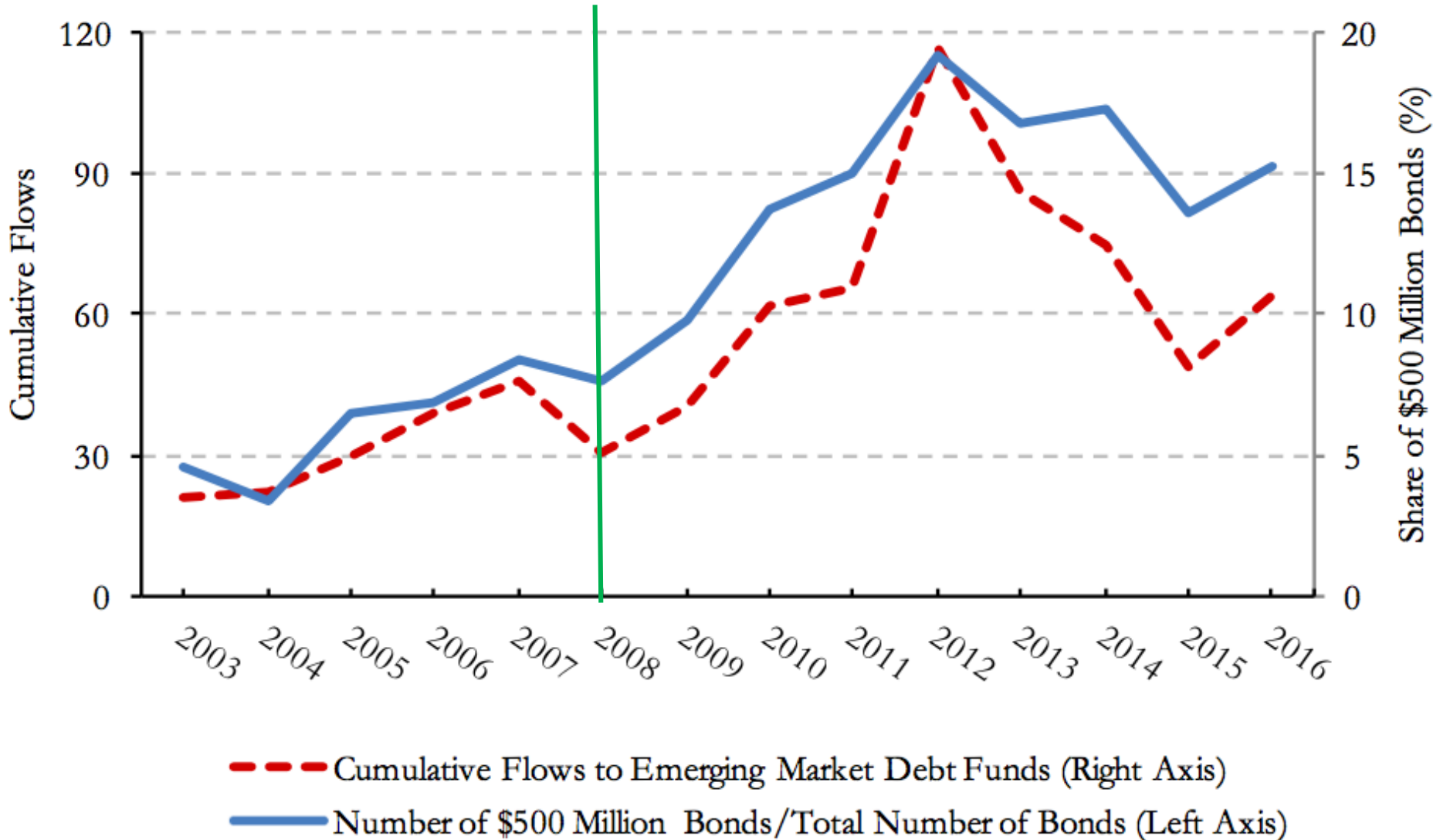
Search for Yield After the GFC

- Since Global Financial Crisis (GFC), interest rates in developed markets at historic lows
- Search for yield: increased demand for emerging market (EM) securities, especially corporate debt issued in international markets

Investor Interest in EM Debt



Investor Interest in EM Debt



Bond Index Size Inclusion Premium

- International investors entering EMs are cautious. Look for liquidity, limited tracking error
- Preference for bonds included in debt indexes which track EM debt (EMBI, CEMBI): inclusion premium
- Indexes include large bonds \geq USD \$500 million. Leads to **size inclusion premium**

Preliminary Findings

1. Yields of \$500 million corporate bonds decreased substantially after GFC (100 bps)
2. Important cluster of bond issuances at *exactly* \$500 million bonds
3. Small firms stretch to issue large bonds; hold more cash after issuance
4. Channel: change in the composition of investors
5. Developed markets do not show same pattern

Data and Institutional Details

Corporate Bond Issuance Data

- Bond issuances from Thomson Reuters Security Data Platinum (SDC Platinum)
 - Transaction-level info on new issuances of corporate bonds
 - Face value, yield at issuance, rating, maturity, etc.
- Focus on issuances of corporate bonds in USD in international markets
 - 44 EM and 24 DM for 2000-2016
 - 19,906 issuances and 4,965 different firms

Additional Data

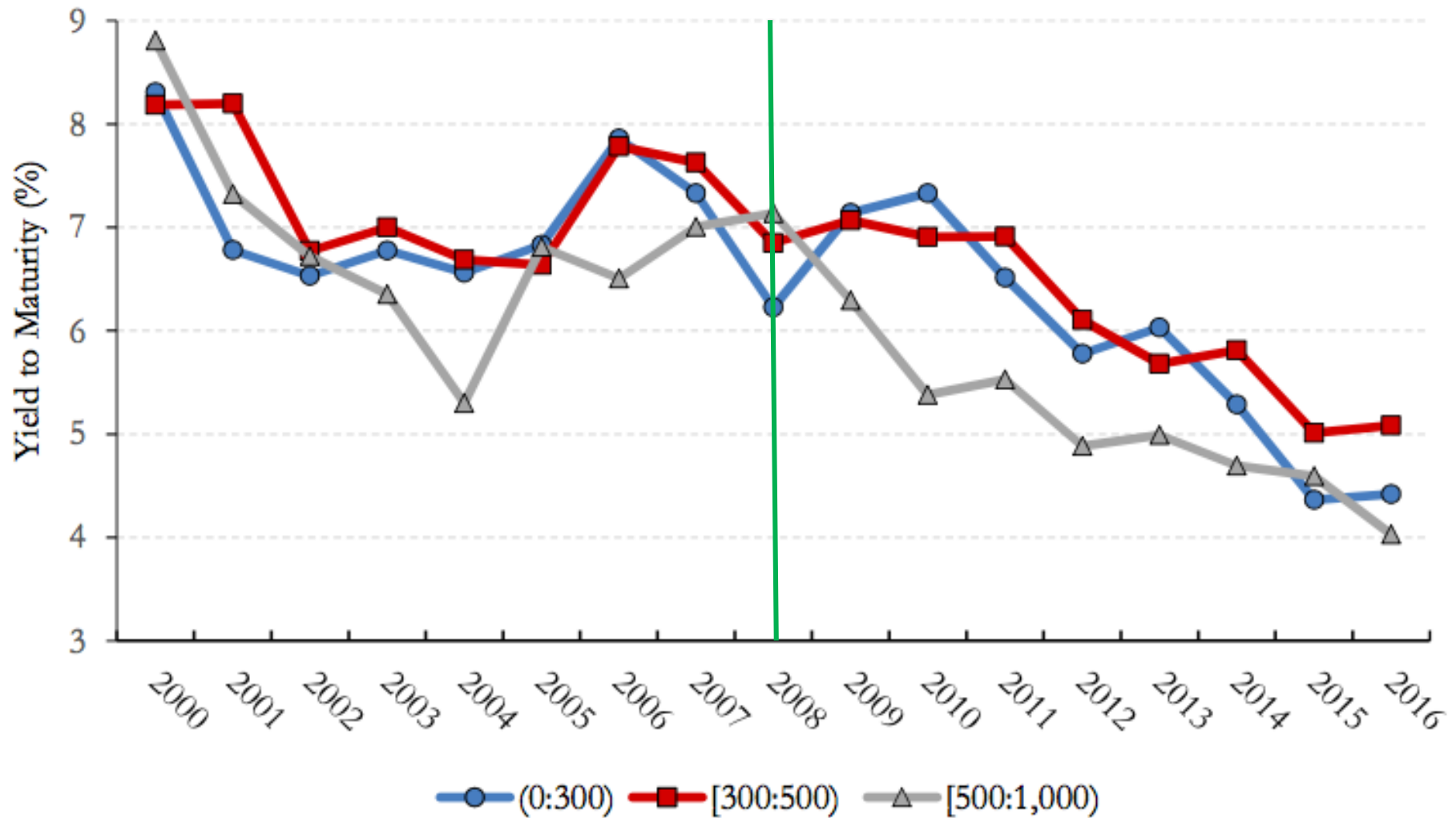
- Complement bond issuance data with Worldscope data on financials
- Institutional investors data:
 - EPFR time series data on injections and redemptions for EM debt funds
 - Morningstar data with security-level information for 2016 for different types of funds holding EM bonds

Indexes that Track EM Debt

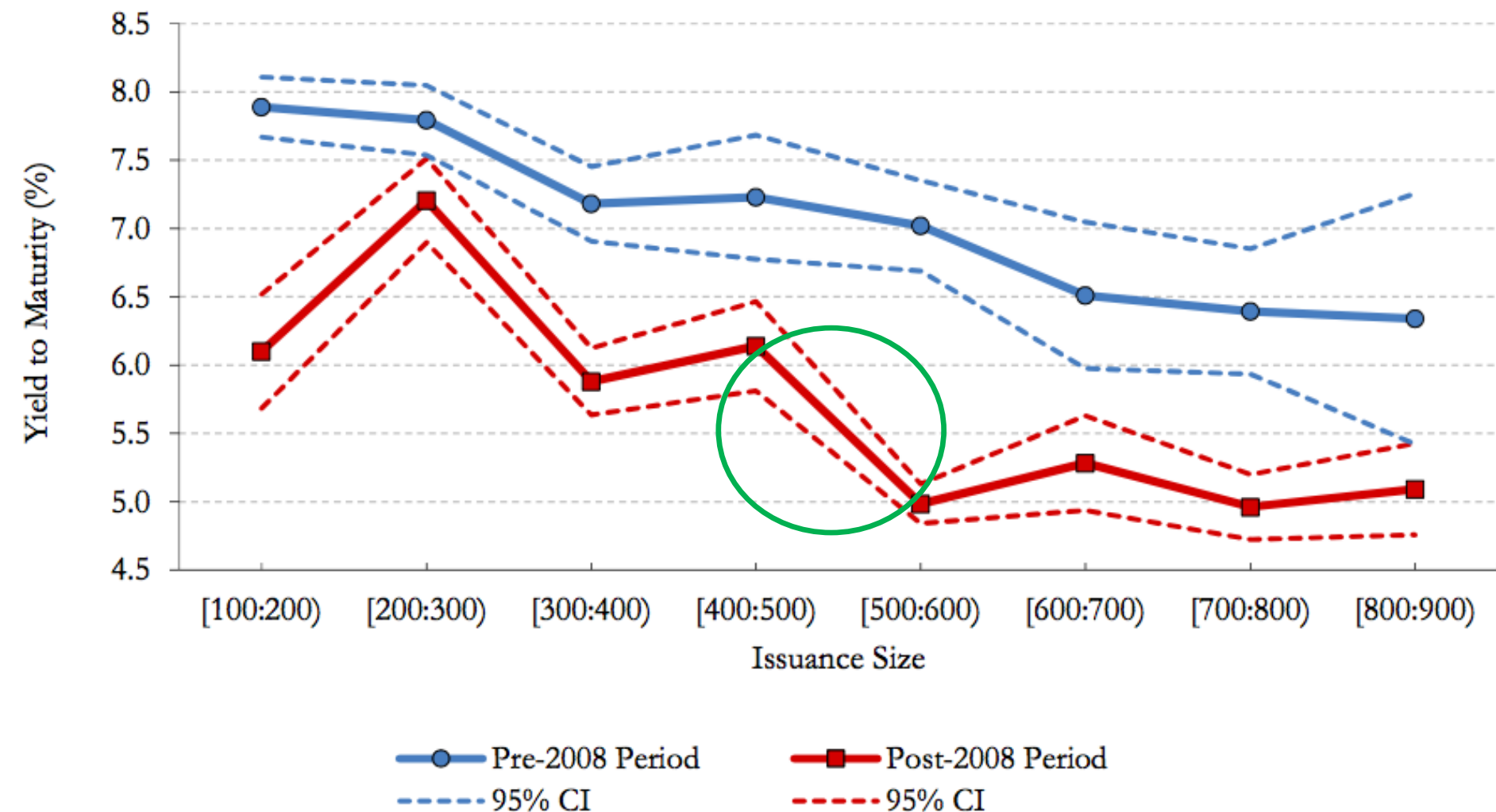
- Most important sovereign debt benchmark for EM
 - EMBI Global (USD bonds, value \geq \$500 million)
- Most important corporate debt benchmarks for EM
 - CEMBI Narrow (USD bonds, value \geq \$500 million)
 - CEMBI Broad (USD bonds, value \geq \$300 million)
- Bonds included in indexes are more liquid (held by broader base of investors) and limit tracking error (define the benchmark)

Issuance Activity by Emerging Market Firms

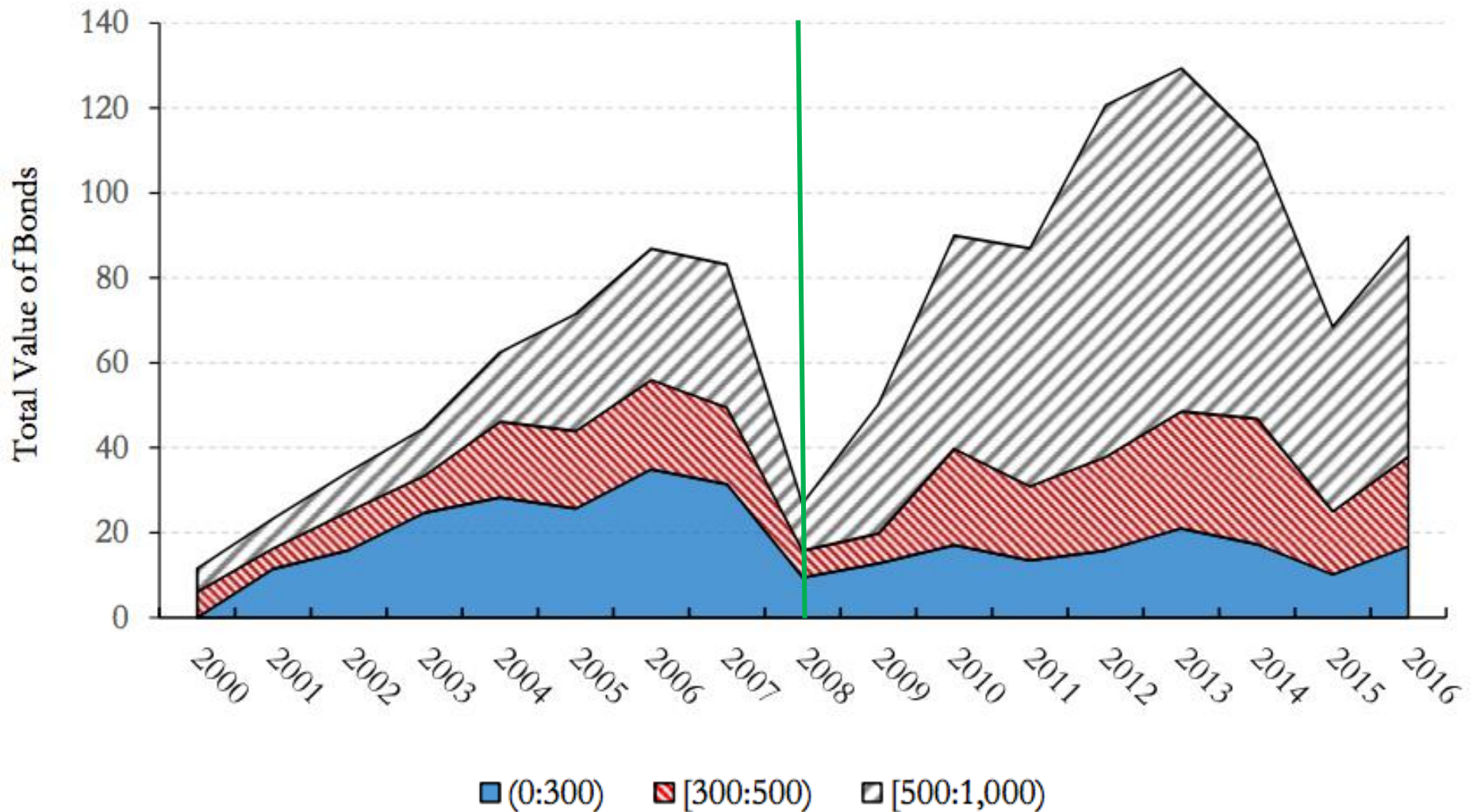
Reduction in Bond Yields by Issuance Size



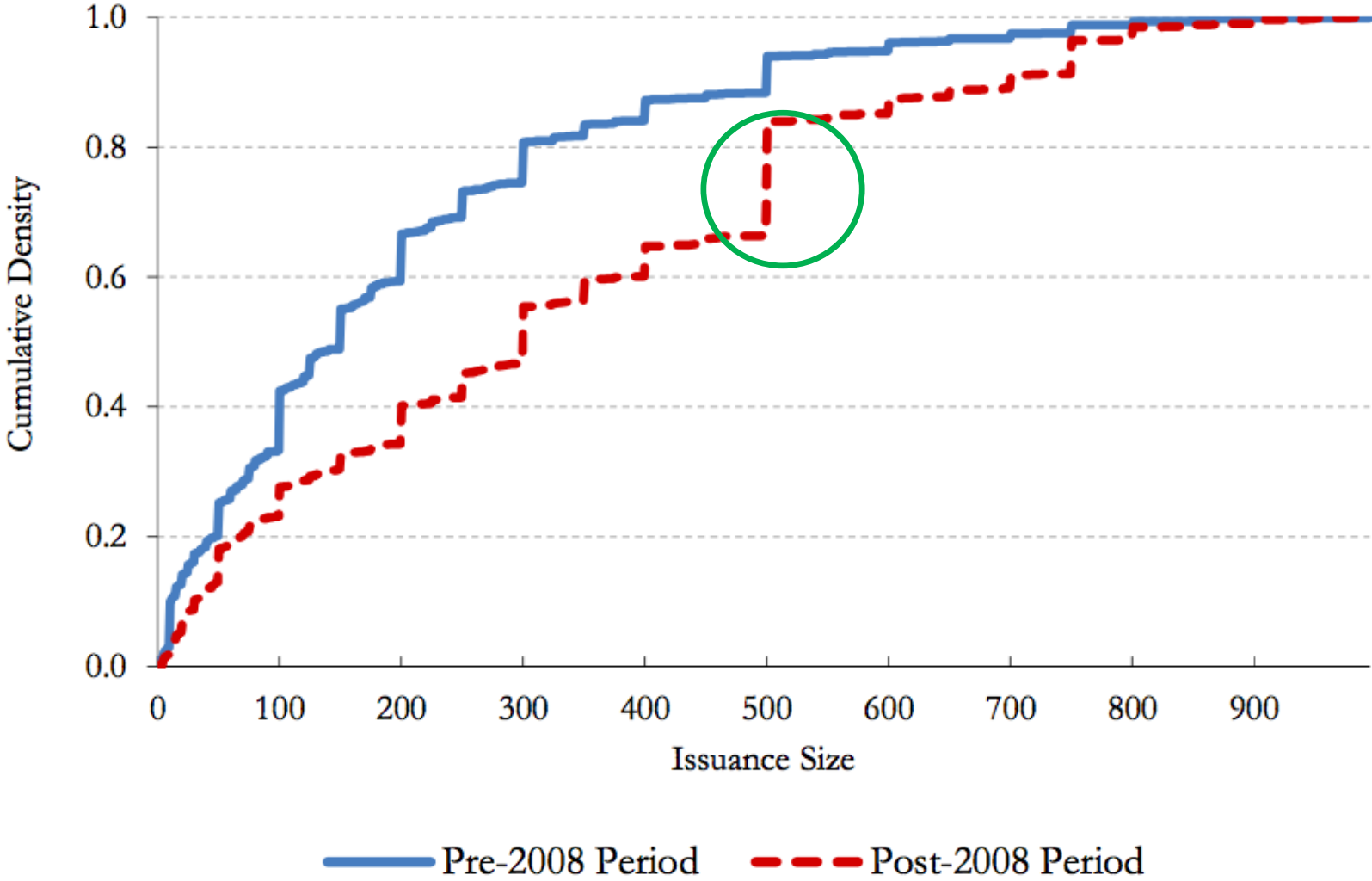
Increase in Size Inclusion Premium



Corporate Bond Issuances in EMs



Bond Issuances Cluster in \$500 Million

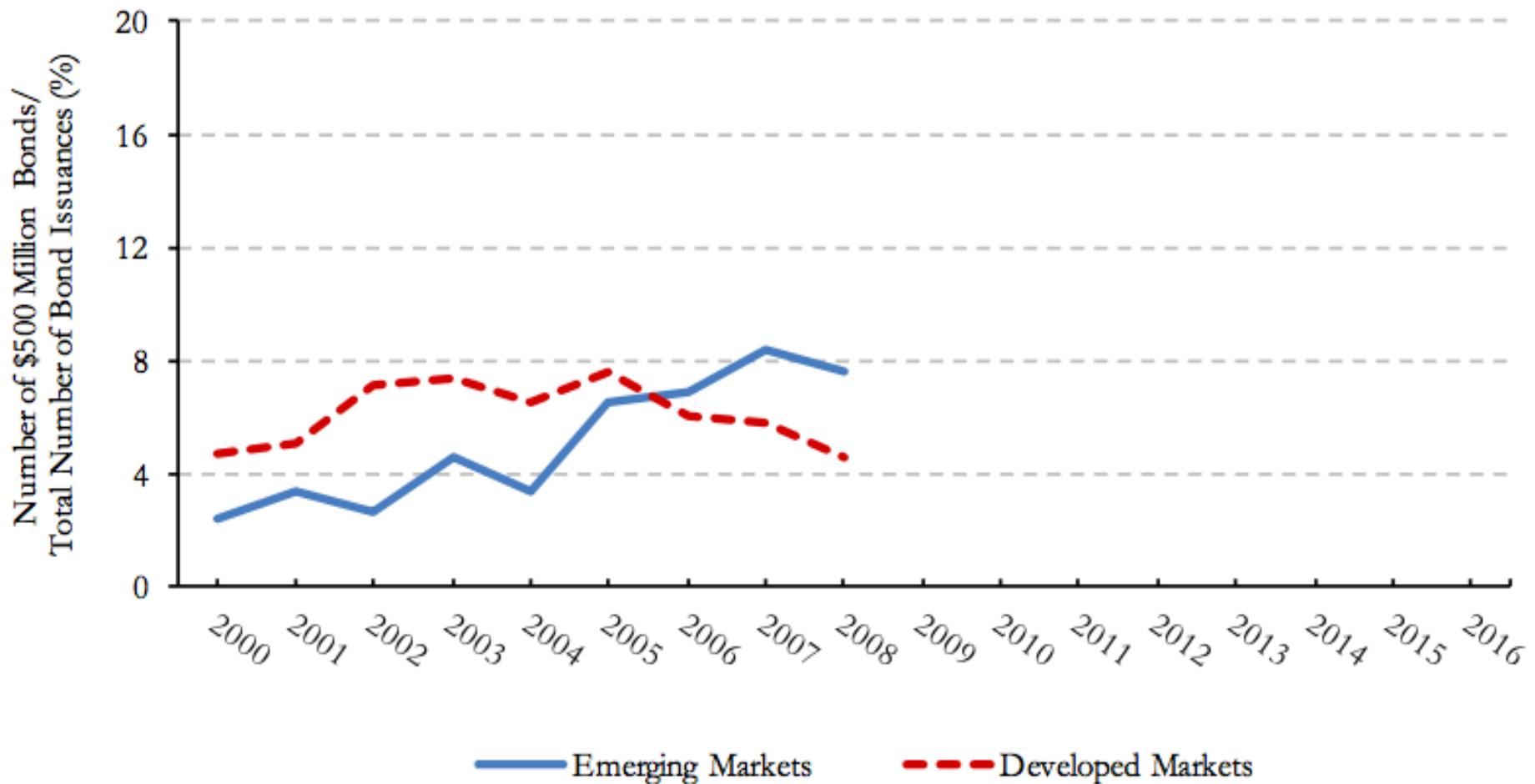


Difference-in-Differences Test

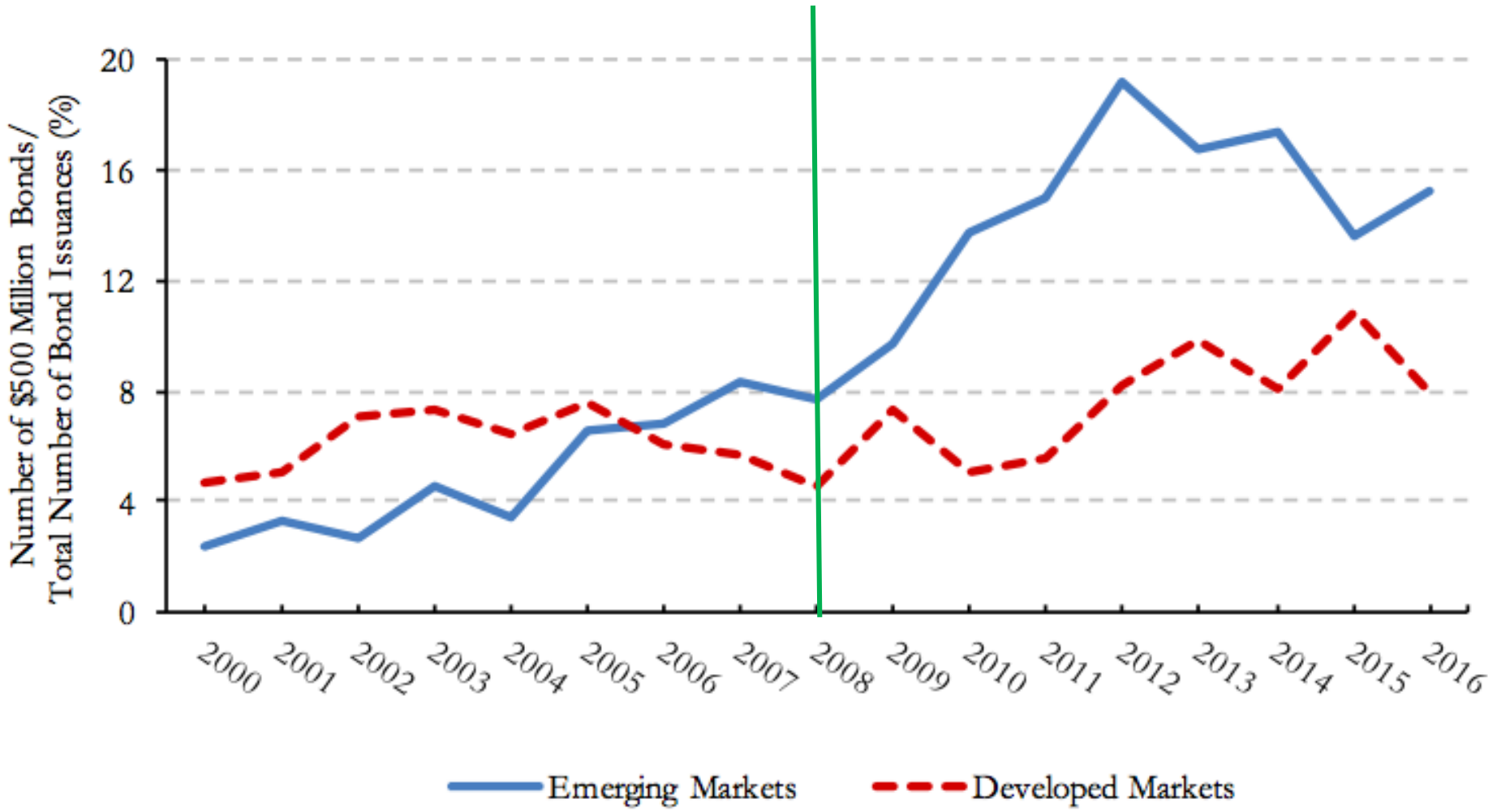
- Difference-in-differences estimation, using DM firms as control group
- For each size bin, we calculate:

$$[\Delta \textit{Issuance}^{\text{Pre-post2008}}]_{EM} - [\Delta \textit{Issuance}^{\text{Pre-post2008}}]_{DM}$$

Parallel Trends: Issuances of \$500 bonds



Parallel Trends: Issuances of \$500 bonds



Probability of Issuing Bonds of Different Sizes

Dependent Variable: Dummy=1 if Issuance=[X:X+100)

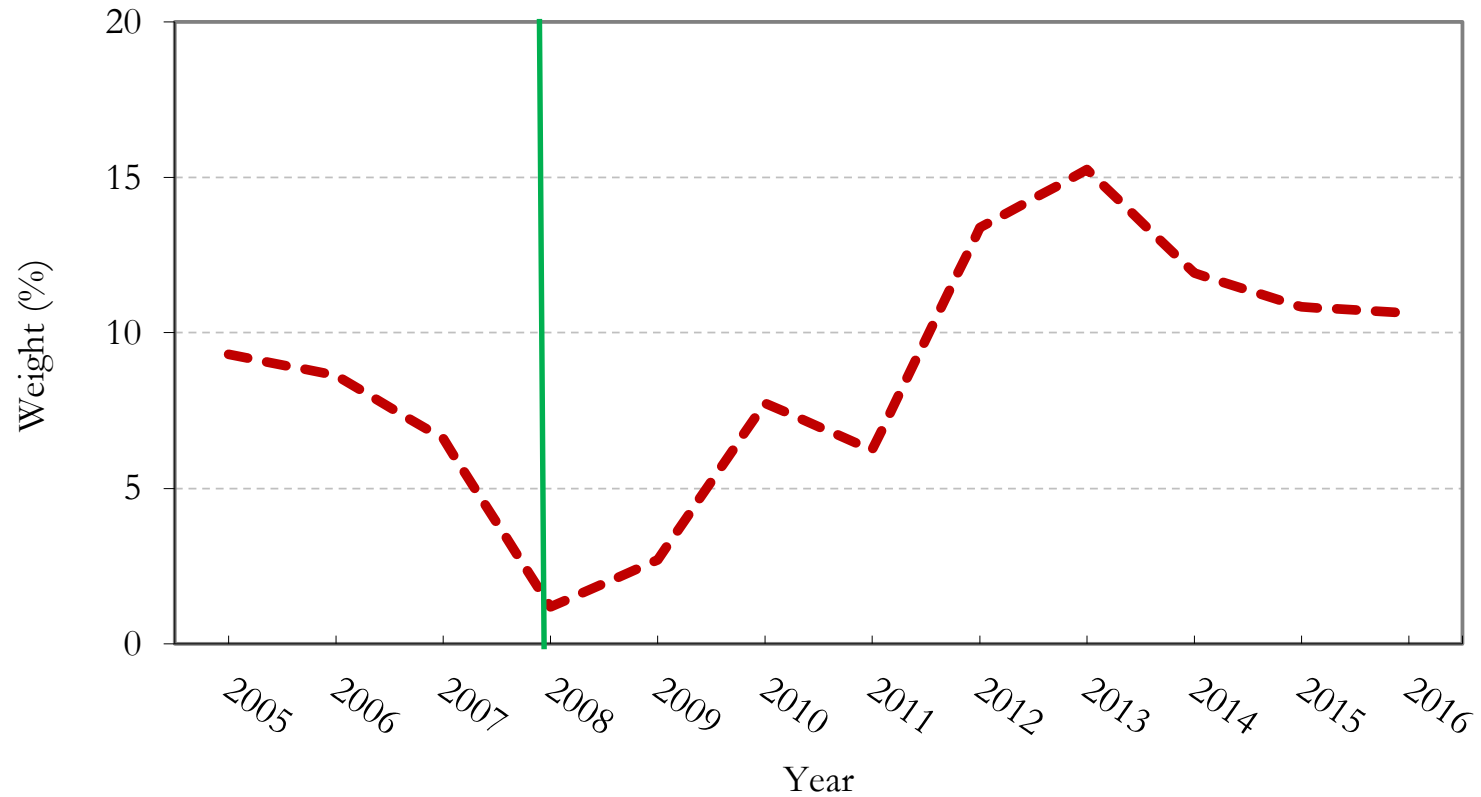
	(1) (0:100)	(2) [100:200)	(3) [200:300)	(4) [300:400)	(5) [400:500)	(6) [500:600)	(7) [600:700)	(8) [700:800)	(9) [800:900)
EM*Post 2008	-0.090 (0.056)	-0.075 ** (0.029)	-0.012 (0.020)	0.038 ** (0.015)	0.015 (0.016)	0.090 *** (0.023)	-0.001 (0.009)	0.019 (0.012)	0.012 (0.009)
Bond Controls	No	No	No	No	No	No	No	No	No
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean Probability	0.359	0.173	0.127	0.0908	0.0471	0.101	0.0296	0.0491	0.0157
Number of Countries	68	68	68	68	68	68	68	68	68
Number of Observations	19,905	19,905	19,905	19,905	19,905	19,905	19,905	19,905	19,905
R ²	0.218	0.0701	0.0457	0.0539	0.0407	0.0624	0.0371	0.0463	0.0271

Yield to Maturity and Issuance Size

	Associated Coefficients	Dependent Variable: Yield to Maturity			
		(1)	(2)	(3)	(4)
EM*[100:200]*Post 2008	$\beta_{100}^{EM,Post}$	-0.778 (0.619)	-0.161 (0.425)	0.469 (0.340)	-0.537 (1.417)
EM*[200:300]*Post 2008	$\beta_{200}^{EM,Post}$	0.27 (0.261)	0.339 (0.301)	0.863 *** (0.305)	0.965 (0.653)
EM*[300:400]*Post 2008	$\beta_{300}^{EM,Post}$	-0.034 (0.235)	-0.293 (0.277)	0.435 * (0.253)	-0.575 (0.821)
EM*[400:500]*Post 2008	$\beta_{400}^{EM,Post}$	0.492 (0.366)	0.872 ** (0.366)	1.154 *** (0.339)	0.052 (0.560)
EM*[500:600]*Post 2008	$\beta_{500}^{EM,Post}$	-0.496 *** (0.153)	-0.052 (0.409)	0.397 (0.308)	-0.228 (0.985)
EM*[600:700]*Post 2008	$\beta_{600}^{EM,Post}$	0.915 * (0.516)	0.588 (0.513)	0.516 (0.454)	-0.560 (1.044)
EM*[700:800]*Post 2008	$\beta_{700}^{EM,Post}$	0.820 ** (0.380)	0.176 (0.586)	0.531 (0.451)	2.941 *** (0.509)
EM*[800:900]*Post 2008	$\beta_{800}^{EM,Post}$	0.752 (0.540)	0.850 (0.983)	1.275 * (0.645)	1.996 *** (0.547)
Diff-in-Diff	$\beta_{500}^{EM,Post} - \beta_{400}^{EM,Post}$	-0.988 ***	-0.924 **	-0.757 **	-0.280
P-Value		0.002	0.021	0.029	0.823
Number of Observations		7,939	7,939	7,818	1,600
R ²		0.344	0.659	0.763	0.471

Channel: Institutional Investors

Cross-over Investors Invest More in EM bonds



% of developed market debt mutual funds invested in EM securities

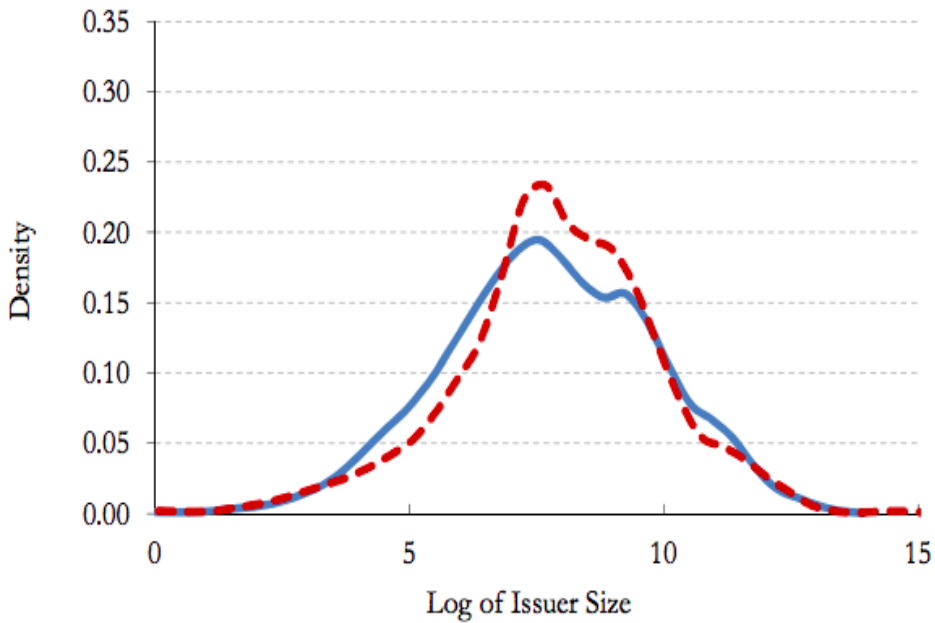
Cross-over Investors Hold More Eligible Debt

	Total Value of Emerging Market Corporate Debt		
	(0:300)	[300:500)	[500:1,000)
	(1)	(2)	(3)
Cross-Over Funds			
Developed Markets	6.70 % (19.157)	10.73 % (22.718)	82.57 % (28.686)
Emerging Market Sovereign	6.31 % (12.163)	15.45 % (19.719)	78.24 % (22.901)
Emerging Market Mixed	7.40 % (15.371)	18.29 % (18.557)	74.31 % (23.230)
Emerging Market Specialists Funds			
Emerging Market Corporate Specialists	6.32 (9.071)	24.65 (15.520)	69.03 (18.690)
Total Amount Outstanding	12.41 %	19.44 %	68.15 %

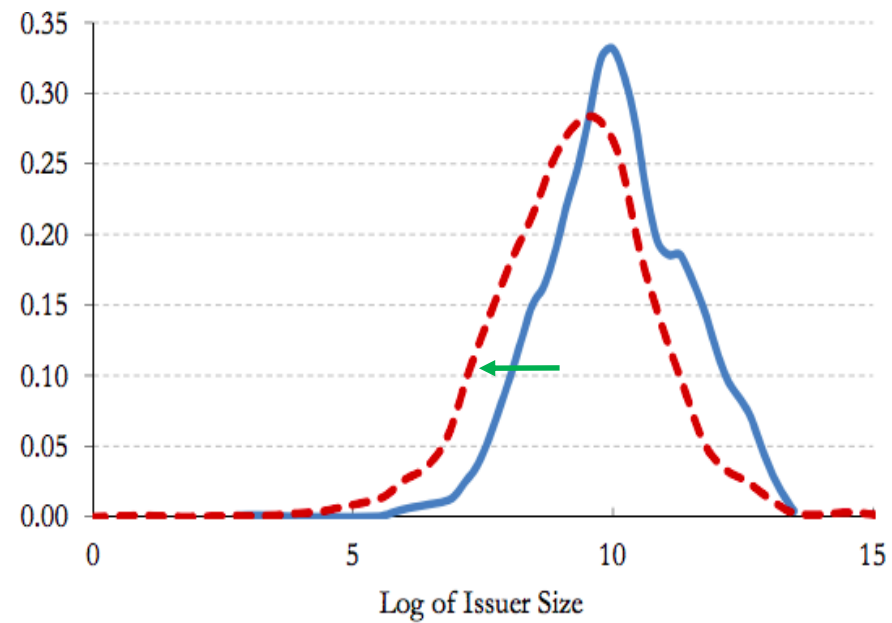
Consequences for Firms

Small Firms Start Issuing Large Bonds

Issuers of (0:500) Bonds



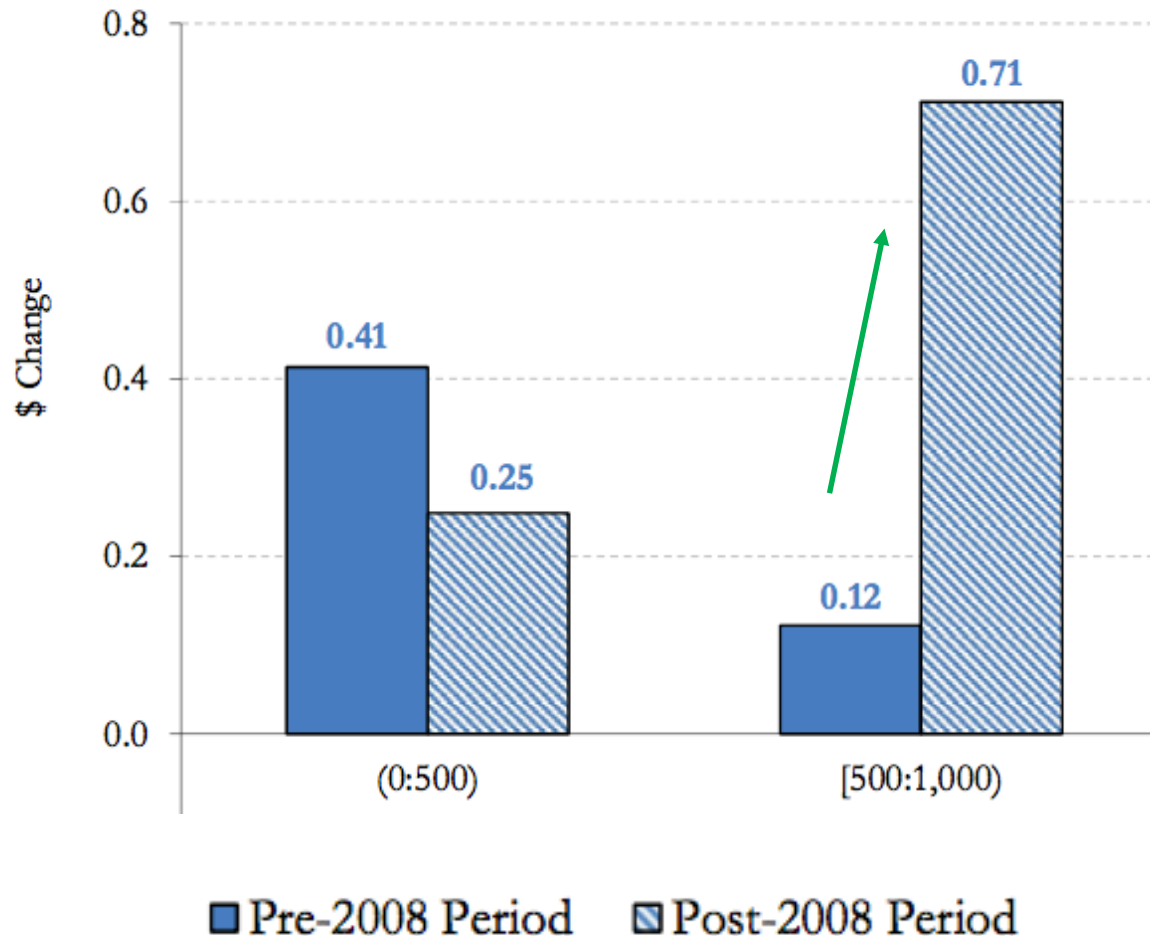
Issuers of [500:1,000) Bonds



— Pre 2008

- - - Post 2008

Firms Save Cash from Bond Issuances



Final Remarks

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- After GFC, sharp decrease in yield of large (\$500 million) index-eligible bonds (100 bps). Important increase in issuances of large bonds
- Smaller firms stretch, issue large bonds, and hold more cash after issuance
- Food for thought:
 - Small firms are borrowing “excessively” in dollars. Vulnerability to currency depreciation
 - Capital is scarce. Cash hoarding can crowd out productive investments

Gracias!