

Internet Appendix: Exodus from Sovereign Risk

JONGSUB LEE, ANDY NARANJO, *and* STACE SIRMANS*

This Internet Appendix provides supplementary results to our main analyses in “Exodus from Sovereign Risk: Global Asset and Information Networks in the Pricing of Corporate Credit Risk,” which are left out of the main text due to space limitation. Section I of this appendix provides additional details on our data and main variables used in our regression analyses. This section also provides detailed background on the events that we use to design quasi-natural experiments to address potential endogeneity concerns in our baseline regression results in the main text. Section II and III respectively provide supplementary tables and figures. In Section IV, we discuss the results on the determinants of sovereign ceiling violations (SCVs) in international credit default swap (CDS) markets. In Section V, we discuss additional endogeneity test results using the quasi-natural experiments based on the events we explain in Section I. Section VI briefly reviews the credit triangle in a continuous-time CDS pricing setup under a flat hazard rate term structure and constant recovery rate assumptions.

*Jongsub and Andy are at the Warrington College of Business Administration, University of Florida. Stace is at the Sam M. Walton College of Business, University of Arkansas. Citation format: Lee, Jongsub, Andy Naranjo, and Stace Sirmans, Internet Appendix for “Exodus from Sovereign Risk: Global Asset and Information Networks in the Pricing of Corporate Credit Risk,” *Journal of Finance* [DOI String]. Please note: Wiley-Blackwell is not responsible for the content or functionality of any additional information provided by the authors. Any queries (other than missing material) should be directed to the authors of the article.

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I. Additional Details

A. Firm and Country Coverage (*Base unit: firm year*)

Below we provide additional information on the country-level breakdown of our sample. For each country, we report the number of firm years, mean CDS spread (bps), and percentage of sovereign ceiling violations (SCVs) using our “simple method.” The simple method flags a firm-year as a violation event if the firm’s CDS daily spread falls below its sovereign counterpart in any trading day during that year. These strict spread differences are reported to provide a benchmark on firms strictly delinking from their sovereign risks. We compute each statistic for the full sample period (2004 to 2011), the pre-crisis period (2004 to 2007), and the crisis period (2008 to 2011). CDS spreads are from Markit, and each violation calculation adjusts for transaction costs by incorporating average bid-ask spreads for firm CDS and sovereign CDS observations for each country and year from the Credit Market Analysis (CMA) CDS database (see Internet Appendix I.E for more details). The information below summarizes the observations in our full annualized CDS dataset, which includes firms with available market capitalization. The empirical results corresponding to the firm-level analysis are based on a subset of these firm-year observations, depending on the joint availability of the independent variables. Our data set contains seven countries with only one firm each (Cyprus, Egypt, Kazakhstan, Panama, Poland, Puerto Rico, and Sri Lanka). Firms from these countries are excluded from our firm-level analyses where we control for various fixed effects, but are included in our sovereign-level analysis.

Country	Full Sample Period (2004-2011)			Pre-Crisis Period (2004-2007)			Crisis Period (2008-2011)		
	# Firm Years	Mean CDS Spread, bps	% of SCVs	# Firm Years	Mean CDS Spread, bps	% of SCVs	# Firm Years	Mean CDS Spread, bps	% of SCVs
Argentina	14	543.0	93%	5	311.7	100%	9	671.4	89%
Australia	344	120.7	2%	155	35.7	0%	189	190.5	3%
Austria	46	163.4	24%	14	27.8	0%	32	222.8	34%
Bahrain	12	336.2	25%	4	108.0	0%	8	450.3	38%
Belgium	54	110.5	28%	22	67.9	0%	32	139.8	47%
Brazil	75	302.3	21%	23	295.1	48%	52	305.5	10%
Canada	430	209.7	5%	216	113.0	0%	214	307.3	10%
Chile	36	170.2	6%	11	107.9	0%	25	197.6	8%
China	21	173.9	0%	6	27.5	0%	15	232.5	0%
Colombia	3	189.7	33%	2	111.6	50%	1	346.0	0%
Cyprus	3	274.2	0%	1	46.5	0%	2	388.0	0%
Czech Republic	13	63.0	31%	6	35.7	0%	7	86.3	57%
Denmark	47	85.6	2%	24	47.6	0%	23	125.2	4%
Egypt	5	589.0	40%	1	325.0	0%	4	655.0	50%
Finland	88	184.5	0%	40	70.7	0%	48	279.4	0%
France	472	153.7	10%	228	67.1	0%	244	234.5	19%
Germany	422	139.1	2%	197	66.4	0%	225	202.8	4%
Greece	44	272.8	39%	20	31.1	0%	24	474.2	71%
Hong Kong	178	113.1	2%	86	46.4	0%	92	175.5	3%
Hungary	12	289.6	42%	4	63.2	0%	8	402.7	63%
India	180	546.5	15%	79	204.9	0%	101	813.6	27%
Indonesia	19	518.4	42%	9	296.2	33%	10	718.5	50%
Ireland	45	334.5	36%	18	207.4	0%	27	419.3	59%
Israel	13	99.6	54%	5	53.2	0%	8	128.5	88%
Italy	185	421.8	36%	83	386.2	0%	102	450.8	65%
Japan	2352	112.3	19%	1087	31.7	0%	1265	181.6	35%
Kazakhstan	1	795.8	0%	0	–	–	1	795.8	0%
Korea (South)	157	153.0	12%	75	55.6	0%	82	242.0	23%
Luxembourg	19	484.2	84%	0	–	–	19	484.2	84%
Malaysia	80	96.0	5%	37	37.4	0%	43	146.4	9%
Mexico	74	563.2	14%	25	101.0	20%	49	799.0	10%
Netherlands	231	131.4	5%	105	80.3	0%	126	174.0	10%
New Zealand	16	70.8	25%	5	25.9	0%	11	91.2	36%
Norway	78	126.7	0%	37	40.0	0%	41	205.1	0%
Panama	8	91.0	100%	4	33.4	100%	4	148.7	100%
Philippines	40	254.2	63%	16	215.6	63%	24	280.0	63%
Poland	7	67.4	57%	3	34.8	0%	4	91.9	100%
Portugal	51	182.1	27%	23	35.8	0%	28	302.2	50%
Puerto Rico	1	254.0	0%	0	–	–	1	254.0	0%
Qatar	23	174.2	22%	4	58.1	0%	19	198.6	26%
Russia	58	424.6	5%	20	192.2	0%	38	546.8	8%
Saudi Arabia	17	180.6	12%	2	54.3	0%	15	197.4	13%
Singapore	76	408.9	0%	31	72.4	0%	45	640.6	0%
South Africa	35	302.0	14%	12	83.0	17%	23	416.3	13%
Spain	121	203.9	29%	40	35.2	0%	81	287.2	43%
Sri Lanka	2	1201.7	100%	0	–	–	2	1201.7	100%
Sweden	185	95.0	6%	94	47.4	0%	91	144.2	13%
Switzerland	78	98.7	18%	17	23.7	0%	61	119.6	23%
Taiwan	48	126.2	0%	23	115.0	0%	25	136.6	0%
Thailand	42	330.6	10%	21	82.9	0%	21	578.3	19%
Turkey	31	283.9	26%	12	214.6	25%	19	327.7	26%
UAE	8	310.6	62%	2	43.3	0%	6	399.7	83%
United Kingdom	710	154.4	13%	241	62.2	0%	469	201.8	20%
United States	5894	224.1	3%	2821	125.1	0%	3073	315.0	5%
Total	13204	195.5	24%	6016	96.5	8%	7188	278.4	32%

B. CDS Restructuring Type by Region

Markit provides data on corporate and sovereign CDS contracts with multiple tiers, restructuring types, and settlement currencies. We match each senior corporate CDS contract to the corresponding sovereign contract with the same restructuring type and settlement currency. All contracts of sub-senior tier are excluded from our sample. Matching is performed at the firm-year level. This means the annual mean of daily CDS spreads will consist of contracts with the same restructuring type and settlement currency, but the firm's restructuring type or currency may change from year to year. In the event that multiple matches are found for a given firm, we give preference to the match that has 1) the greatest availability in terms of number of days during the year, 2) the greatest average market depth of the corporate contract, and 3) the restructuring type or currency that is most common in a given country during that year. The following table provides a tabulation of CDS restructuring types across regions of the CDS contracts in our sample.

Region	C.R.	M.M.	M.R.	X.R.	Total
Africa	23	14	2	1	40
Asia	2,846	21	65	81	3,013
Caribbean	0	0	0	1	1
Eastern Europe	58	28	5	0	91
Europe	345	2,440	73	21	2,879
India	162	1	19	0	182
Latin America	164	3	35	8	210
Middle East	76	20	8	0	104
North America	505	122	4,616	1,081	6,324
Oceania	24	0	336	0	360
Total	4,203	2,649	5,159	1,193	13,204

C. Variable Descriptions

Sovereign-Level Variables

Variable Name	Variable Description	Source	Dates
Sovereign CDS Spread, bps	Average daily five-year sovereign CDS spread (in basis points) in a given year.	Markit	2004–2011
Ln(Sovereign CDS Spread, bps)	The natural logarithm of <i>Sovereign CDS Spread (bps)</i> .	Markit	2004–2011
Sovereign CDS Depth	Average daily five-year sovereign CDS depth in a given year. Depth represents the number of contributors to Markit's CDS spread composite on a given day.	Markit	2004–2011
Sovereign CDS Recovery Rate, %	Average daily sovereign CDS recovery rate (in percentage points) in a given year.	Markit	2004–2011
Sovereign S&P Credit Rating	The end-of-year credit rating for each country is converted into a numerical score (a higher score indicates a higher credit rating). A one-unit change is associated with a +/- sub-notch change.	Datastream	2004–2011
Region Sovereign CDS Spread, bps	The average annualized sovereign CDS spread, computed for a given country of all other countries in the same region. We classify regions into North America, Latin America, Asia, Europe, and the Middle East/Other.	Markit	2004–2011
Ln(Region Sovereign CDS Spread, bps)	The natural logarithm of <i>Region Sovereign CDS Spread (bps)</i> .	Markit	2004–2011
Stock Market Volatility	The standard deviation of weekly log returns, computed from the country-specific stock market index (annualized).	Datastream	2004–2011
Ln(GDP, US\$ Billions)	The natural logarithm of annual GDP (in US\$ billions), downloaded for each country and averaged with the lagged value.	International Monetary Fund (IMF)	2004–2011
Ln(GDP per Capita, US\$)	The natural logarithm of annual GDP per capita (in US\$), downloaded for each country and averaged with the lagged value.	International Monetary Fund (IMF)	2004–2011
Government Debt-to-GDP	Annual government debt as a percentage of GDP, downloaded for each country (in \$) and averaged with the lagged value.	International Monetary Fund (IMF)	2004–2011
External Debt-to-GDP	Annual external government debt (in US\$), downloaded from the World Bank for each country, divided by GDP (in US\$).	World Bank	2004–2011
Property Rights	The strength of a country's property rights. Specifically, it reflects the extent to which laws protect private property, the extent to which the government enforces these laws, and the extent to which the government expropriates private property. A high value indicates strong property rights. It is standardized.	Heritage Foundation	2004–2011
Rule of Law	An assessment of the law and order tradition of a country, from International Country Risk Guide. A high value indicates strong rule of law. It is standardized.	ICRG	1997

Sovereign-Level Variables (continued)

Variable Name	Variable Description	Source	Dates
Repudiation Risk	The country's risk of contract repudiation or postponement due to budgetary issues, political pressure, or a change in government. A high value indicates low repudiation risk. It is standardized.	ICRG	1997
Expropriation Risk	The government's ability to or likelihood of confiscating or nationalizing private property. A high value indicates low expropriation risk. It is standardized.	ICRG	1997
Creditor Rights	An index that aggregates various creditor rights. Specifically, it captures regulation around reorganization, automatic stay, ranking of creditors in bankruptcy, and administrative rights of property during reorganization. A high value indicates strong creditor rights. It is standardized.	La Porta, Lopez de Silanes, Shleifer, and Vishny (1998); Djankov, McLiesh, and Shleifer (2007)	2004
Ln(Contract Enforcement Days)	The number of days it takes to resolve a payment dispute through the courts. A high value indicates inefficient courts. It is standardized.	Djankov et al. (2007)	2003
Disclosure Requirements: Number of Items Reported	The country's required number of disclosed items on a wide range of topics, including general information, financial condition, and corporate governance. A high value indicates stronger disclosure requirements and greater informational transparency. It is standardized.	Bushman, Piotroski, and Smith (2004)	2004
Disclosure Requirements: Reporting Frequency	The country's required timeliness of financial reporting through the frequency of interim reports. A high value indicates stronger disclosure requirements and greater informational transparency. It is standardized.	Bushman et al. (2004)	2004

Firm-Level Variables

Variable Name	Variable Description	Source	Dates
Firm CDS Spread, bps	Average daily five-year corporate CDS spreads (in basis points) in a given year.	Markit	2004–2011
Ln(Firm CDS Spread, bps)	The natural logarithm of <i>Firm CDS Spread (bps)</i> .	Markit	2004–2011
Firm CDS Depth	Average daily five-year corporate CDS depth in a given year. Depth represents the number of contributors to Markit's CDS spread composite on a given day.	Markit	2004–2011
Firm CDS Recovery Rate, %	Average daily CDS recovery rates (in percentage points) in a given year. Represent expected recovery rates on corporate CDS contracts.	Markit	2004–2011
Ln(Firm CDS Recovery Rate, %)	The natural logarithm of <i>Firm CDS Recovery Rate (%)</i> .	Markit	2004–2011
Size	The natural logarithm of end-of-year market capitalization (\$). The result is averaged with its lagged value and winsorized at the 1% level.	Thomson One / Worldscope	2004–2011
Leverage	Total debt divided by total assets. The result is averaged with its lagged value and winsorized at the 1% level.	Thomson One / Worldscope	2004–2011
Short-term Debt / Total Debt	Short-term debt divided by the sum of short-term debt and long-term debt. The result is averaged with its lagged value and winsorized at the 1% level.	Thomson One / Worldscope	2004–2011
Cash Flow / Total Assets	Cash flow divided by the average of total assets and lagged total assets. The result is winsorized at the 1% level.	Thomson One / Worldscope	2004–2011
Excess Stock Return	The firm's annual stock return in excess of the country's stock market index return. The result is winsorized at the 1% level.	Datastream	2004–2011
Stock Return Volatility	The standard deviation of weekly log returns. The result is winsorized at the 1% level.	Datastream	2004–2011
EDF Merton	We follow Bharath and Shumway (2008) to compute the implied probability of default, or expected default frequency (EDF), using the KMV-Merton model.	Datastream / Thomson One / Worldscope	2004–2011
Profit Margin	EBITDA divided by total sales. The result is averaged with its lagged value and winsorized at the 1% level.	Thomson One / Worldscope	2004–2011
Asset Tangibility	Tangible assets (property, plant, and equipment) divided by total assets. The result is averaged with its lagged value and winsorized at the 1% level.	Thomson One / Worldscope	2004–2011
Industry Asset Specificity	The industry median ratio of the book value of machinery and equipment to the book value of total assets during the year (calculated separately for each country).	Datastream	2004–2011
Industry Q	The industry median ratio of the market value of the firm (estimated as book value of total assets – book value of total equity + market value of equity) to the book value of the firm (estimated as book value of total assets) during the year (calculated separately for each country).	Datastream	2004–2011
Industry Distress Dummy	A dummy variable that is equal to one if the median stock return of firms in a given industry is less than -30% during the year (calculated separately for each country).	Datastream	2004–2011
Foreign Assets / Total Assets	The firm's foreign assets (as a fraction of total assets) as reported. If missing, the variable is replaced by international assets divided by total assets. The result is averaged with its lagged value and winsorized at the 1% level.	Thomson One / Worldscope	2004–2011
Foreign Sales / Total Sales	The firm's foreign sales (as a fraction of total sales as reported). If missing, the variable is replaced by international sales divided by total sales. The result is averaged with its lagged value and winsorized at the 1% level.	Thomson One / Worldscope	2004–2011
Number of Stock Exchanges	The total number of stock exchanges on which a firm has listed its equity (defined each year).	Datastream	2004–2011
Number of Geographic Segments	The total number of geographic segments that the firm lists in its geographically segmented financial information.	Worldscope	2004–2011
Firm S&P Credit Rating	The end-of-year S&P credit rating for each firm, converted to a numerical score (a higher score indicating a higher credit rating). A one-unit change is associated with a +/- sub-notch change.	Thomson One	2004–2011

Firm-Level Variables (continued)

Variable Name	Variable Description	Source	Dates
Scaled Net Exposure: Ln(GDP per Capita)	The weighted average of the <i>Ln(GDP per Capita)</i> values of the foreign countries in which the firm has assets minus the value of the firm's home country, multiplied by <i>Foreign Assets (over Total)</i> .	Worldscope / IMF	2004–2011
Scaled Net Exposure: Stock Market Volatility	The weighted average of the <i>Stock Market Volatility</i> of the foreign countries in which the firm has assets minus the value of the firm's home country, multiplied by <i>Foreign Assets (over Total)</i> .	Worldscope / Datastream	2004–2011
Scaled Net Exposure: Property Rights	The weighted average of the <i>Property Rights</i> index values of the foreign countries in which the firm has assets minus the value of the firm's home country, multiplied by <i>Foreign Assets (over Total)</i> .	Worldscope / Heritage Foundation	2004–2011
Scaled Net Exposure: Rule of Law	The weighted average of the <i>Rule of Law</i> index values of the foreign countries in which the firm has assets minus the value of the firm's home country, multiplied by <i>Foreign Assets (over Total)</i> .	Worldscope / ICRG	2004–2011
Scaled Net Exposure: Repudiation Risk	The weighted average of the <i>Repudiation Risk</i> index values of the foreign countries in which the firm has assets minus the value of the firm's home country, multiplied by <i>Foreign Assets (over Total)</i> .	Worldscope / ICRG	2004–2011
Scaled Net Exposure: Expropriation Risk	The weighted average of the <i>Expropriation Risk</i> index values of the foreign countries in which the firm has assets minus the value of the firm's home country, multiplied by <i>Foreign Assets (over Total)</i> .	Worldscope / ICRG	2004–2011
Scaled Net Exposure: Creditor Rights	The weighted average of the <i>Creditor Rights</i> index values of the foreign countries in which the firm has assets minus the value of the firm's home country, multiplied by <i>Foreign Assets (over Total)</i> .	Worldscope / La Porta et al. (1998); Djankov et al. (2007)	2004–2011
Scaled Net Exposure: Ln(Contract Enf. Days)	The weighted average of the <i>Ln(Contract Enforcement Days)</i> index values of the foreign countries in which the firm has assets minus the value of the firm's home country, multiplied by <i>Foreign Assets (over Total)</i> .	Worldscope / Djankov et al. (2007)	2004–2011
Extra Disclosure: No. of Items Reported	The maximum value for <i>Disclosure Requirements: Number of Items Reported</i> of all the countries in which the firm has equity listed on an exchange minus the value of the firm's home country.	Worldscope / Bushman et al. (2004)	2004–2011
Extra Disclosure: Reporting Frequency	The maximum value for <i>Disclosure Requirements: Reporting Frequency</i> of all the countries in which the firm has equity listed on an exchange minus the value of the firm's home country.	Worldscope / Bushman et al. (2004)	2004–2011

D. Construction of Scaled Net Exposure Variables

We construct each *Scaled Net Exposure* variable in four steps.

- Step 1: We examine the description of each geographic segment in which the firm owns assets and assign it an institutional value. If a segment description is a country, we assign the segment the institutional value of that country. If a segment description is a region, we compute a GDP-weighted average of the institutional values of the countries in that region. If the segment description is a combination of countries or regions, we compute the equally weighted average of the institutional values for the combination of countries or regions. We exclude the primary geographic segment that represents the firm’s home country.
- Step 2: Using the resulting institutional value (or economic value) for each geographic segment, we calculate the total effect of all of the firm’s foreign assets by computing the average institutional value across all of the firm’s segments, weighted by the amount of assets the firm has in each segment. This provides an overall picture of the firm’s institutional exposure.
- Step 3: We take the aggregated foreign institutional value and subtract the domestic institutional value (i.e., the value of the firm’s home country). The difference between the foreign and domestic institutional values indicates whether the firm’s foreign asset exposure results in a net positive or negative institutional effect relative to the firm’s domestic institutional effect.
- Step 4: We multiply the net effect by *Foreign Assets/Total Assets* to account for the overall importance of the firm’s foreign assets to the firm. For instance, the institutional difference between foreign and home countries matters much more to a firm that has 50% foreign assets than a firm that has only 5% foreign assets. This step essentially scales the foreign-domestic institutional difference to reflect its relevance to the firm as a whole.

These four steps lead to equation (1) in our main text.

E. Construction of SCV Variables

The simplest form of a SCV in the CDS market is when a firm’s CDS spread falls below the sovereign CDS spread. We call these firms “violators” because their CDS spreads violate the sovereign ceiling rule. Given a daily data frequency, it is straightforward to identify firm violators on a daily basis. Designating firms as violators on an annual basis, however, requires alternative approaches. We use three approaches for classifying annual violators, namely, the simple, mean, and bucket violation methods.

Firm Violator Dummy (Simple Method): In this method, the violator dummy equals one if the firm CDS spread violates the sovereign ceiling rule in *at least one day* during the year. This is the least stringent approach among our violation classification methods; we later also account for transaction costs that reduce the likelihood of a spurious or transient violator classification. The appealing feature of this method is its comprehensiveness in including the broadest set of sovereign ceiling violations.

Firm Violator Dummy (Mean Method): The violator dummy equals one in this method if *Firm-Sovereign CDS Spread Difference* is negative. In other words, if the annual average daily additional firm CDS spread over the sovereign CDS spread is negative, the firm is flagged as a sovereign ceiling violator. This is a more strict way of designating a firm as a sovereign ceiling violator since the violation must be persistent or of great magnitude.

Firm Violator Buckets (Bucket Method): In this method, we classify firms into four violation buckets (0, 1, 2, 3) based on the number of days a firm experiences a SCV during a given year, with a larger number of violation days based on the *Simple* method resulting in firms being placed in higher-number buckets: 0 indicates a nonviolator, 1 indicates an infrequent violator, 2 indicates a medium violator, and 3 indicates a frequent violator. This method takes into account the frequency and length of violations.

Simply comparing the firm and sovereign CDS spreads may not be sufficient to identify meaningful SCVs. Transaction costs or liquidity differences may put upward or downward pressure on CDS spreads and cause small violations. To address this issue, we adjust the CDS spreads for transaction costs and control for potential liquidity effects – even though we are using the most liquid sovereign and firm CDS five-year contracts in our analysis.

Markit does not include transaction cost information in its CDS data, so we turn to an alternative data source, CMA, provided by Datastream. CMA provides the daily bid, ask, and mid prices for each CDS in its database. A trader who seeks to take advantage of a potential sovereign ceiling arbitrage strategy might buy the premium of the firm CDS and sell the premium of the sovereign CDS. In this spirit, we estimate trading costs by computing the difference between the ask price and the mid price for every firm CDS and the difference between the bid price and the mid price for every sovereign CDS in the CMA database. We average these two calculations by country for each year in our sample.

The CMA data are less accurate and complete than the Markit data, so merging these data sets at the firm level results in a reduced sample and introduces potential errors. To mitigate these two problems, we filter out distinctively inconsistent spread observations between the two databases, take a country average by year approach, and apply the transactions cost across all firms in the respective country.

After merging the trading cost spreads with the Markit data, we account for transaction costs by incorporating the bid-ask spread information into our calculation of each of our two SCV dummy variables. At the daily level, we include our transaction cost estimates in our calculation of the additional CDS spread required by investors to hold the firm CDS over the sovereign CDS, as shown in the following equation for *Firm-Sovereign CDS Difference, Transaction Cost Adjusted* ($FirmSovCDSDiff_{i,d}^{TA}$) for firm i on day d :

$$FirmSovCDSDiff_{i,d}^{TA} = [(FirmCDS_{i,d} + FirmAsk_{c,y}) - (SovCDS_{c,d} - SovBid_{c,y})],$$

where $FirmAsk_{c,y}$ is the average difference between the ask and mid prices for the firm CDS based in country c in year y , and $SovBid_{c,y}$ is the average difference between the bid and mid price for the sovereign

CDS spread. The differences are unsigned. We adjust the two firm violator dummies and the firm violator buckets as follows:

Firm Violator Dummy (Simple Method): The dummy variable equals one if the firm's CDS spread falls below the sovereign CDS spread, after adjusting for transaction costs, at least once during the year (i.e., $FirmSovCDSDiff_{i,d}^{TA}$ is negative on at least one day).

Firm Violator Dummy (Mean Method): We compute the yearly average of the transaction-cost-adjusted CDS difference for each firm. We then flag the firm as a violator if the average is negative.

Firm Violator Buckets (Bucket Method): We again classify firms into four violation buckets (0, 1, 2, 3) based on the number of days a firm experiences a SCV using the Simple Violation Method adjusted for transactions costs.

F. Correlation Matrix

Sovereign-Level Correlation Matrix

	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)	15)	16)	17)
1) Sovereign CDS Spread, bps	1.00																
2) Ln(Sovereign CDS Spread, bps)	0.55	1.00															
3) Sovereign S&P Credit Rating	-0.60	-0.69	1.00														
4) Ln(Region Sovereign CDS, bps)	0.27	0.81	-0.36	1.00													
5) Stock Market Volatility	0.26	0.50	-0.19	0.49	1.00												
6) Ln(GDP)	-0.10	-0.12	0.18	-0.08	0.08	1.00											
7) Govt Debt-to-GDP	0.18	0.09	-0.12	0.06	-0.05	0.41	1.00										
8) External Debt-to-GDP	0.13	0.18	0.08	0.16	0.24	0.01	0.09	1.00									
9) Sovereign CDS Depth	0.10	0.42	-0.58	0.29	0.13	-0.02	-0.03	-0.05	1.00								
10) Property Rights	-0.41	-0.61	0.87	-0.33	-0.14	0.09	-0.09	0.18	-0.68	1.00							
11) Rule of Law	-0.30	-0.62	0.76	-0.44	-0.13	0.27	0.10	0.15	-0.67	0.83	1.00						
12) Repudiation Risk	-0.42	-0.64	0.86	-0.38	-0.13	0.27	0.16	0.19	-0.56	0.83	0.84	1.00					
13) Expropriation Risk	-0.40	-0.64	0.84	-0.42	-0.13	0.36	0.18	0.22	-0.60	0.84	0.89	0.95	1.00				
14) Creditor Rights	-0.19	-0.16	0.30	-0.02	-0.13	-0.26	-0.17	-0.08	-0.20	0.35	0.20	0.32	0.21	1.00			
15) Ln(Contract Enf. Days)	0.16	0.32	-0.47	0.12	-0.01	-0.02	0.00	-0.09	0.44	-0.52	-0.43	-0.51	-0.47	-0.36	1.00		
16) Disclosure Req.: No. of Items Reported	-0.25	-0.38	0.59	-0.16	-0.13	-0.10	-0.24	0.08	-0.54	0.55	0.43	0.42	0.42	0.18	-0.42	1.00	
17) Disclosure Req.: Reporting Frequency	-0.17	-0.22	0.28	-0.12	-0.19	0.21	0.03	-0.02	-0.26	0.13	0.32	0.11	0.18	-0.26	0.20	0.34	1.00

Firm-Level Correlation Matrix

	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)	15)	16)	17)	18)	19)	20)	21)	22)	23)	24)	25)	26)	27)		
1) Ln(Firm CDS Spread, bps)	1.00																												
2) Firm CDS Depth	-0.22	1.00																											
3) Ln(Firm CDS Recovery Rate, %)	0.06	0.14	1.00																										
4) Firm S&P Credit Rating	-0.61	0.08	-0.08	1.00																									
5) Size	-0.19	0.11	0.05	0.65	1.00																								
6) Leverage	0.19	-0.03	0.11	-0.30	-0.20	1.00																							
7) Short-term Debt/Long-term Debt	-0.12	0.11	-0.17	0.23	0.32	-0.43	1.00																						
8) Cash Flow/Total Assets	-0.03	0.08	0.04	0.02	0.00	-0.10	0.13	1.00																					
9) Excess Stock Return	0.00	0.01	0.01	0.02	0.07	0.03	-0.03	0.06	1.00																				
10) Stock Return Volatility	0.57	-0.11	-0.07	-0.38	-0.23	0.15	-0.11	-0.09	0.01	1.00																			
11) EDF Merton	0.40	-0.06	-0.12	-0.16	-0.16	0.07	0.03	-0.06	-0.05	0.59	1.00																		
12) Profit Margin	-0.12	-0.01	0.07	0.22	0.12	0.10	-0.05	0.08	-0.02	-0.13	-0.17	1.00																	
13) Asset Tangibility	0.10	-0.03	0.14	-0.18	-0.05	0.21	-0.13	0.07	0.03	0.05	-0.05	0.33	1.00																
14) Number of Stock Exchanges	-0.15	0.19	0.05	0.22	0.23	-0.10	0.19	0.03	0.00	-0.03	-0.02	0.04	-0.09	1.00															
15) Number of Geog. Segments	-0.06	0.12	-0.09	0.18	0.25	-0.24	0.38	0.06	0.01	0.04	-0.02	-0.13	-0.15	0.31	1.00														
16) Foreign Assets/Total Assets	-0.11	0.10	0.00	0.13	0.19	-0.15	0.25	0.09	0.00	-0.02	-0.04	-0.06	-0.04	0.27	0.46	1.00													
17) Foreign Sales/Total Sales	-0.05	0.13	0.03	0.08	0.17	-0.25	0.36	0.14	0.00	0.01	-0.08	-0.14	-0.12	0.32	0.70	0.60	1.00												
18) SNE: Ln(GDP per Capita)	-0.11	0.02	0.05	0.00	0.00	0.03	-0.05	-0.02	-0.01	-0.01	-0.05	-0.06	-0.04	0.02	0.02	-0.01	0.06	1.00											
19) SNE: Stock Market Volatility	0.05	0.01	0.01	-0.03	0.02	0.04	-0.02	-0.08	-0.03	0.01	0.00	0.02	0.00	-0.01	-0.08	-0.10	-0.03	0.49	1.00										
20) SNE: Property Rights	0.00	0.02	0.02	-0.05	-0.10	-0.08	0.05	0.15	0.02	0.03	0.05	-0.05	-0.02	0.13	0.28	0.46	0.32	-0.10	-0.27	1.00									
21) SNE: Rule of Law	-0.01	0.03	0.09	-0.05	-0.08	-0.08	0.09	0.18	0.02	0.02	-0.06	0.02	0.04	0.13	0.33	0.48	0.34	-0.21	-0.32	0.85	1.00								
22) SNE: Repudiation Risk	-0.08	0.05	-0.04	0.08	0.14	-0.04	0.17	0.10	0.03	0.01	-0.03	0.00	0.01	0.17	0.32	0.44	0.30	-0.08	-0.14	0.65	0.70	1.00							
23) SNE: Expropriation Risk	-0.06	0.04	-0.01	0.07	0.05	-0.07	0.12	0.08	0.03	-0.03	-0.02	-0.01	0.00	0.11	0.21	0.33	0.21	-0.20	-0.13	0.51	0.56	0.57	1.00						
24) SNE: Creditor Rights	-0.03	-0.03	0.05	0.05	0.09	0.04	-0.07	-0.08	0.00	-0.05	0.00	-0.05	-0.02	-0.01	-0.11	-0.13	-0.08	0.29	0.19	-0.05	-0.24	0.07	-0.11	1.00					
25) SNE: Ln(Contract Enf. Days)	0.23	-0.01	0.35	-0.09	-0.18	0.00	-0.08	-0.01	-0.01	0.01	-0.09	0.16	0.08	-0.10	-0.15	-0.23	-0.18	-0.27	-0.21	-0.25	-0.27	-0.53	-0.23	-0.29	1.00				
26) Ex. Disclosure: No. of Items Rep.	-0.11	0.10	-0.07	0.28	0.23	-0.04	0.15	-0.06	0.00	-0.02	0.03	-0.02	-0.12	0.48	0.24	0.22	0.22	-0.01	0.01	0.06	0.06	0.21	0.13	0.10	-0.15	1.00			
27) Ex. Disclosure: Reporting Freq.	-0.04	0.07	-0.07	0.16	0.10	-0.03	0.10	-0.09	0.00	-0.01	0.03	-0.02	-0.09	0.33	0.18	0.21	0.19	0.14	0.09	0.03	-0.08	0.14	0.09	0.10	-0.07	0.43	1.00		

SNE = "Scaled Net Exposure"

G. Corporate CDS Recovery Rates: Markit and Creditex

G.1. Documentation of Markit Group's CDS Recovery Rates

Markit collects the CDS credit curve and associated recovery rate from market makers on a daily basis for each reference entity. The curve and recovery rate data undergo a rigorous cleaning process by Markit, with stale or inconsistent data and outliers discarded. The recovery rate ultimately reported by Markit is a composite of the dealer recovery rates. When dealer recovery rate data are not available, Markit substitutes in the conventional recovery rate assumption (i.e., 40% for senior corporate reference entities, except for 35% in Japan and 25% in emerging markets). Section I.I.G.2 reports average recovery rates for our sample and the percentage of recovery rates that are exactly equal to the conventional rate. We find that only 23.35% of the Markit recovery rate data over our sample belong to this conventional recovery rate category.

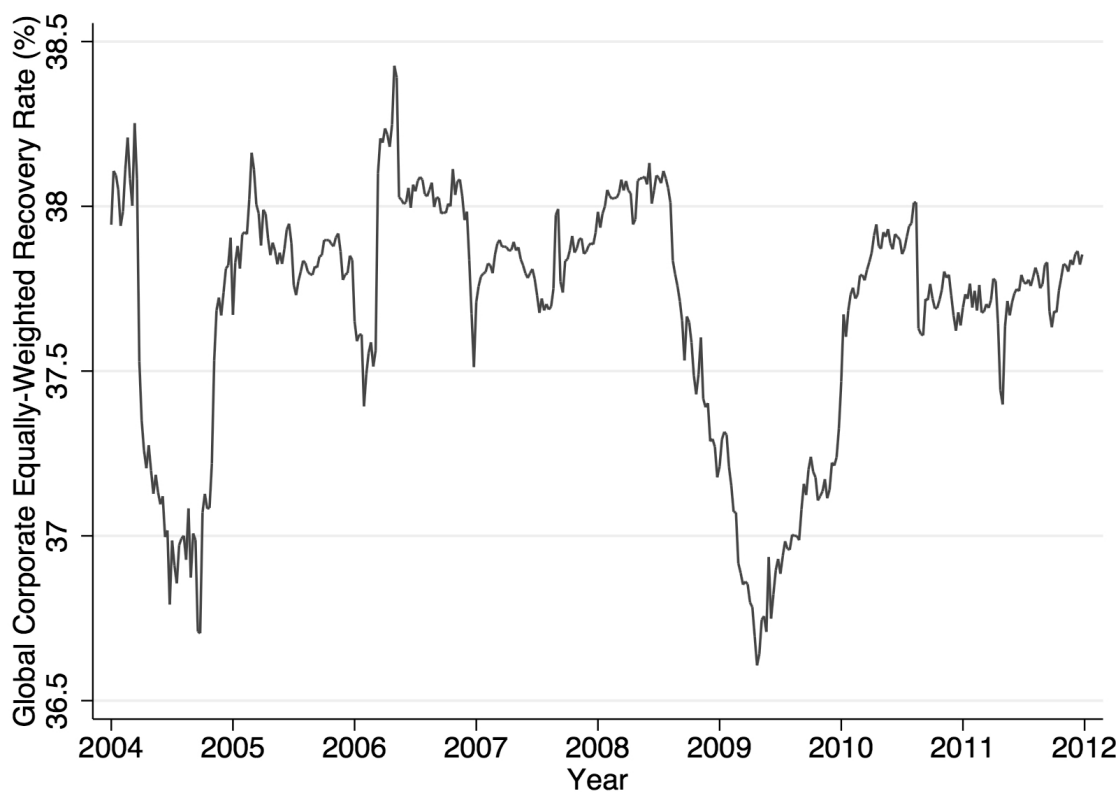
G.2. Summary Statistics – Markit Group’s CDS Recovery Rates

Numbers in parenthesis denote standard deviations.

Entire Sample										
Firm Recovery Rate, %	37.04 (5.204)									
Percentage that are 40%	22.67									
Percentage that are 35%	0.45									
Percentage that are 25%	0.23									
by Conventional Assumption	Japan	Emerg.	Other							
Firm Recovery Rate, %	36.65 (4.068)	37.07 (4.217)	37.04 (4.941)							
Percentage that are 40%	0.00	0.00	29.25							
Percentage that are 35%	2.55	0.00	0.00							
Percentage that are 25%	0.00	5.02	0.00							
Percentage of Sample	17.81	4.67	77.52							
by Year	2004	2005	2006	2007	2008	2009	2010	2011		
Firm Recovery Rate, %	36.65 (4.068)	37.07 (4.217)	37.04 (4.941)	37.14 (5.383)	37.34 (5.685)	36.37 (6.563)	37.41 (4.666)	37.17 (4.781)		
Percentage that are 40%	2.22	5.20	8.15	29.00	31.57	36.70	28.06	28.83		
Percentage of Sample	7.96	10.69	12.80	14.12	14.65	14.03	13.19	12.56		
by Spread Decile (S)	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Firm Recovery Rate, %	36.01 (5.553)	36.29 (4.475)	36.93 (4.422)	37.19 (4.348)	37.58 (3.947)	37.94 (3.757)	37.92 (4.037)	37.70 (4.947)	37.52 (5.694)	35.34 (8.453)
Percentage that are 40%	19.48	23.30	25.38	26.70	27.36	27.38	26.96	23.90	19.92	9.886
by Credit Rating	AAA	AA	A	BBB	BB	B	CCC	D		
Firm Recovery Rate, %	43.70 (15.01)	35.84 (4.750)	36.98 (4.144)	37.90 (3.817)	37.12 (4.788)	37.99 (6.998)	35.72 (8.738)	36.37 (15.38)		
Percentage that are 40%	47.17	17.25	23.66	28.06	17.82	15.53	11.67	4.348		
Percentage of Sample	0.45	7.69	26.41	39.69	15.44	7.62	2.51	0.19		
by Restructuring Clause	CR	MM	MR	XR						
Firm Recovery Rate, %	33.69 (5.474)	38.00 (4.112)	38.97 (4.097)	38.30 (4.995)						
Percentage that are 40%	7.727	35.29	26.88	32.69						
Percentage of Sample	31.81	20.06	39.07	9.04						
by CDS Depth Decile (D)	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
Firm Recovery Rate, %	36.37 (7.454)	35.72 (6.029)	35.65 (6.043)	36.13 (5.436)	36.82 (4.793)	37.30 (4.344)	37.32 (4.195)	37.75 (3.403)	38.35 (3.457)	38.62 (3.346)
Percentage that are 40%	35.44	20.44	24.24	25.92	21.88	17.08	14.56	15.24	21.59	26.18

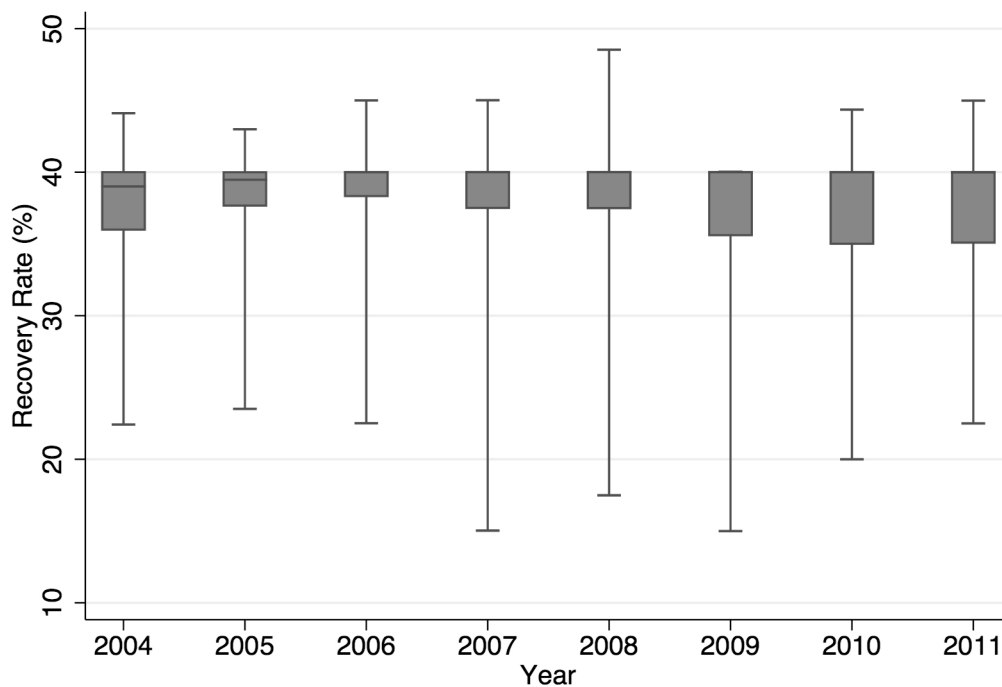
G.3. Global Corporate Equally Weighted Recovery Rates: Time Series

The figure below plots Markit's CDS recovery rates for the period 2004 to 2011. The weekly average of daily recovery rates of all firms in our sample are equally weighted to compute a weekly global CDS recovery rate composite. Recovery rates are provided by Markit Group.



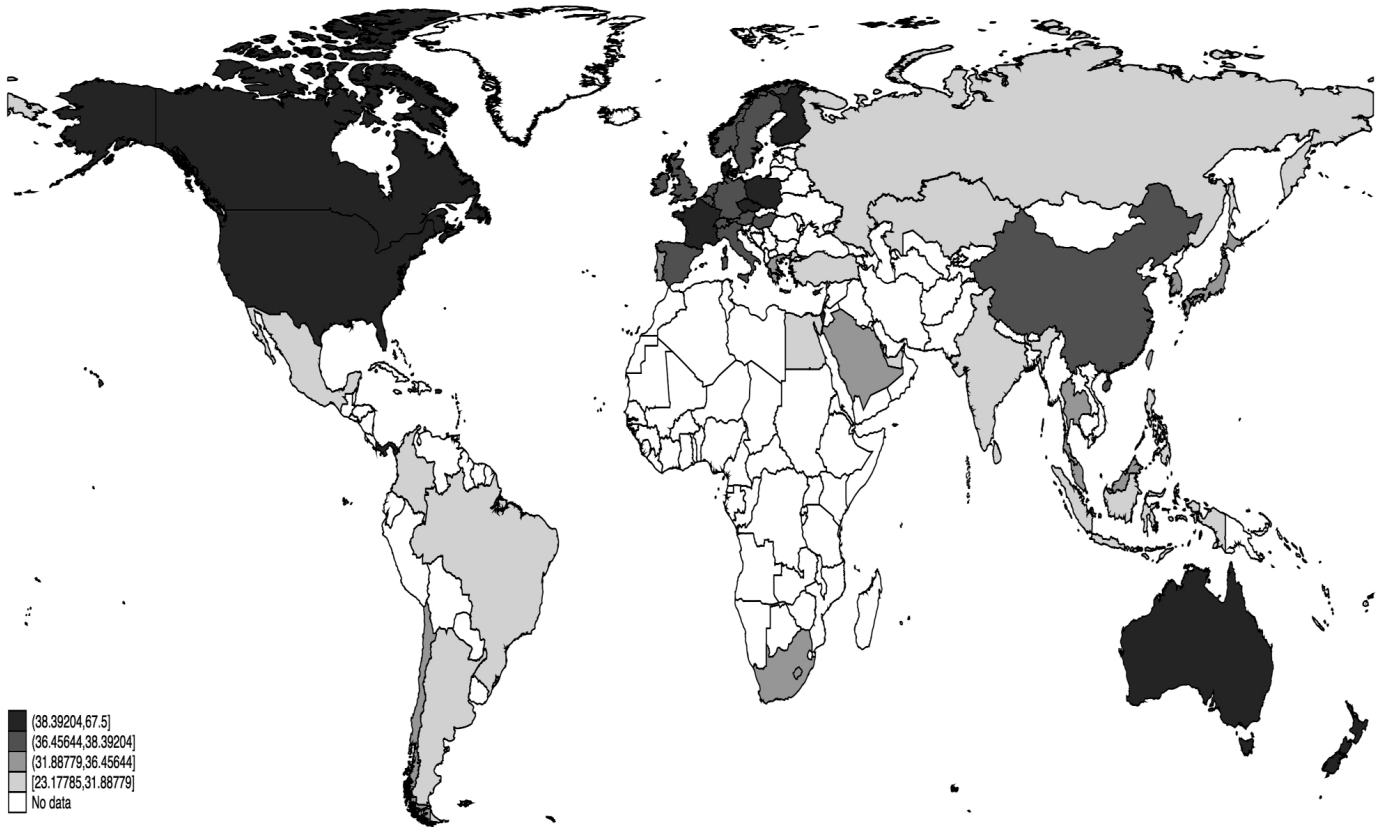
G.4. Global Corporate Equally Weighted Recovery Rates: Box Plots

The figure below provides box plots of the annual distribution of Markit's CDS recovery rates over the period 2004 to 2011 using annual average daily recovery rates for each firm in our sample. The top and bottom of the box are the 75th and 25th percentiles. The middle band is the 50th percentile (median). The top and bottom end of the whiskers are the 99th and 1st percentiles.



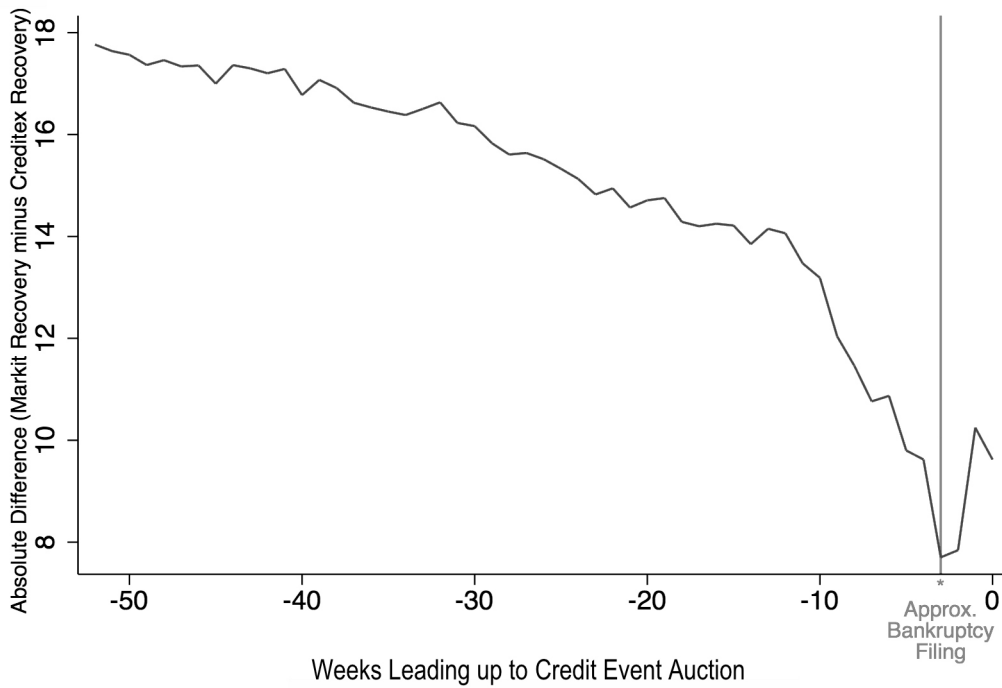
G.5. Depiction of Equally Weighted Recovery Rate Averages by Country

The figure below displays the cross-country distribution of Markit's CDS recovery rates over the period 2004 to 2011. Recovery rates are averaged across all firms in each country.



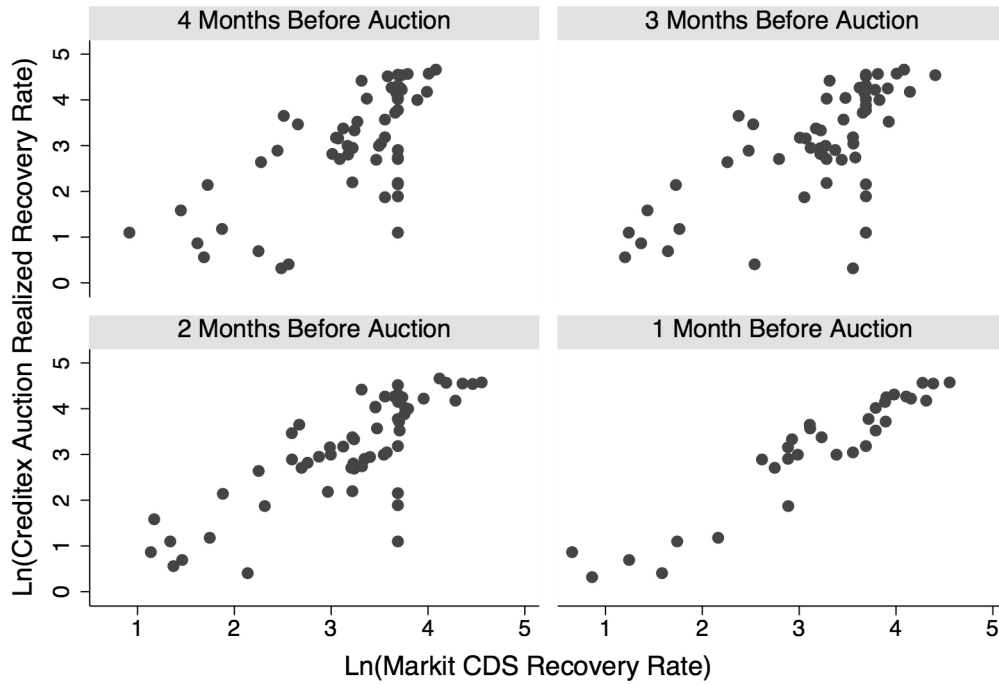
G.6. Markit CDS Recovery Rates and Realized Recovery at Credit Event Auction

The figure below displays the convergence of Markit's CDS recovery rates to the realized auction recovery rate in the weeks leading up to a credit event auction. Credit event data are from Creditex. Only reference entities that experience a credit event are included in the creation of this figure. The absolute difference between Markit's CDS recovery rates and the realized recovery rate reported by Creditex is computed each week for up to 52 weeks before the credit event auction takes place. Bankruptcy filing typically occurs at three to four weeks before the auction takes place.



G.7. Scatter plot: Markit Group's CDS Recovery Rates and Realized Recovery at Credit Event Auction

The figure below is a scatter plot of Markit's CDS recovery rates and the realized recovery at the credit event auction reported by Creditex. Snapshots at four months, three months, two months, and one month before the credit event auction takes place are shown. Bankruptcy filing typically occurs at three to four weeks before the auction. Credit event data are from Creditex.



G.8. Summary Statistics – Credit Event Auction Realized CDS Recovery Rate (As Reported by Creditex Group)

The table presents summary statistics of recovery auction results for firms that experience a CDS credit event (not LCDS event) over the period 2004 to 2011. Creditex reports the cash settlement price (on \$100 par) resulting from a credit event auction administered by Creditex and Markit. Each auction is conducted in accordance with the CDS settlement terms published by ISDA. For more information, see the Creditex website: www.creditfixings.com.

Mean	St. Dev.	Median	Min	Max	N
34.51	30.31	20.00	1.375	97.00	60

H. Additional Background on U.S. SEC Rule 12h-6

To permanently terminate U.S. disclosure obligations, foreign cross-listed companies whose stocks trade on major U.S. exchanges must deregister their stocks with the SEC. Stock delisting alone only suspends their SEC reporting obligations. On March 21, 2007, the SEC announced Rule 12h-6, which is the first significant deregulation of U.S. disclosure requirements since the passage of the 1933/1934 Securities and Exchange Act (Fernandes, Lel, and Miller (2010)). Rule 12h-6 took effect on June 4, 2007 and significantly reduces foreign corporations' costs of deregistering shares from the SEC. This new deregistration rule allows foreign firms to deregister their stock if their average U.S. trading volume is 5% or less of its worldwide trading volume over a 12-month period. Before the rule's passage, it was difficult for foreign firms to deregister from the SEC as the previous formula was based on the foreign firm's number of U.S. shareholders (i.e., U.S. record holders). In particular, under the previous SEC rule, foreign firms could deregister their shares if the shares were held by fewer than 300 U.S. record holders, or fewer than 500 U.S. record holders with less than \$10 million in assets. It was often difficult to meet this record holder minimum, however, as it was difficult for firms to find all of its U.S. shareholders and get them to sell their shares. The previous SEC rule led to the term "Hotel California," a reference to the popular 1976 song by *The Eagles*, because foreign firms could "never leave the U.S. once they cross-listed in the U.S." SEC Rule 12h-6 significantly reduces this cost by allowing foreign firms to deregister their shares from the SEC based on a nonrecord holder benchmark, namely, average U.S. daily trading volume. To deregister under the new trading volume rule, the foreign firm must meet the trading volume standard at the time of delisting from its U.S. exchange or wait a year after delisting to calculate the trading volume benchmark. Section 2 of Fernandes et al. (2010) provides further details on SEC Rule 12h-6.

I. Additional Background on Capital Controls in Thailand (2006, 2007, 2008) and Colombia (2007, 2008)

To introduce exogenous shocks that are orthogonal to firm quality but substantially shift the firm's asset distribution, we use capital control events in Thailand (2006, 2007, 2008) and Colombia (2007, 2008) as quasi-natural experiments. These capital controls were marginal controls on capital inflows in emerging market economies with largely or fully open capital accounts (Ostry, Ghosh, Chamon, and Qureshi (2011)).¹ These events have several desirable features that satisfy the exclusion restriction to be a valid instrument for our *Scaled Net Exposure: Property Rights (Creditor Rights)* variables. They are sharp, localized policy changes that occurred in relatively small emerging market economies.²

I.1. Thailand (2006, 2007, 2008)

Large capital inflows led to a significant appreciation of the Thai baht and ultimately prompted the introduction of capital controls in Thailand. After the market's close on December 18, 2006, the Bank of Thailand (BOT) announced that 30% of all capital inflows into Thailand would be held in non-interest bearing deposits at the central bank for one year. In response, the Stock Exchange of Thailand (SET) Index shed 15% of its value on December 19, 2006, resulting in the biggest one-day loss in its history. The aim of this capital control, based on an unremunerated reserve requirement (URR) of 30%, was to limit foreign speculation in the Thai baht. The Thai baht had risen more than 16% to a nine-year high against the U.S. dollar, making it one of the strongest performing currencies in the world up until mid-December 2006. The sharp appreciation of the currency was due to speculative activity, hitting fever pitch levels as foreign short-term inflows surged to \$950 million per week in December 2006, up more than three-fold from an average of \$300 million a week in November. This currency speculation was temporary, reflecting interest rate differentials between Thailand and advanced economies. At the same time, Thailand's strong trade surpluses also added to the appeal of the baht, alleviating potential concerns about a fundamentally deteriorating Thai economy around these events. Another useful feature of these events is that they likely did not affect other markets in the region. For instance, soon after the BOT imposed capital controls, central banks in Malaysia and the Philippines quickly stressed that they would continue to let the markets determine their currency values and not follow Thailand's policy. However, at least in the short-term, economic and political uncertainty prevailed in Thailand. The URR was adjusted several times until it was finally eliminated in early 2008, and it was complemented by other controls during the same period such as extensive liberalization of capital outflows to stem appreciation pressures. Thailand's liberalization of outflow controls contributed to an increase in outflows and a decrease in net flows and the URR also helped reduce net flows (Coelho and Gallagher (2010), Baba and Kokenyne (2011)).

¹Hence the events considered did not hurt the property rights scores of Thailand and Colombia.

²According to World Bank data, the GDP of Thailand in 2006 and Colombia in 2007 were only \$207.08 billion and \$207.52 billion, respectively. These are around 1.49% of the GDP in the U.S. in 2006 (\$13,855.90 billion).

I.2. Colombia (2007, 2008)

Colombia experienced positive economic performance following an economic crisis in 1999 (Baba and Kokenyne (2011)). On average, real GDP growth rose from -4% in 1999 to 7% in 2006 and 7.6% in 2007. Given surging capital inflows, the Colombian peso appreciated significantly in the second half of 2006. With its fiscal stance remaining neutral, Colombia's monetary tightening resulted in a significant interest rate hike, thus attracting even more capital inflows. In early 2007, non-FDI inflows increased sharply and the exchange rate continued to appreciate.³ After several failed attempts to limit the peso's appreciation through significant sterilized foreign exchange interventions, capital controls were introduced in the form of a 40% URR on foreign borrowing in May 2007. The URR was extended to nonresidents' portfolio investments a few weeks later in light of accelerating portfolio inflows. Withdrawal of funds before a six-month mandatory reserve period was subject to penalties of 1.6% to 9.4% of the reserve, depending on the length of time they were held. The controls were adjusted several times (except for the ceiling on the gross derivative position of banks) before they were ultimately eliminated over September to October 2008 with the onset of the global crisis and the drying-up of external liquidity. Colombia's URR significantly reduced the overall volume of inflows (Coelho and Gallagher (2010), Baba and Kokenyne (2011)).

³The Colombian peso rose 28% against the U.S. dollar between June 28, 2006 and May 04, 2007.

J. Additional Background on the Heritage Foundation Property Rights Score Changes in Selective Countries

In this section, we provide additional information on the four country events for our narrow country tests. These country events are exceptional, abrupt, and *ex ante* difficult to circumvent for firms whose assets are already located in these countries. Selected in consultation with the Heritage Foundation, these events are related to sovereign nationalizations, elimination of democratic processes, and military actions. We thank the Heritage Foundation, particularly Anthony B. Kim who is a Senior Policy Analyst at the Heritage Foundation, for providing additional detailed country insights for these tests.

J.1. Argentina (2009)

The property rights score of Argentina was reduced 10 points from 30 to 20 over the 2008 to 2009 period. With this change, the country's property rights protection rank slipped from 86th to 151st out of a total of 178 countries (source: <http://www.heritage.org/index/>).

Our consultation with the research unit at the Heritage Foundation confirms that a series of significant nationalization attempts by President Christina Fernandez de Kirchner induced the abrupt change in Argentina's property rights score. For example, a bill submitted by the President to Congress to nationalize the country's private pension system and transfer pension assets to the government's social security agency was approved by the Argentine parliament in late 2008. Upon announcement of this unanticipated change on October 22, 2008, Argentina's stock and bond markets plunged 10 to 11 percentage points, respectively (Reuters, "Argentina's pension takeover plan scares global markets" (August 22, 2008)). "Investors are extremely panicked. People start imagining things like Nestor and Christina can start expropriating as if it were a war," said Eduardo Blasco, economist with Maxinver business consulting firm (Reuters, "Argentina's pension takeover plan scares global markets" (August 22, 2008)). Shortly after this event, in December 2008, the Argentine parliament also passed legislation nationalizing the Spanish-owned airline Aerolineas Argentinas. Critics argued that "*[such] government intervention[s] in the private sector will squeeze credit and scare away investors in South America's second-largest economy*" (USATODAY, "Argentine Senate approves takeover of Aerolineas Argentinas" (December 17, 2008)). Following these events, the Heritage Foundation revised the strength of property rights protections in Argentina.

Anthony B. Kim, a Senior Policy Analyst at the Heritage Foundation, indicated that "the judicial system of the country had become more vulnerable to political influence since Christina Frenandez de Kirchner took over the presidency from her husband Nestor Kirchner." President Christina Fernandez and her husband, has been said to be "driven by personal interests of the first couple, through "[...] a classic Kirchner maneuver, to pin the foreign owner into a corner then say, 'You'd really like to sell this to us.' It expedites the transaction every time" (Aerolineas Argentinas faces possibility of state takeover, Reuters, July 11, 2008). Given the personal motivation behind the "Argentinization," these events are arguably *ex ante* difficult to circumvent.

The research team at the Heritage Foundation further pointed to the Argentine government manipulatively revising inflation data, leading the value of domestic bondholders' to decline (Washington Post, "Doctored Data Cast Doubt on Argentina" (August 16, 2009)).

J.2. Venezuela (2008)

The property rights score of Venezuela decreased dramatically from 30 to 10 over the 2007 to 2008 period. This decrease in property rights score is less than a 1% event in the left tail of the distribution of the annual score change (see Table IA.XVIII). The Heritage Foundation research team indicated that three events — two events relate to the nationalization of private sector entities and one relates to the elimination of democratic processes — led to this abrupt change in the country's property rights score:

- April 2008 - Government Takeover of the Cement Sector

Venezuelan President Hugo Chavez announced that the government takes over the cement sector, targeting Switzerland's Holcim Ltd, France's Lafarge SA, and Mexico's Cemex SAB de CV (Reuters, "Factbox: Venezuela's nationalizations under Chavez" (October 7, 2012)).

- September 2008 - Government Approval of the Nationalization of Household Fuel Distributors and Petrol Stations

"President Hugo Chavez said that wholesale gasoline sales by private companies in Venezuela will soon disappear after his congressional allies pass a bill nationalizing the business [...] Distributors, including subsidiaries of British Petroleum, Exxon Mobil and Chevron, had hoped to persuade the government not to seize total control of their businesses. But Chavez ruled out allowing private minority stakes, accusing operators on Wednesday of making money at the country's expense" (The New York Times, "Venezuela moves to nationalize fuel distribution" (August 28, 2008)).

- December 2008 - President Chavez Seeks to Scrap Term Limits

President Hugo Chavez explained in one speech that "Venezuelan people are urging him to remain in the presidency even after his term ends in 2013, [and he has said that] he will not disappoint" (Washington Post, "Venezuela's Chavez Again Seeks to Scrap Term Limits" (December 8, 2008)). Chavez wanted the matter settled by February, or March at the latest. "I do not want to spend all of 2009 in this debate," Chavez said. "We need to do this fast." Voters in a referendum approved plans to abolish limits on the number of terms in office for elected officials in February 2009.

J.3. Egypt (2007)

The property rights score of Egypt decreased 10 points from 50 to 40 over the 2006 to 2007 period. With this decrease, the country's property rights protection rank slipped from 50th to 72nd out of a total of 178 countries. The events driving the change in score over this period are mostly related to the elimination of

democratic processes and government interference in the judicial system, which undermine the independence of courts and weaken the protection of property rights.

Despite constitutional reforms that allowed for multiparty presidential elections in 2005, in 2006 the Egyptian government backtracked on promises of greater political openness. President Hosni Mubarak postponed municipal elections, fearing a large showing by the Muslim Brotherhood, and extended the 25-year-old Emergency Law despite earlier pledges that it would be replaced with specific antiterrorism legislation. The assertion of judicial independence during the 2005 elections was abandoned by the government in 2006. Judges' criticism of the government for its failure to prevent voter intimidation, refusal to certify election results, and calls for greater judicial independence all angered the authorities (Egypt, Freedom in the World 2007, Freedom House Report, 2007).

J.4. Guinea (2009)

The property rights score of Guinea decreased 10 points from 30 to 20 over the 2008 to 2009 period. With this change, the country's property rights protection rank slipped from 86th to 151st out of a total of 178 countries. According to the Heritage Foundation, two events – one related to the elimination of democratic processes and the other a deadly crackdown on protesters by the country's military ruler – led to this decrease in the country's property rights score:

- August 2009

Military leader Captain Moussa Dadis Camara said that presidential elections would be held on January 31, 2010 and elections for parliament in March. Despite a previous promise that he would not seek election, his supporters formed a movement urging him to stand (Africa Confidential, "Camara's Reality Television" (June 26, 2009)).

- September 2009

Soldiers opened fire on a mass opposition rally at a stadium in Conakry, which was called to urge military ruler Moussa Camara to step down. The Guinean Human Rights Organization said that 157 were killed in the violence and over 1,200 injured. The military government put the death toll at 57 and banned all "subversive" gatherings (Reuters, "ICC prosecutor to examine Guinea killings" (October 16, 2009)).

II. Supplemental Tables

Table IA.I
Determinants of Sovereign CDS Spreads

This table presents results on the determinants of sovereign credit default swap (CDS) spreads for the 54 countries in our sample over the period 2004 to 2011. The dependent variable is the natural logarithm of the annual mean sovereign CDS spread in basis points (bps). Regressions are at the country level using OLS with standard errors adjusted for clustering by country. Fixed effects (not shown) include year, CDS restructuring type, and CDS currency. Property rights protection, creditor rights protection, and disclosure requirements variables are standardized such that the mean is equal to zero and the standard deviation to one. For a more complete description of each variable, see Internet Appendix I.C. t-statistics are given in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	<i>Dependent Variable: Ln(Sovereign CDS Spread, bps)</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Country Fundamentals & Liquidity Effects</i>								
Ln(Region Sovereign CDS Spread)	0.372*** (9.35)	0.365*** (8.76)	0.349*** (8.63)	0.344*** (8.49)	0.427*** (9.41)	0.375*** (8.28)	0.378*** (8.08)	0.375*** (7.87)
Stock Market Volatility	1.336*** (3.66)	1.904*** (4.19)	1.591*** (3.59)	2.942*** (5.86)	1.877*** (4.54)	1.878*** (4.79)	2.982*** (5.29)	3.069*** (5.30)
Ln(GDP)	-0.367*** (-7.33)	-0.261*** (-5.59)	-0.229*** (-5.44)	-0.0977* (-1.87)	-0.464*** (-6.14)	-0.443*** (-5.58)	-0.375*** (-5.07)	-0.369*** (-4.81)
Government Debt-to-GDP	0.0117*** (6.32)	0.00988*** (5.53)	0.0109*** (6.54)	0.00901*** (5.69)	0.0111*** (4.90)	0.0131*** (5.77)	0.0103*** (4.50)	0.0115*** (5.08)
External Debt-to-GDP	0.0942*** (3.20)	0.0825*** (2.76)	0.0980*** (3.31)	0.137*** (4.57)	0.0530* (1.67)	0.0676** (2.24)	0.0675** (2.19)	0.0497 (1.61)
Sovereign CDS Depth	0.0826*** (5.21)	0.0767*** (4.77)	0.0875*** (5.87)	0.0658*** (4.12)	0.0992*** (5.49)	0.101*** (5.48)	0.115*** (5.77)	0.134*** (6.93)
<i>Institutional Variables: Property Rights</i>								
Property Rights	-0.654*** (-9.21)							
Rule of Law		-0.639*** (-8.77)						
Repudiation Risk			-0.701*** (-10.47)					
Expropriation Risk				-0.763*** (-11.03)				
<i>Institutional Variables: Creditor Rights</i>								
Creditor Rights					-0.154* (-1.78)			
Ln(Contract Enforcement Days)						0.370*** (3.98)		
<i>Informational Variables:</i>								
Disclosure Requirements: No. of Items Reported							-0.251*** (-2.96)	
Disclosure Requirements: Reporting Frequency								-0.0374 (-0.46)
<i>Fixed Effects</i>								
Estimation Technique	Year, CDS Restructuring Type, CDS Currency OLS with Standard Errors Clustered by Country							
Observations	350	321	321	267	326	320	252	252
Adjusted R ²	0.863	0.853	0.862	0.895	0.774	0.801	0.854	0.843

Table IA.II
Determinants of Corporate CDS Spreads:
Alternative *Scaled Net Exposure* and *Extra Disclosure* Variables

This table supplements Panel A of Table III in the main text. Alternative variables for property rights, creditor rights, and disclosure requirements are used in the baseline specification. As an alternative to *Scaled Net Exposure to Property Rights*, we consider *Rule of Law*, *Repudiation Risk*, and *Expropriation Risk*. As an alternative to *Scaled Net Exposure to Creditor Rights*, we consider *Ln(Contract Enforcement Days)*. As an alternative to *Extra Disclosure: No. of Items Reported*, we consider *Extra Disclosure: Reporting Frequency*. Regressions use OLS with standard errors clustered by firm. The time period is 2004-2011. t-statistics are provided in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

<i>Dependent Variable: Ln(Firm CDS Spread, bps)</i>					
	(1)	(2)	(3)	(4)	(5)
<i>Scaled Net Exposure: Property Rights Protection</i>					
Rule of Law	-0.0618*** (-2.58)				
Repudiation Risk		-0.0461** (-2.11)			
Expropriation Risk			-0.0416** (-2.26)		
<i>Scaled Net Exposure: Creditor Rights Protection</i>					
Ln(Contract Enforcement Days)				0.0503** (2.54)	
<i>Extra Disclosure:</i>					
Disclosure Req.: Reporting Frequency					-0.0787*** (-2.70)
Fixed Effects	Year, Industry, Country, CDS Restructuring Type, CDS Currency				
Firm Control Variables	Size, Leverage, Short-term Debt/Total Debt, Cash Flow/Total Assets, Excess Stock Return, Stock Return Volatility, EDF _{Merton} , CDS Depth				
Country Control Variables	Ln(Sovereign CDS Spread, bps), Ln(GDP per Capita), Government Debt-to-GDP, Stock Market Volatility				
Estimation Technique	OLS with Standard Errors Clustered at the Firm-Level				
Observations	8612	8494	8630	8152	9695
Adjusted R ²	0.609	0.608	0.609	0.609	0.609

Table IA.III
Baseline Results using Market Value-Based Firm Financial Ratios:
Campbell, Hilscher, and Szilagyi (2008)

This table presents results using the baseline specification with market value-based firm financial ratios. In place of *Leverage*, this table includes *Total Liabilities / Market Value of Assets*. In place of *Cash Flow / Total Assets*, this table includes *Cash Flow / Market Value of Assets* in columns 1 through 4 and *Net Income / Market Value of Assets* in columns 5 through 8. The *Market Value of Assets* is defined as the market value of equity plus total liabilities. Other fixed effects, firm-level controls, and country-level controls are as listed in the table. All regressions use OLS with standard errors clustered by firm. t-statistics are in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	Dependent Variable: Ln(Firm CDS Spread, bps)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total Liabilities / Market Value of Assets	0.204*** (3.09)	0.218*** (3.26)	0.216*** (3.41)	0.213*** (3.23)	0.203*** (3.08)	0.216*** (3.24)	0.215*** (3.40)	0.211*** (3.20)
Cash Flow / Market Value of Assets	-0.398*** (-2.97)	-0.391*** (-2.78)	-0.360*** (-2.61)	-0.376*** (-2.70)				
Net Income / Market Value of Assets					-0.0123 (-0.17)	0.0667 (0.84)	0.0285 (0.36)	0.0747 (0.94)
<i>Scaled Net Exposure & Extra Disclosure:</i>								
Property Rights	-0.0525*** (-4.24)			-0.0387*** (-3.13)	-0.0536*** (-4.35)			-0.0402*** (-3.27)
Creditor Rights		-0.0794*** (-2.92)		-0.0617** (-2.22)		-0.0788*** (-2.91)		-0.0613** (-2.21)
Disclosure Req.: No. of Items Reported			-0.105*** (-6.78)	-0.115*** (-7.52)			-0.105*** (-6.82)	-0.115 (-7.55)
Fixed Effects	Year, Industry, Country, CDS Restructuring Type, CDS Currency							
Firm Control Variables	Size, Short-term Debt/Total Debt, Excess Stock Return, Stock Return Volatility, EDF _{Merton} , CDS Depth							
Country Control Variables	Ln(Sovereign CDS Spread, bps), Ln(GDP per Capita), Government Debt-to-GDP, Stock Market Volatility							
Observations	9091	8609	9695	8394	9091	8609	9695	8394
Adjusted R ²	0.607	0.606	0.604	0.613	0.606	0.605	0.604	0.612

Table IA.IV
Determinants of Corporate CDS Spreads: Restructuring versus No Restructuring

This table supplements Panel A of Table III in the main text. The sample is separated by CDS with and without restructuring. CDS contracts with restructuring include “CR,” “MM,” and “MR” types; CDS without restructuring are the “XR” type. Each five-year corporate CDS contract is matched to its sovereign counterpart with equal contractual terms. Regressions use OLS with standard errors clustered by firm. The time period is 2004 to 2011. t-statistics are provided in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

		<i>Dependent Variable: Ln(Firm CDS Spread, bps)</i>							
		CDS with Restructuring				CDS without Restructuring			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Scaled Net Exposure & Extra Disclosure:</i>									
Property Rights		-0.0483*** (-3.80)			-0.0361*** (-2.85)	-0.0695** (-2.36)			-0.0573* (-1.89)
Creditor Rights			-0.0738*** (-2.72)		-0.0597** (-2.16)		-0.0862 (-1.16)		-0.00150 (-0.02)
Disclosure Req.: No. of Items Reported				-0.102*** (-6.51)	-0.111*** (-7.19)			-0.132*** (-3.76)	-0.124*** (-3.22)
<i>Sovereign CDS:</i>									
Ln(Sovereign CDS Spread, bps)		0.208*** (6.67)	0.211*** (6.68)	0.207*** (6.88)	0.209*** (6.38)	0.123 (0.37)	0.110 (0.34)	0.138 (0.41)	0.142 (0.43)
Fixed Effects	Year, Industry, Country, CDS Restructuring Type (for CDS with Restructuring), CDS Currency								
Firm Control Variables	Size, Leverage, Short-term Debt/Total Debt, Cash Flow/Total Assets, Excess Stock Return, Stock Return Volatility, EDF _{Merton} , CDS Depth								
Country Control Variables	Ln(Sovereign CDS Spread, bps), Ln(GDP per Capita), Government Debt-to-GDP, Stock Market Volatility								
Estimation Technique	OLS with Standard Errors Clustered by Firm								
Observations		8186	7740	8754	7533	905	869	941	861
Adjusted R ²		0.603	0.603	0.600	0.608	0.528	0.520	0.533	0.528

Table IA.V
Violations of the Sovereign Ceiling Rule
in the Credit Default Swap Market

This table provides evidence on the determinants of SCVs in the CDS market. Models 1 to 4 of Panel A estimate a probit regression model of *Firm Violator Dummy (Simple Method)*, which flags a firm as a violator in a given year if the firm's CDS spread fell below its sovereign spread in at least one day during the year. Model 5 of Panel A estimates a probit model of *Firm Violator Dummy (Mean Method)*, which flags a firm as a violator if the annual mean of a firm CDS spread is less than the annual mean of its sovereign CDS spread. Model 6 of Panel A estimates an ordered probit model of *Firm Violator Buckets*, which takes values of 0, 1, 2, and 3 and measures the severity of the SCV each year (0 indicates no violation, 1 indicates infrequent violation, 2 indicates medium frequent violation, and 3 indicates very frequent violation of the sovereign ceiling rule over the year). Panel B presents marginal effects for each key independent variable in probit models 1 to 4 of Panel A. All dependent variables are transaction-cost adjusted. This table focuses exclusively on the crisis period, 2008 to 2011, when SCVs are most frequent. CDS data are from Markit. t-statistics are given in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

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Panel A. Probit Model Results						
	<i>Dependent Variable: Firm Violator Dummy (Simple Method)</i>				Alternative Specifications	
					<i>Firm Violator Dummy (Mean Method)</i>	<i>Firm Violator Buckets (0,1,2,3)</i>
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Scaled Net Exposure & Extra Disclosure:</i>						
Property Rights	0.0707** (2.27)			0.0650** (2.05)	0.0709** (2.54)	0.0618** (2.33)
Creditor Rights		0.187*** (2.82)		0.134* (1.96)	0.208*** (3.37)	0.174*** (2.95)
Disclosure Req.: No. of Items Reported			0.0690** (2.01)	0.0866** (2.49)	0.0847** (2.52)	0.0754** (2.37)
Fixed Effects	Year, Industry, Country, CDS Restructuring Type, CDS Currency					
Firm Control Variables	Size, Leverage, Short-term Debt/Total Debt, Cash Flow/Total Assets, Excess Stock Return, Stock Return Volatility, EDF _{Merton} , CDS Depth					
Country Control Variables	Ln(Sovereign CDS Spread, bps), Ln(GDP per Capita), Government Debt-to-GDP, Stock Market Volatility					
Standard Errors	Clustered by Firm					
Estimation Technique	Probit	Probit	Probit	Probit	Probit	Ordered Probit
Observations	5154	4886	5554	4782	4867	4913
Pseudo R ²	0.361	0.370	0.359	0.374	0.314	0.246

Panel B. Marginal Effects

	<i>Dependent Variable: Firm Violator Dummy (Simple Method)</i>			
	(1)	(2)	(3)	(4)
<i>Scaled Net Exposure & Extra Disclosure:</i>				
<i>dy/d</i> (Property Rights)	0.0110** (2.29)			0.00990** (2.07)
<i>dy/d</i> (Creditor Rights)		0.0287*** (2.84)		0.0203* (1.97)
<i>dy/d</i> (Disclosure Req.: No. of Items Reported)			0.0109** (2.02)	0.0132** (2.51)

Table IA.VI
Violations of the Sovereign Ceiling Rule:
CDS Contracts Without Restructuring

Only contracts that are of the “XR” type (no restructuring) are included in this analysis. Because of singularity problems and because X.R. contracts are almost exclusively found in CDS contracts of North American reference entities, we exclude country dummies in the probit regression. t-statistics are given in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	Alternative Specifications					
	<i>Dependent Variable: Firm Violator Dummy (Simple Method)</i>				<i>Firm Violator Dummy (Mean Method)</i>	<i>Firm Violator Buckets (0,1,2,3)</i>
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Scaled Net Exposure & Extra Disclosure:</i>						
Property Rights	0.244*** (2.63)			0.232** (2.55)	0.217*** (2.76)	0.211*** (3.24)
Creditor Rights		0.256 (1.36)		-0.0475 (-0.24)	0.307* (1.86)	0.252* (1.83)
Extra Disclosure			0.310*** (3.59)	0.296*** (3.44)	0.233*** (2.64)	0.196** (2.52)
Fixed Effects	Year, Industry, CDS Currency					
Firm Control Variables	Size, Leverage, Short-term Debt/Total Debt, Cash Flow/Total Assets, Excess Stock Return, Volatility, CDS Depth, EDF _{Merton}					
Country Control Variables	Ln(Sovereign CDS Spread, bps), Ln(GDP per Capita), Government Debt-to-GDP, Stock Market Volatility					
Standard Errors	Clustered by Firm					
Estimation Technique	Probit	Probit	Probit	Probit	Probit	Ordered Probit
Observations	896	860	931	852	852	853
Pseudo R ²	0.392	0.375	0.414	0.407	0.270	0.220

Table IA.VII
Determinants of Corporate Credit Ratings:
Markit's Credit Rating Composite

This table supplements Table IV in the main text. The credit rating composite provided by Markit is used as the dependent variable. Markit's rating composite is the average of Moody's and S&P ratings rounded to the nearest letter (e.g., A+ is rounded to A). Regressions use OLS with standard errors clustered by firm. The time period is 2004 to 2011. t-statistics are provided in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

<i>Dependent Variable: Ln(Firm Markit Credit Rating Composite)</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Aggregate Foreign Exposure:</i>						
Foreign Assets / Total Assets	0.471*** (5.16)					
Foreign Sales / Total Sales		0.362*** (3.90)				
<i>Scaled Net Exposure & Extra Disclosure:</i>						
Property Rights			-0.0233 (-1.19)			-0.0326 (-1.25)
Creditor Rights				0.0341 (1.51)		0.0118 (0.40)
Disclosure Req.: No. of Items Reported					0.0789*** (2.74)	0.0728*** (2.40)
Fixed Effects			Year, Industry, Country			
Firm Control Variables			Size, Leverage, Short-term Debt/Total Debt, Cash Flow/Total Assets, Excess Stock Return, Stock Return Volatility, EDF _{Merton}			
Country Control Variables			Ln(Sovereign Markit Credit Rating Composite), Ln(GDP per Capita), Government Debt-to-GDP, Stock Market Volatility			
Estimation Technique			OLS with Standard Errors Clustered at the Firm-Level			
Observations	8223	8205	7675	7251	8146	7097
Adjusted R ²	0.392	0.389	0.395	0.405	0.422	0.425

Table IA.VIII
Determinants of Corporate Credit Ratings:
Ln(Firm S&P Credit Rating)

This table supplements Table IV in the main text. The natural logarithm of the firm's S&P credit rating is used as the dependent variable (21="AAA", 20="AA+", etc.). Regressions use OLS with standard errors clustered by firm. The time period is 2004 to 2011. t-statistics are provided in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

<i>Dependent Variable: Ln(Firm S&P Credit Rating)</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Aggregate Foreign Exposure:</i>						
Foreign Assets / Total Assets	0.0753*** (4.13)					
Foreign Sales / Total Sales		0.108*** (5.54)				
<i>Scaled Net Exposure & Extra Disclosure:</i>						
Property Rights			0.00667 (1.64)			0.00636 (1.52)
Creditor Rights				0.0115 (0.78)		-0.00186 (-0.12)
Disclosure Req.: No. of Items Reported					0.0238*** (4.02)	0.0218*** (3.53)
Fixed Effects			Year, Industry, Country			
Firm Control Variables			Size, Leverage, Short-term Debt/Total Debt, Cash Flow/Total Assets, Excess Stock Return, Stock Return Volatility, EDF _{Merton}			
Country Control Variables			Ln(Sovereign S&P Credit Rating), Ln(GDP per Capita), Government Debt-to-GDP, Stock Market Volatility			
Estimation Technique			OLS with Standard Errors Clustered at the Firm-Level			
Observations	7988	7970	7459	7040	7932	6902
Adjusted R ²	0.420	0.426	0.424	0.413	0.432	0.428

Table IA.IX
Determinants of Corporate CDS Recovery Rates:
Excluding the Conventional 40% Recovery Rate

This table supplements Table V in the main text. The specification is exactly the same as in Table V. Observations in which the recovery rate is equal to the conventional assumption of 40% are dropped. The time period is 2004 to 2011. t-statistics are provided in parentheses. *, **, and *** indicates statistical significance at the 10%, 5%, and 1% level, respectively.

<i>Dependent Variable: Ln(Firm CDS Recovery Rate, %)</i>				
	(1)	(2)	(3)	(4)
<i>Scaled Net Exposure & Extra Disclosure:</i>				
Property Rights	0.0192* (1.77)			0.0246** (2.25)
Creditor Rights		0.0133*** (2.94)		0.0176*** (3.40)
Disclosure Req.: No. of Items Reported			0.00181 (0.73)	0.00307 (1.11)
Fixed Effects	Year, Industry, Country, CDS Restructuring Type, CDS Currency			
Firm Control Variables	Size, Leverage, Profit Margin, Asset Tangibility			
Industry Control Variables	Industry Asset Specificity, Industry Q, Industry Distress Dummy			
Country Control Variables	Ln(Sovereign CDS Recovery Rate), Ln(GDP per Capita), Government Debt-to-GDP, Stock Market Volatility			
Estimation Technique	OLS with Standard Errors Clustered by Firm			
Observations	7624	7014	7912	6906
Adjusted R ²	0.394	0.401	0.382	0.406

Table IA.X
Determinants of Corporate CDS Recovery Rates: Excluding
35% Recovery in Japan, 25% in Emerging Markets, and 40% Elsewhere

This table supplements Table V in the main text. The specification is exactly the same as in Table V. Observations are dropped in which the recovery rate is equal to the conventional assumption of 35% in Japan, 25% in emerging markets, and 40% elsewhere. Regressions use OLS with standard errors clustered by firm. The time period is 2004 to 2011. t-statistics are provided in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

<i>Dependent Variable: Ln(Firm CDS Recovery Rate, %)</i>				
	(1)	(2)	(3)	(4)
<i>Scaled Net Exposure & Extra Disclosure:</i>				
Property Rights	0.0193* (1.77)			0.0247** (2.25)
Creditor Rights		0.0137*** (3.01)		0.0180*** (3.46)
Disclosure Req.: No. of Items Reported			0.00130 (0.51)	0.00240 (0.86)
Fixed Effects	Year, Industry, Country, CDS Restructuring Type, CDS Currency			
Firm Control Variables	Size, Leverage, Profit Margin, Asset Tangibility			
Industry Control Variables	Industry Asset Specificity, Industry Q, Industry Distress Dummy			
Country Control Variables	Ln(Sovereign CDS Recovery Rate), Ln(GDP per Capita), Government Debt-to-GDP, Stock Market Volatility			
Estimation Technique	OLS with Standard Errors Clustered by Firm			
Observations	7533	6923	7821	6815
Adjusted R ²	0.390	0.398	0.381	0.404

Table IA.XI
Determinants of Changes in Corporate CDS Spreads

This table supplements Table VI in the main text. The baseline OLS regression is converted into a “change-on-change” specification. The dependent variable is the change in $\ln(\text{Firm CDS Spread, bps})$. The independent variables include the change in the *Scaled Net Exposure* and *Extra Disclosure* variables, the change in firm- and country-level control variables, and various fixed effects. The time period is 2004 to 2011. Standard errors are clustered at the firm level. t-statistics are provided in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

<i>Dependent Variable: $\Delta \ln(\text{Firm CDS Spread, bps})$</i>				
	(1)	(2)	(3)	(4)
<i>Δ Scaled Net Exposure & Extra Disclosure:</i>				
Property Rights	-0.0184** (-2.03)			-0.0214* (-1.93)
Creditor Rights		-0.0118 (-0.22)		-0.0243 (-0.30)
Disclosure Req.: No. of Items Reported			-0.0486*** (-3.70)	-0.0501*** (-3.68)
Fixed Effects	Year, Industry, Country, CDS Restructuring Type, CDS Currency			
Δ Firm Control Variables	Size, Leverage, Short-term Debt/Total Debt, Cash Flow/Total Assets,			
Δ Country Control Variables	Excess Stock Return, Stock Return Volatility, EDF _{Merton} , CDS Depth			
	Ln(Sovereign CDS Spread, bps), Ln(GDP per Capita),			
	Government Debt-to-GDP, Stock Market Volatility			
Observations	5758	6622	5174	5095
Adjusted R ²	0.642	0.641	0.649	0.648

Table IA.XII
Characteristics of MNCs versus Purely Domestic Entities:
Scaled Net Property Rights Exposure

This table presents summary statistics for various (country-year adjusted) firm characteristics such as *Size*, *Leverage*, *Cash Flow/Total Assets*, and *Excess Stock Return* across different types of firms – purely domestic entities (Domestic), MNCs with positive scaled net property rights exposure (Positive), and MNCs with negative scaled net property rights exposure (Negative). Differences in average firm characteristics across these three types of firms are also reported in the table. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Firm Characteristics: Country-year Adjusted						
	Domestic	Positive	Negative	Pos–Dom	Neg–Dom	Pos–Neg
Size	-0.057	0.478	0.251	0.535***	0.308***	0.227***
Leverage	0.013	-0.012	-0.009	-0.025***	-0.022***	-0.003
Cash Flow / Total Assets	-0.004	0.003	0.005	0.007***	0.009***	-0.002
Excess Stock Return	-0.003	0.014	-0.002	0.017	0.001	0.016
	N=5464	N=1994	N=4782			

Table IA.XIII
Global Delisting Effects

This table presents evidence on delisting effects on firm CDS spreads. The dependent variable is $\ln(\text{Firm CDS Spread, bps})$. The dummy variable *Delisted from Any Exchange* equals one if the firm delisted from a stock exchange during the year. The *Delisted from High Disclosure Exchange* dummy variable equals one when the firm delisted from a relatively strict disclosure exchange, thereby reducing the firm's maximum disclosure requirement. Fixed effects include year, industry, country, CDS restructuring type, and CDS currency. Firm control variables include *Size*, *Leverage*, *Short-term Debt/Total Debt*, *Cash Flow/Total Assets*, *Excess Stock Return*, *Stock Return Volatility*, EDF_{Merton} , and *CDS Depth*. Country control variables include $\ln(\text{Sovereign CDS Spread, bps})$, $\ln(\text{GDP per Capita})$, *Government Debt-to-GDP*, and *Stock Market Volatility*. All regressions use OLS with standard errors clustered by firm. t-statistics are in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

<i>Dependent Variable: $\ln(\text{Firm CDS Spread, bps})$</i>	
	(1)
Delisted from Any Exchange	0.0419* (1.81)
Delisted from High Disclosure Exchange	0.217** (2.03)
Fixed Effects	YES
Firm Control Variables	YES
Country Control Variables	YES
Observations	8806
Adjusted R ²	0.625

Table IA.XIV
Firm Characteristics with Delisting Events

This table presents summary statistics for various (country-year adjusted) firm characteristics such as *Size*, *Leverage*, *Cash Flow/Total Assets*, and *Excess Stock Return* across (1) a subsample of firm-years that did not undergo a delisting event (Did not delist) versus a delisting subsample (Delisted), (2) among delisted firm-years, firm-years with delisting events from a low disclosure exchange (Not relaxing) versus those delisted from a high disclosure exchange (Relaxing), and finally (3) pre-delisting event firm-years (Pre) versus post-delisting firm-years (Post). Differences in average firm characteristics across these various subsamples are also reported in the table. When we report the differences in average firm characteristics before ($t = -1$) and after ($t = 0$) delisting events, we require the delisted firms to exist in the two consecutive years, $t = -1, 0$, where the delisting event occurs during $t = 0$. *, **, and *** indicates statistical significance at the 10%, 5%, and 1% level, respectively.

Did not delist versus Delisted: Country-year Adjusted Characteristics			
	Did not delist	Delisted	Difference
Size	0.095	0.620	0.525***
Leverage	0.000	0.002	0.002
Cash Flow / Total Assets	0.001	0.006	0.005**
Excess Stock Return	-0.003	0.017	0.020
	N=11998	N=1150	
Delisted Events, Not relaxing versus Relaxing: Country-year Adjusted Characteristics			
	Not relaxing	Relaxing	Difference
Size	0.571	1.850	1.279***
Leverage	0.004	-0.041	-0.045*
Cash Flow / Total Assets	0.005	0.018	0.013
Excess Stock Return	0.014	0.085	0.071
	N=1007	N=143	
Pre- versus Post-delisted Events (where delisting occurs in year $t = 0$): Country-year Adjusted Characteristics			
	Pre($t = -1$)	Post($t = 0$)	Difference
Size	0.569	0.620	0.051
Leverage	0.003	0.002	-0.001
Cash Flow / Total Assets	0.004	0.006	0.002
Excess Stock Return	0.040	0.017	-0.023
	N=884	N=884	

Table IA.XV
Exposure to Capital Controls in Thailand (2006-2008) and Colombia (2007-2008)
as Instruments for Scaled Net Exposure

This table presents 2SLS IV regression results using capital controls in Thailand (2006 to 2008) and Colombia (2007 to 2008) as instruments for *Scaled Net Exposure* to foreign property and creditor rights in explaining $\ln(\text{CDS Spread, bps})$. In columns 1 and 3, the *Capital Controls Dummy* equals one in the years in which multinational firms were exposed to capital controls in Thailand and Colombia, respectively. In columns 2 and 4, the *Capital Controls Dummy* equals one in the years *before* capital controls in Thailand and Colombia, respectively. Fixed effects, firm-level controls, and country-level controls are as listed in the table. t-statistics are in parentheses. *, **, and *** indicates statistical significance at the 10%, 5%, and 1% level, respectively.

	Capital Controls in Thailand (2006–2008) and Colombia (2007–2008)			
	Property Rights		Creditor Rights	
	EVENT	PRE-EVENT	EVENT	PRE-EVENT
Stage 1: Scaled Net Exposure	(1)	(2)	(3)	(4)
Capital Controls Dummy	-0.181*** (-5.79)	-0.0722 (-1.50)	0.377*** (3.08)	-0.277 (-1.09)
Adjusted R ²	0.1762	0.1504	0.2941	0.2971
F-Statistic	12.9	2.3	3.7	1.3
[P-Value]	[0.0003]	[0.1302]	[0.0539]	[0.2546]
Stage 2: $\ln(\text{Firm CDS Spread, bps})$	(1)	(2)	(3)	(4)
<i>Scaled Net Exposure:</i> Property Rights (Instrumented)	-1.490* (-1.95)	-0.484 (-0.24)		
<i>Scaled Net Exposure:</i> Creditor Rights (Instrumented)			-1.138* (-1.80)	-3.085 (-0.76)
Adjusted R ²	0.5982	0.5912	0.5993	0.5912
Fixed Effects	Year, Industry, Country, CDS Restructuring Type, CDS Currency			
Firm Control Variables	Size, Leverage, Short-term Debt/Total Debt, Cash Flow/Total Assets, Excess Stock Return, Stock Return Volatility, EDF _{Merton} , CDS Depth			
Country Control Variables	Ln(Sovereign CDS Spread, bps), Ln(GDP per Capita), Government Debt-to-GDP, Stock Market Volatility			
Estimation Technique	Two Stage Least Squares			
Firm-Year Shocks	127	37	127	37
Observations	9091	9091	8609	8609

Table IA.XVI
Segment Asset Reallocations during Capital Controls in
Thailand (2006-2008) and Colombia (2007-2008)

This table presents evidence on the impact of capital controls on the assets of individual country segments of multinational corporations. The dependent variable is *Segment Fraction*, which is defined as segment assets over total assets. *Treated Segment* refers to Thailand or Colombia, and *Other Foreign Segments* refers to all other segments of the treated MNC that are not Thailand, Colombia, or the firm's home country. Capital control years are 2006, 2007, and 2008 for firms with exposure to Thailand and 2007 and 2008 for firms with exposure to Colombia. *Weaker Property Rights Dummy* is equal to one when the property rights value of the given segment is less than that of *Treated Segment*. *Stronger Creditor Rights Dummy* is equal to one when the creditor rights value of the given segment is greater than that of *Treated Segment*. All regressions include firm-level controls and region-year fixed effects. Firm-level controls include *Size*, *Leverage*, *Short-term Debt/Total Debt*, *Cash Flow/Total Assets*, *Excess Stock Return*, *Stock Return Volatility*, EDF_{Merton} , and *CDS Depth*. All regressions use OLS with standard errors clustered by country. t-statistics are in parentheses. *, **, and *** indicates statistical significance at the 10%, 5%, and 1% level, respectively.

	Segment Fraction = Segment Assets/Total Assets			
	(1)	(2)	(3)	(4)
Treated Segment (All Years)		-0.0143 (-0.19)		-0.0149 (-0.36)
Treated Segment (Capital Control Years)	-0.355*** (-5.25)	-0.369** (-2.04)	-0.120* (-1.85)	-0.134* (-1.94)
Other Foreign Segments (All Years)		0.0432 (0.38)		0.165 (1.29)
Other Foreign Segments (Capital Control Years)	-0.0534 (-0.76)	-0.0570 (-0.38)	0.129 (1.55)	0.198 (1.62)
Other Foreign Segments (Capital Control Years) × Weaker Property Rights Dummy	0.267*** (3.46)	0.164* (1.78)		
Weaker Property Rights Dummy	0.258* (1.81)	0.201 (1.23)		
Other Foreign Segments (Capital Control Years) × Stronger Creditor Rights Dummy			0.351* (1.83)	0.308* (1.71)
Stronger Creditor Rights Dummy			0.316 (1.59)	0.283 (1.48)
Firm-level Controls	YES	YES	YES	YES
Region-Year Fixed Effects	YES	YES	YES	YES
Observations	39478	39478	37702	37702
Adjusted R ²	0.195	0.195	0.193	0.193

Table IA.XVII
Capital Controls in Thailand and Colombia:
More Narrowly-defined Treatment MNC-years

This table supplements Table IA.XV of the Internet Appendix and presents 2SLS estimation results using instrumental variables for *Scaled Net Exposure* to foreign property and creditor rights. Both columns show results using capital controls in Thailand (2006 to 2008) and Colombia (2007 to 2008) as an instrument for *Scaled Net Exposure* in explaining $\ln(\text{CDS Spread, bps})$. In this table, *Capital Controls Dummy* is defined using the same methodology as in Table IA.XV of the Internet Appendix, but the dummy equals one for only MNC-years in which the dollar amount of firm assets in other geographic segments (except Thailand and Colombia) remain constant, and therefore the treated MNCs' asset weights in other foreign segments mechanically increase as their asset weights in the treated segments decrease. t-statistics are in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Stage 1: <i>Scaled Net Exposure</i>	Property Rights (1)	Creditor Rights (2)
Capital Controls Dummy	-0.130*** (-3.33)	0.457*** (3.76)
Adjusted R ²	0.1985	0.3212
F-Statistic	5.2	5.7
[P-Value]	[0.0221]	[0.0168]
Stage 2: $\ln(\text{CDS Spread, bps})$	(1)	(2)
<i>Scaled Net Exposure:</i>		
Property Rights (Instrumented)	-2.752** (-2.16)	
Creditor Rights (Instrumented)		-0.927** (-2.02)
Adjusted R ²	0.5930	0.5928
Fixed Effects	Year, Industry, Country, CDS Restructuring Type, CDS Currency	
Firm Control Variables	Size, Leverage, Short-term Debt/Total Debt, Cash Flow/Total Assets, Excess Stock Return, Stock Return Volatility, EDF _{Merton} , CDS Depth	
Country Control Variables	Ln(Sovereign CDS Spread, bps), Ln(GDP per Capita), Government Debt-to-GDP, Stock Market Volatility	
Estimation Technique	Two Stage Least Squares	
Firm-Year Shocks	74	74
Observations	9091	8609

Table IA.XVIII
Summary Statistics on Changes in Property Rights

This table supplements our discussion on additional test results on selection and reverse causality in Internet Appendix V.B. Below are summary statistics on changes in property rights values over the period 2004 to 2011 for all countries in the Heritage Foundation database. The index ranges from 0 to 100 and changes generally occur in increments of 5. As conditions deteriorate and certain events lead to more uncertainty in property rights protection, the Heritage Foundation reduces a country's property rights value.

Mean	St. Dev.	Median	Min	Max	N
-0.448	3.53	0	-40	20	1139
Change	Freq.	%	Cum. %		
-40	1	0.09	0.09		
-20	10	0.88	0.97		
-10	36	3.16	4.13		
-5	66	5.79	9.92		
0	964	84.64	94.56		
5	45	3.95	98.51		
10	14	1.23	99.74		
15	1	0.09	99.82		
20	2	0.18	100.00		

Table IA.XIX

Exposure to Large Property Rights Shocks as Instrument for *Scaled Net Exposure*

This table presents 2SLS estimation results using a dummy variable indicating whether a firm has exposure to foreign countries that experience large negative shocks in property rights as an instrument for the firm's *Scaled Net Exposure* to foreign property rights. The dependent variable in Stage 1 is the firm's *Scaled Net Exposure: Property Rights*, and the dependent variable in Stage 2 is the natural logarithm of the firm's mean annual CDS spread in bps. We report results from five models. The model ALL NEGATIVE includes exposure to all negative changes in property rights (with a decrease of at least 10 out of 100) as the instrument for *Scaled Net Exposure*. For this model, we further report results using one- and two-year lagged asset allocations prior to each negative property rights shock. The model DISTANCE includes the subset of ALL NEGATIVE shocks in countries that are more than 4,000 miles away from the firm. The model CULTURE includes the subset of ALL NEGATIVE shocks in countries that are culturally distinct from the firm's home country, where culturally distinct is defined as being more than one standard deviation away in both the Traditional/Secular value and the Survival/Self-expression value of the World Values Survey. Starting with ALL NEGATIVE shocks, the model LANGUAGE excludes shocks that occur in countries with the same primary language as the firm's home country and also excludes all shocks in countries with English, French, German, or Spanish primary languages. The model COUNTRY EVENTS includes only the subset of ALL NEGATIVE shocks for a select group of countries that experience unanticipated nationalizations or the elimination of democratic processes. Fixed effects, firm-level control variables, and country-level control variables are as listed in the table. The time period is 2004 to 2011. t-statistics are provided in parentheses. *, **, and *** indicates statistical significance at the 10%, 5%, and 1% level, respectively.

Model	Description						
ALL NEGATIVE	All large negative property rights shocks (≤ -10 out of 100).						
DISTANCE	Subset of ALL NEGATIVE that are geographically distant (Threshold: 4000 miles away).						
CULTURE	Subset of ALL NEGATIVE that are culturally different (Threshold: one standard deviation of World Values Survey cultural measure).						
LANGUAGE	Subset of ALL NEGATIVE that are in a different language (excluding English, French, German, and Spanish shocks altogether).						
COUNTRY EVENTS	Subset of ALL NEGATIVE for countries that experience unanticipated nationalizations or the elimination of democratic processes. (In consultation with the Heritage Foundation, these countries are Argentina in 2009, Egypt in 2007, Guinea in 2009, and Venezuela in 2008.)						
Lagged Asset Allocation							
	Baseline	One Year Prior	Two Years Prior	Additional Robustness Checks			
	ALL NEGATIVE	ALL NEGATIVE	ALL NEGATIVE	DISTANCE	CULTURE	LANGUAGE	COUNTRY EVENTS
Stage 1: <i>Scaled Net Exposure: Property Rights</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Foreign Property Rights Shock:</i>							
Negative Exposure Dummy	-0.131*** (-7.61)	-0.178*** (-6.09)	-0.161*** (-5.46)	-0.184*** (-4.29)	-0.134*** (-5.23)	-0.174*** (-8.43)	-0.0763** (-1.99)
Adjusted R ²	0.195	0.177	0.146	0.190	0.188	0.192	0.187
F-Statistic	57.9	37.1	29.8	18.4	27.35	71.1	4.0
[P-Value]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0470]
Stage 2: <i>Ln(Firm CDS Spread, bps)</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Scaled Net Exposure:</i>							
Property Rights (Instrumented)	-1.006** (-2.22)	-1.010* (-1.85)	-0.833* (-1.82)	-0.987* (-1.86)	-1.435*** (-2.87)	-0.817** (-2.32)	-1.052** (-2.18)
Adjusted R ²	0.610	0.585	0.599	0.604	0.603	0.605	0.601
Fixed Effects	Year, Industry, Country, CDS Restructuring Type, CDS Currency						
Firm Control Variables	Size, Leverage, Short-term Debt/Total Debt, Cash Flow/Total Assets, Excess Stock Return, Stock Return Volatility, EDF _{Merton} , CDS Depth						
Country Control Variables	Ln(Sovereign CDS Spread, bps), Ln(GDP per Capita), Government Debt-to-GDP, Stock Market Volatility						
Estimation Technique	Two Stage Least Squares						
Firm-Year Shocks	426	323	277	223	140	270	63
Observations	9091	7901	6194	9091	9091	9091	9091

Table IA.XX
Exposure to Large Property Rights Shocks as Instrument for *Scaled Net Exposure*:
Alternative Specifications

This table supplements Table IA.XIX of the Internet Appendix. DISTANCE2 includes negative shocks that are at least 5,000 miles away from the firm's home country. CULTURE2 includes negative shocks that are at least two standard deviations away from the firm's home country according to the World Values Survey. The time period is 2004 to 2011. t-statistics are provided in parentheses. *, **, and *** indicates statistical significance at the 10%, 5%, and 1% level, respectively.

Model	Description	
and negative shocks (≤ -10 out of 100).		
DISTANCE2	Subset of ALL NEGATIVE that are geographically distant (Threshold: 5000 Miles).	
CULTURE2	Subset of ALL NEGATIVE that are culturally different (Threshold: 2 standard deviations of World Values Survey cultural measure).	
	DISTANCE2	CULTURE2
Stage 1: Net Scaled Exposure: Property Rights	(1)	(2)
<i>Foreign Property Rights Shock:</i>		
Negative Shock = 1	-0.195*** (-4.33)	-0.150*** (-4.41)
Adjusted R ²	0.190	0.190
F-Statistic [P-Score]	18.8 [0.0000]	19.4 [0.0000]
Stage 2: Ln(Firm CDS Spread, bps)	(1)	(2)
<i>Scaled Net Exposure:</i>		
Property Rights (Instrumented)	-0.696* (-1.66)	-1.749*** (-3.10)
Adjusted R ²	0.604	0.602
Fixed Effects	Year, Industry, Country, CDS Restructuring Type, CDS Currency	
Firm Control Variables	Size, Leverage, Short-term Debt/Total Debt, Cash Flow/Total Assets, Excess Stock Return, Stock Return Volatility, EDF _{Merton} , CDS Depth	
Country Control Variables	Ln(Sovereign CDS Spread, bps), Ln(GDP per Capita), Government Debt-to-GDP, Stock Market Volatility	
Estimation Technique	Two Stage Least Squares	
Firm-Year Shocks	165	77
Observations	9091	9091

Table IA.XXI
Matching Results:

CDS Spreads of Firms with Exposure to Negative Property Rights Shocks

This table supplements the results in Table IA.XIX of the Internet Appendix. Two panels are presented. Both panels employ nearest-neighbor Mahalanobis distance (column 1) and propensity score (column 2) matching techniques. These matchings are done with replacement. Panel A matches each treated firm to one control firm, while Panel B matches each treated firm to three control firms. The sample of treated firms comprises those that have foreign exposure to countries that experience a large negative property rights shock. The matching estimation tests whether the treated firms undergo a statistically different change in CDS spread than a sample of comparable firms. Before matching, we divide the sample into groups based on industry, size, and year and restrict the sample so that there is at least one treated firm and five untreated firms in each group. We report the balancing test results for the variables we use in our matching procedures one year prior to the treatment year. Additional balancing tests are further conducted for the other variables (*CDS Spread* and $\ln(CDS)$) to ensure that our treatments are as good as randomized, although these variables are not used in the matching procedures. The average treatment effect on the treated (ATET) is reported at the top of each panel. Falsification tests are reported in which the “event year” is moved to two years prior, one year prior, and one year after the actual event year. For matching on Mahalanobis distance, we report the Abadie and Imbens (2006, 2011) bias-corrected matching estimator. Robust z-scores are reported in brackets. t-statistics are reported in parentheses. *, **, and *** indicates statistical significance at the 10%, 5%, and 1% level, respectively.

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Panel A. 1:1 Match					
Matching Results	Nearest Neighbor (1 Match)			Propensity Score (1 Match)	
	(1)			(2)	
ATET _t (Δ CDS Spread, bps)	16.578***			9.891**	
[z-Score], (t-Statistic)	[2.72]			(2.54)	
Probit Estimation: Pseudo R ²	–			0.2195	
Match within Group	Country, Industry, Year				
Restrictions Imposed on Sample	≥ 5 Untreated Firms in Group, ≥ 1 Treated Firm in Group				
Balancing Test	(1)			(2)	
<i>Matching Characteristics</i> (at $t - 1$)	Treated Group N = 186	Control Group N = 186	Mean Difference (t-Statistic)	Control Group N = 186	Mean Difference (t-Statistic)
Size	24.180	23.497	0.683** (2.36)	24.379	-0.199 (-0.65)
Leverage	0.253	0.234	0.019 (1.15)	0.230	0.023 (0.80)
Short-term Debt / Total Debt	0.599	0.586	0.013 (0.59)	0.604	-0.005 (0.07)
Cash Flow / Total Assets	0.095	0.088	0.007 (0.70)	0.098	-0.003 (0.23)
Excess Stock Return	0.442	0.818	-0.376 (0.06)	1.585	-1.143 (0.55)
Stock Return Volatility	0.370	0.390	-0.020 (0.84)	0.369	0.001 (1.32)
Foreign Assets / Total Assets	0.307	0.315	-0.008 (0.26)	0.294	0.013 (0.91)
CDS Depth	6.948	6.590	0.358 (0.76)	6.757	0.191 (0.08)
Scaled Net Exposure: Property Rights	-0.398	-0.308	-0.090 (0.94)	-0.254	-0.144 (-1.57)
<i>Other Variables</i> (at $t - 1$)					
CDS Spread, bps	99.551	105.71	-6.159 (-0.36)	92.392	7.159 (-1.29)
Ln(CDS, bps)	4.601	4.661	-0.060 (-0.26)	4.526	0.075 (-1.58)
Falsification Tests	(1)			(2)	
ATET _{t-2} (2 years before event)	10.459			-5.794	
	[0.59]			[-1.18]	
ATET _{t-1} (1 year before event)	3.739			-5.004	
	[0.25]			[-0.94]	
ATET _{t+1} (1 year after event)	20.805**			13.892**	
	[2.03]			[2.28]	

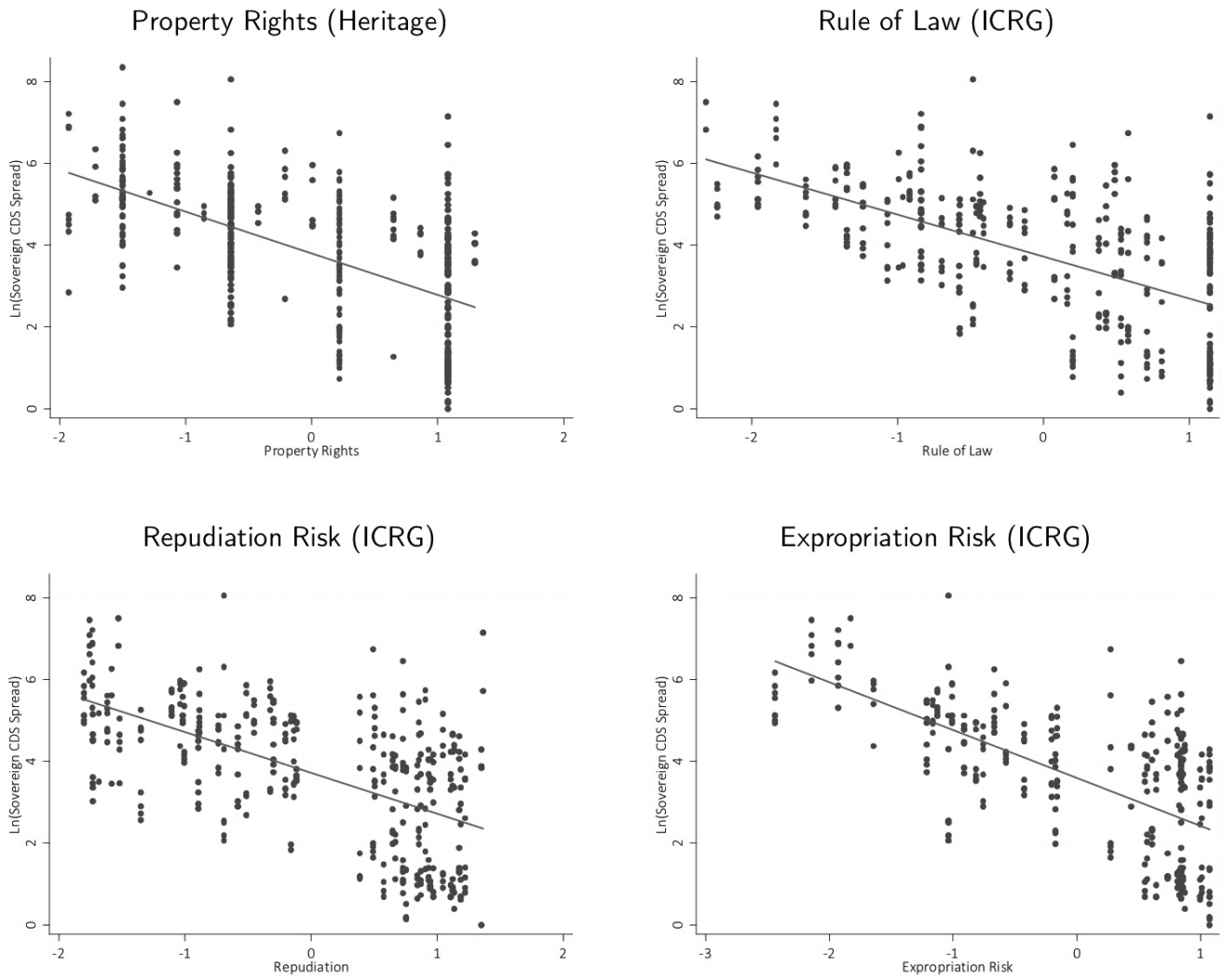
Panel B. 1:3 Match

Matching Results	Nearest Neighbor (3 Matches)			Propensity Score (3 Matches)	
	(1)			(2)	
ATET (Δ CDS Spread, bps) [z-Score]	16.338*** [3.04]			8.801*** [3.42]	
Probit Estimation: Pseudo R ²	-			0.2195	
Match within Group	Country, Industry, Year				
Restrictions Imposed on Sample	≥ 5 Untreated Firms in Group, ≥ 1 Treated Firm in Group				
Balancing Test	(1)			(2)	
	Treated Group	Control Group	Mean Difference	Control Group	Mean Difference
<i>Matching Characteristics (at $t - 1$)</i>	N=186	N = 558	(t-Statistic)	N = 558	(t-Statistic)
Size	24.180	23.586	0.594** (2.12)	23.374	0.806 (0.65)
Leverage	0.253	0.263	-0.010 (-0.59)	0.248	0.005 (0.24)
Short-term Debt/Total Debt	0.599	0.574	0.025 (1.10)	0.602	-0.003 (-0.03)
Cash Flow/Total Assets	0.095	0.100	-0.005 (-0.62)	0.098	-0.003 (-0.47)
Excess Stock Return	0.442	1.550	-1.108 (-1.42)	1.049	-0.607 (-0.67)
Stock Return Volatility	0.370	0.384	-0.014 (-0.60)	0.334	0.036 (1.63)
Foreign Assets (of Total)	0.307	0.304	0.003 (0.09)	0.284	0.023 (0.39)
CDS Depth	6.948	6.895	0.053 (0.11)	6.501	0.447 (0.61)
Scaled Net Exposure: Property Rights	-0.398	-0.292	-0.106 (-1.07)	-0.267	-0.131 (-1.38)
<i>Other Variables (at $t - 1$)</i>					
CDS Spread, bps	99.551	137.81	-38.259* (-1.70)	88.052	11.499 (1.58)
Ln(CDS, bps)	4.601	4.926	-0.325 (-1.46)	4.478	0.123 (1.63)
Falsification Tests	(1)			(2)	
ATET _{$t-2$} (2 years before event)	20.278 [1.27]			-3.104 [-0.93]	
ATET _{$t-1$} (1 year before event)	8.487 [0.72]			-1.601 [-1.21]	
ATET _{$t+1$} (1 year after event)	19.520** [2.22]			7.087** [2.18]	

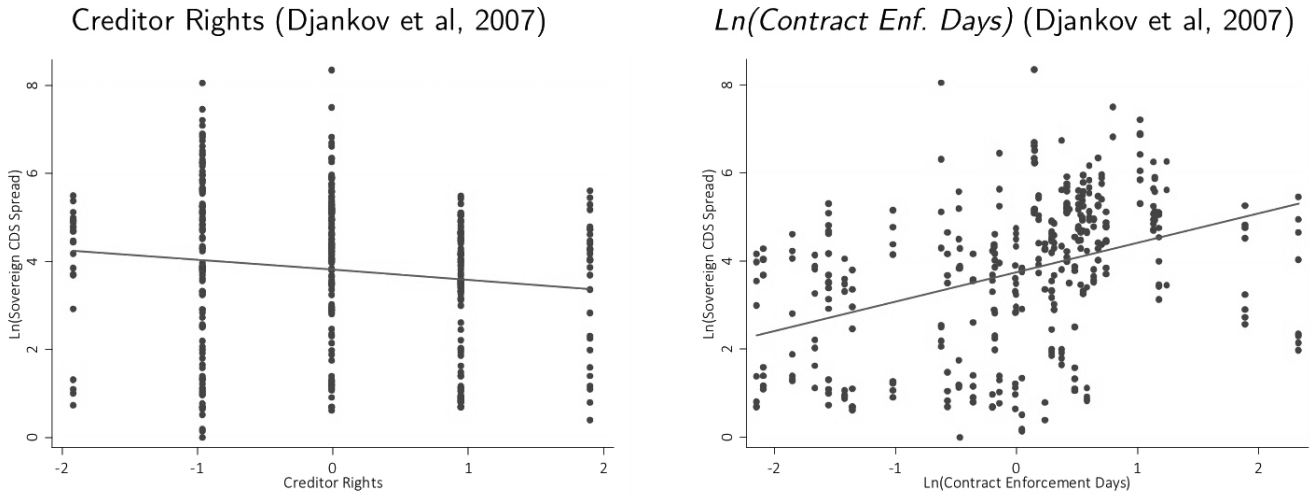
III. Supplemental Figures

Figure IA.1. Sovereign CDS spreads and country institutional characteristics.

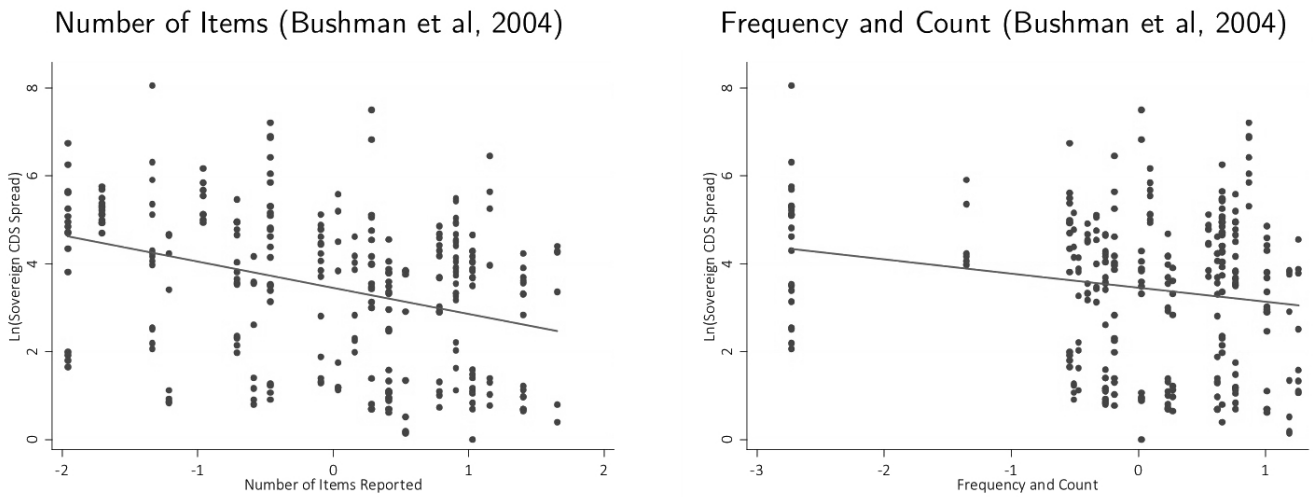
Panel A. Property Rights Protection



Panel B. Creditor Rights Protection



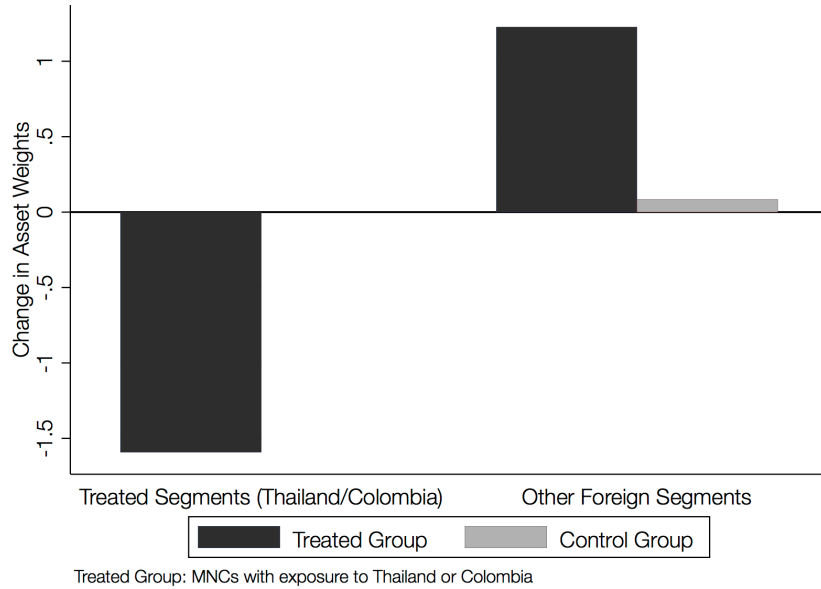
Panel C. Disclosure Requirements



This figure presents scatterplots between the natural logarithm of the annualized average five-year sovereign CDS daily spreads (in basis points) and various country institutional characteristics. Panels A, B, and C examine three categories of institutional variables: property rights protection, creditor rights protection, and disclosure requirements. Each plot contains country-year observations. All institutional variables are standardized. Large values indicate high institutional strength ($Ln(Contract Enforcement Days)$ being the only exception). CDS spreads are provided by Markit and include 54 countries over 2004 to 2011.

Figure IA.2. Changes in the asset weights of multinational companies following capital controls in Thailand and Colombia.

Panel A. Change in Asset Weights for Thailand and Colombia

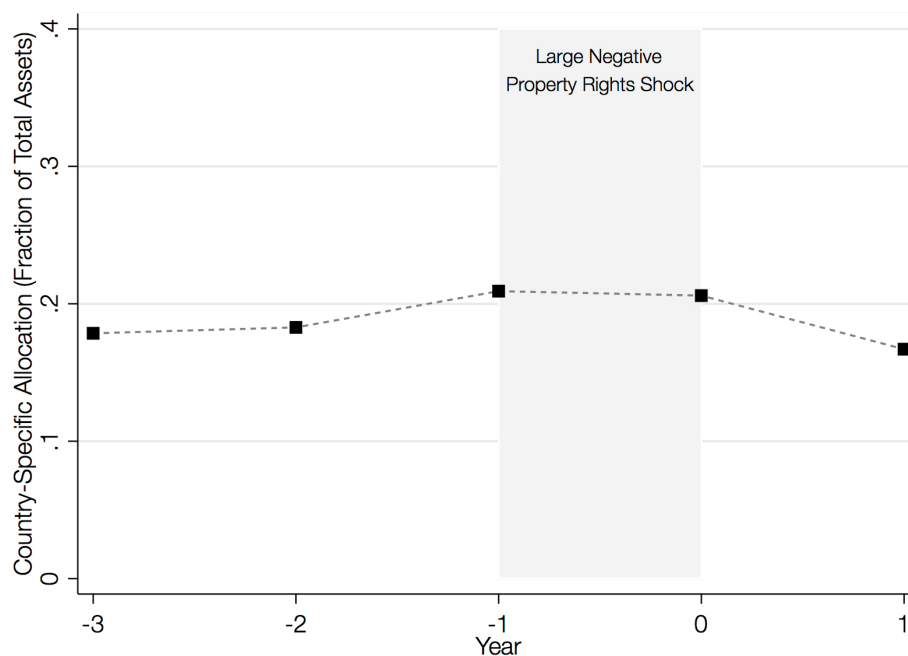


Panel B. Change in Asset Weights for Countries other than Thailand/Colombia



This figure highlights changes in the asset weights of MNCs before and after capital controls were implemented in Thailand (2006 to 2008) and Colombia (2007 to 2008). The treated group includes MNCs with assets in Thailand or Colombia prior to the capital controls. The control group includes MNCs from the same home countries as those in the treated group that did not have assets in Thailand and Colombia but had assets in other foreign segments of the treated MNCs prior to the capital controls. Asset weights are defined as the percentage of a firm's assets allocated to a particular country. Both panels show the aggregate *change* in asset weights following the implementation of capital controls (more specifically, the difference between the average change during capital control years and pre-capital control years), equally averaged across firms in the group. Panel A shows that, in the treated group, the asset weights for Thailand and Colombia decreased following capital controls while the asset weights of other foreign segments increased. Panel B shows that, in the treated group, the asset weights shifted more toward foreign segments with weaker property rights and stronger creditor rights than Thailand and Colombia. Firm-segment-year level asset data are provided by Worldscope.

Figure IA.3. Asset allocations to countries with large negative property rights shocks.



This figure shows firms' aggregate asset allocation (fraction of total assets) to countries that experience a large negative property rights shock during Year 0. A large negative shock is defined as a downward change in the Heritage Foundation Property Rights Index, which corresponds to less than 5% of the events in the left tail of the variable's distribution. The aggregate asset allocation represents the fraction of total assets allocated to these countries at the end of each year and is computed as follows:

- (1) For each country, foreign firms' asset allocation to the country is averaged equally across firms.
- (2) The country-level asset allocations are then averaged equally across countries.

Firm-year-level geographic segment data are provided by Worldscope.

IV. Discussion: SCVs in International CDS Markets

In the main text, we show that the cross-section of five-year corporate CDS spreads is well explained by firms' effective exposures to foreign institutions through their asset holdings and their foreign cross-listing status. Through these channels, firms can unwind their exposure to local sovereign and country risks, to the point where a firm's CDS spread is strictly lower than that of their sovereign counterpart with equal contractual terms. In this section, we test the determinants of such events, which we term SCVs in the international CDS market. We show that our proposed channels for delinking from sovereign risks can explain cross-sectional patterns in these increasingly pervasive phenomena in international CDS markets during the global sovereign credit risk crisis.

We capture an SCV at the firm-year level using two dummies: 1) a dummy variable that takes the value of one if a firm's CDS daily spread falls below its matched sovereign counterpart with equal contractual terms in at least one trading day during the year (*Firm Violator Dummy (Simple method)*) and 2) a dummy variable that takes the value of one if the annual average value of a firm's daily CDS spreads of a firm is lower than that of its sovereign counterpart (*Firm Violator Dummy (Mean method)*). The former dummy captures both transient and permanent violations, whereas the latter captures relatively more permanent violations that last approximately one year. To account for violation frequency, we also use *Firm Violator Buckets (Bucket Method)*. In this method, we classify firms into four violation buckets (0, 1, 2, 3) based on the number of days a firm experiences a SCV using the Simple method. Bucket 0 indicates a nonviolation, 1 indicates an infrequent violator, 2 indicates a medium violator, and 3 indicates a frequent violator.

These three SCV classification approaches, however, are subject to measurement errors that arise mainly from corporate and sovereign CDS contracts' transaction costs. Instead of using ad-hoc cutoffs to define corporate CDS spreads that are meaningfully lower than their sovereign counterparts, we use the information on average bid-ask spreads available for both firm and sovereign CDS contracts to create transaction-cost cutoff bounds. We compile bid and ask quotes for both firm and sovereign CDS contracts from an alternative data source, Credit Market Analysis (CMA), provided by Datastream. Internet Appendix I.E provides more details on our transaction cost adjustment procedure.

Using the transaction-cost-adjusted dummy variables and bucketed frequency variables, we run both probit and ordered probit regressions, focusing on the crisis period when the SCVs became more pervasive. We use the same set of controls as in Table III, Panel A in the main text and cluster the standard errors at the firm level. The results are provided in Table IA.V of the Internet Appendix.

In the first four columns of Panel A of the table, we use *Firm Violator Dummy (Simple method)*. The results confirm that both our scaled net institutional exposure and extra disclosure variables significantly explain the intensity of a firm violating the sovereign ceiling rule during the crisis period. The marginal effects of our factors on the intensity of a CDS market SCV (see column 4 of Panel B in Table IA.V) are 4.34% ($=0.0099+0.0203+0.0132$). These combined effects correspond to a 13.56% increase in the SCV probability

relative to its sample average during the crisis period (32%, see Section I.A of the Internet Appendix).

In column 5 of Panel A in Table IA.V, we repeat the above analysis using *Firm Violator Dummy (Mean method)*. The results are largely similar results to using the simple method. Looking at the ordered probit results in column 6 of Panel A, we again obtain results consistent with our earlier findings.

Matching on the restructuring clause between corporate and sovereign CDS contracts may not fully eliminate any differences in credit event arrival risk between them. For a sovereign, the likelihood of a restructuring event is a first-order concern in default arrival risk, whereas for a corporation it is the likelihood of bankruptcy and failure to pay (see Sovereign CDS: Credit Event and Auction Primer by Morgan Stanley, 2011). Hence, one could argue that our SCV results in Table IA.V are driven by sovereign CDS contracts that include restructurings as trigger events and therefore could be riskier than the matched corporate contracts. We show that this is not the case. In Table IA.VI of the Internet Appendix, we focus on just the pairs of five-year corporate-sovereign CDS contracts that exclude restructurings as trigger events (i.e., only X.R. type contracts) and confirm that our findings in Table IA.V hold for this restricted sample.

Overall, we find that the stronger the property and creditor rights that a firm is exposed to through its foreign asset positions and the stricter the disclosure requirements mandated by stock exchanges where its stocks are cross-listed, the more likely the firm is regarded as safer than its local government. Taken together, our results in Table IA.V confirm that our proposed institutional and informational channels explain the cross-sectional patterns of five-year corporate-sovereign CDS spread decoupling in international CDS markets over the recent crisis period.

V. Discussion: Additional Selection and Reverse Causality Test Results for Institutional Channel

In this section, we provide additional tests related to unobserved time-varying firm quality ($Q = Q_{i,t}$) concerns associated with our institutional channel. From equation (1') in the main text, one can see that our scaled net institutional factor $F_{i,t}$ changes if asset locations ($\omega_{i,s,t}$) are shuffled or institutional quality ($P_{i,s,t}$) shocks exist.⁴ Therefore, here we identify exogenous changes in our scaled net institutional variables using two quasi-natural experiments: (1) capital controls in two small emerging market economies that affect the distribution of a firm's foreign asset locations for reasons other than the firm's quality (i.e., exogenous shocks in $\omega_{i,s,t}$'s), and (2) institutional quality shocks (i.e., direct shocks in $P_{i,s,t}$) in foreign markets where a firm holds its assets but that it cannot anticipate (or circumvent) ex ante. We discuss these tests in subsections V.A and V.B below.

⁴ $P_{i,s,t} = \text{SegInstValue}_{i,s,t} - \text{HomeValue}_{i,t}$ and $\omega_{i,s,t} = \text{ForAsset}\%_{i,t} \times \frac{\text{SegAsset}_{i,s,t}}{\text{ForAsset}_{i,t}} = \frac{\text{SegAsset}_{i,s,t}}{\text{TotalAsset}_{i,t}}$ from equation (1) in the main text.

A. Exogenous Shocks in Foreign Asset Weights

Table IA.XV of this Internet Appendix reports results based on exogenous shocks to foreign asset weights that are orthogonal to a firm’s quality but substantially shift the distribution of the firm’s asset locations. Our test events center around capital controls in Thailand (2006, 2007, 2008) and Colombia (2007, 2008). Strong economic performance and relatively high interest rates in these emerging market economies (EMEs) in the mid-2000s attracted speculative capital from advanced economies with low interest rates. Following significant local currency speculation activity, Thailand (December 2006) and Colombia (May 2007) announced capital controls in the form of URRs, which required that financial institutions withhold 30% and 40%, respectively, of foreign currency purchased or exchanged against the two countries’ local currencies. The URRs significantly decreased (increased) capital inflow (outflow) (Coelho and Gallagher (2010), Baba and Kokenyne (2011)). These capital controls were subsequently eliminated in 2008 at the onset of the global financial crisis.⁵ Importantly, these temporary policy shocks from two relatively small EMEs are unlikely to have affected the overall quality of global MNCs, whose operations tend to go beyond the scope of the two economies. This is a desirable feature in satisfying the exclusion restriction to be a valid instrument for our scaled institutional factors.⁶

Panel A of Figure IA.2 shows that the exogenous policy shocks led to capital reallocation by treated firms (i.e., MNCs that had assets in Thailand/Colombia prior to the capital controls). Consistent with the findings of Desai, Foley, and Hines (2006), we find that during the capital controls, treated MNCs significantly reduced their assets in the *treated segments*. At the same time, these firms also significantly increased their asset weights in the other foreign segments where they located assets before the capital controls (*other foreign segments*, hereafter). For the control group (i.e., MNCs from the same home countries as those in the treated group that did not have assets in the *treated segments* but had assets in *other foreign segments* of the treated MNCs), we do not find any significant increase in asset weights in *other foreign segments*. This result clearly shows that the observed increases in the asset weights of the treated MNCs in *other foreign segments* are attributed to the capital controls in *treated segments*.⁷ Using this exogenous shift in the distribution of a treated MNC’s foreign asset locations, we identify a shock in *Scaled Net Exposure: Property Rights (Creditor Rights)* that is orthogonal to MNC quality. As the property rights (creditor rights) protections of *other foreign segments* of the treated MNCs are weaker (stronger) than *treated segments*, *Scaled Net Exposure: Property Rights (Creditor*

⁵See Internet Appendix I.I for more details on the two capital control events.

⁶Prior to the capital controls, the segment asset weights of treated MNCs in Thailand and Colombia are only 8.52% and 6.85%, respectively. The policy shocks were also local. For example, soon after the Bank of Thailand imposed capital controls, central banks in Malaysia and the Philippines quickly stressed that they would continue to let the markets determine the value of their currencies and not follow Thailand’s policy. See Internet Appendix Section I.I.1 for more details.

⁷This asset allocation pattern for the control group also helps rule out the possibility that the treated MNCs increased their assets in *other foreign segments* due to a potentially improving investment opportunity in that region. We formally test this asset reallocation pattern of the treated MNCs using MNC-segment-year level panel regressions, similar in spirit to Giroud and Mueller (2014). Moreover, our results are robust to more narrowly defined treatment MNC-years where the dollar amount of firm assets in other geographic segments (except Thailand and Colombia) remain constant, and therefore the treated MNCs’ asset weights in *other foreign segments* mechanically increase as their asset weights in the *treated segments* decrease. We report this set of results in Tables IA.XVI and IA.XVII of the Internet Appendix, respectively.

Rights) tend to decrease (increase) following the treatment (see Panel B of Figure IA.2).

The first two columns of Table IA.XV report the results of 2SLS IV regressions using these capital controls as an instrument for *Scaled Net Exposure: Property Rights*. We follow our baseline specification in equation (3) of the main text. In column 1 of the first-stage regression, the negative point estimate on *Capital Controls Dummy* (-0.181 with a t-statistic of -5.79) shows that the treatment effect results in a shift of the foreign asset location distribution to *weaker* property rights institutions than Thailand/Colombia. In the corresponding second-stage regression in the same column 1, we find a statistically significant and negative point estimate (-1.490 with a t-statistic of -1.95) for the instrumented *Scaled Net Exposure: Property Rights*, indicating that our property rights channels significantly reduce five-year corporate CDS spreads. In column 2, we conduct a placebo test using a dummy for pre-treatment periods and find no significant results in either stage, suggesting that the two countries' capital controls were largely unexpected.⁸ In columns 3 and 4, we repeat the analyses of columns 1 and 2 for *Scaled Net Exposure: Creditor Rights* and confirm that foreign asset locations significantly affect MNCs' five-year CDS spreads through the creditor rights channel as well.

B. Large Negative Property Rights Shocks

In Tables IA.XIX, IA.XX, and IA.XXI of this Internet Appendix, we report results from using large unexpected shocks to property rights protection in countries where an MNC has its asset holdings. We focus on large “negative” shocks to *Property Rights* corresponding to less than 5% of the events in the left tail of this variable's distribution.⁹

In this analysis we focus on annual events with large negative property rights shocks because *Creditor Rights* are time-invariant, and we choose negative shocks rather than positive shocks because we want to ensure that MNCs cannot circumvent the events by redistributing their asset locations, even if they could forecast these rare events.

The events also occur in foreign countries and thus are unlikely to be correlated with local factors that affect both the treated firms and their local sovereign government's credit qualities.¹⁰

In Figure IA.3 of this Internet Appendix, we plot the time series of the treated firms' average asset weights. This figure provides evidence that these negative property rights shock events are ex ante difficult for treated firms to predict and/or circumvent. During the treatment period (Year -1 to Year 0), treated firms' asset weights vary rarely, indicating that their capital stays in foreign countries with large negative property rights events. One can also see that the treated firms slightly *increase* their asset weights in those countries before the treatment (i.e., Year -3 to Year -1). Such an increase would have been unlikely if the firms could predict

⁸This is consistent with the stock market reaction upon the announcement of capital control in Thailand, where the Stock Exchange of Thailand Index shed 15% on December 19, 2006—the biggest one-day loss in its history.

⁹The distributional summary of changes in property rights is provided in Internet Appendix Table IA.XVIII.

¹⁰If we use large negative shocks that directly affect the degree of property rights protection in MNCs' home countries, we cannot clearly identify the foreign asset location effects on their CDS spreads—the effects could be confounded with the effects of unobserved local fundamental shocks that reduce firms' credit quality.

(or circumvent) the negative property rights shock events.

Despite our focus on shocks in foreign countries, one could still argue that sovereign fundamentals tend to be regionally integrated (Ang and Longstaff (2013), Longstaff, Pan, Pedersen, and Singleton (2011)) and that even rare events in foreign countries can be closely followed by treated firms' managers in the home country. To further increase both firm and sovereign informational and other potential linkage barriers, we introduce the following filters on our foreign negative shocks based on the literature:¹¹ (1) geographically distant by more than 4,000 miles; (2) culturally distant by more than a one standard deviation as measured by the World Values Survey; (3) different language (also excludes common languages – English, French, German, and Spanish) than the treated firms' home countries; and (4) in consultation with the Heritage Foundation, large and exceptional property rights events, including nationalizations (Argentina (2009), Venezuela (2008)), the elimination of democratic processes (Egypt (2007), Guinea (2009)), and a deadly crackdown on protesters by the military (Guinea (2009)), all of which are arguably more exogenous or ex ante harder to circumvent.¹²

Using treatment dummies for each of these unexpected negative foreign property rights shocks, we run 2SLS IV regressions using the specification in equation (3) in our main text. In column 1 of Table IA.XIX of this Internet Appendix, we use our full treatment sample without any additional filter and find a negative point estimate on *Scaled Net Exposure: Property Rights* (-1.006) in the second stage, significant at the 5% level. In columns 2 and 3 of Table IA.XIX, where we use one- or two-year lagged distributions of each treated firm's asset weights, we find nearly identical (-1.010 in column 2 and -0.833 in column 3) average treatment effects on corporate CDS spreads. In columns 4 to 7 where we impose additional filters based on geographical distance (column 4), cultural distance (column 5), language barriers (column 6), and finally narrow country events (column 7), we continue to find negative and statistically significant point estimates on *Scaled Net Exposure: Property Rights* in the second-stage regressions.

We further show in Table IA.XXI of this Internet Appendix that our treatments in Table IA.XIX are unlikely to be confounded with various firm-level observables by conducting nearest-neighbor matching estimations of the average treatment effect on the treated using either Mahalanobis distances or propensity scores estimated using Probit regressions. For matching on Mahalanobis distance, we report the Abadie and Imbens (2006, 2011) bias-corrected matching estimator. We also report results using dynamic treatment dummies from two years before to one year after the actual treatment year. We find that all our treatment effects exist only after

¹¹An extensive literature documents the significant impact of distance, culture, and language on economic and financial connectivity, exchanges, and outcomes, with proximity increasing the linkages (Grinblatt and Keloharju (2001), Guiso, Sapienza, and Zingales (2009), Siegel, Licht, and Schwartz (2011), Giannetti and Yafeh (2012)). We use these variables as additional separating mechanisms to further identify the causal direction of our institutional channel.

¹²The worldwide transportation network literature indicates that up to 90% of the direct links in shipping traffic occur at less than 3,700 miles and that the global cargo ship network accounts for 90% of the international exchange of goods (Ducruet and Notteboom (2012), Woolley-Meza, Thiemann, Grady, Lee, Seebens, Blasius, and Brockmann (2011)). However, we also show that our results are robust to the use of an alternative distance cutoff, 5,000 miles. Similarly, for the cultural distance, we show that our results are robust to the use of two standard deviations as an alternative cutoff. All these results are available in Table IA.XX of the Internet Appendix. For in-depth information on events occurring in our narrow country tests, see Internet Appendix Section I.J.

the actual treatments, not before, which further confirms the sharp timing identification of our treatments.

VI. Continuous Time CDS Pricing Under a Flat Hazard Rate Term Structure and Constant Recovery Rate Assumptions

Consider a continuous-time setup with \$1 notional T -maturity CDS. Let r_t denote the continuously compounded default-free interest rate, and thus $Z(t) = e^{-\int_0^t r_s ds}$ the corresponding t -maturity default-free discounting factor. Let \bar{s} be the annual clean spread that should be paid continuously from the protection buyer to the protection seller until the trigger event of the CDS reference entity.

Let h be the constant hazard rate that derives a trigger event in an infinitesimal time interval, $[t, t + \delta t]$. Assume that the trigger event arrives following a Poisson process with intensity parameter h . Then the survival probability up to time t is given as $Q(t) = e^{-\int_0^t h ds}$. Finally, let the constant recovery rate be denoted by R .

With the fair spread of s , the value of the premium payment leg, $E_0 \left[\bar{s} \int_0^T Z(t) Q(t) dt \right]$, should equal the value of the protection leg, $E_0 \left[(1 - R) \int_0^T Z(t) \frac{\delta}{\delta t} (1 - Q(t)) dt \right] = h(1 - R) E_0 \left[\int_0^T Z(t) Q(t) dt \right]$, where the expectations are taken under the risk-neutral probability measure. Hence, under the flat hazard rate term structure, $\bar{s} = h(1 - R)$.

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