Internet Appendix to

The Impact of Investability on Asset Valuation

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This Internet appendix presents supplemental analyses and results to the main tables and figures in "The Impact of Investability on Asset Valuation". We include: (1) proofs of propositions, (2) list of country funds and depository receipts, (3) overview statistics for the non-investable, partially investable and investable segments of the emerging market returns, (4) summary statistics of global information variables, (5) residual diagnostics tests from model estimation for the non-investable, partially investable and investable segments, (6) comparison of IFCI and MSCI returns, (7) summary statistics on IOF, ADR/GDR and IWF, and (8) robustness of our results.

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TABLE A1

Proofs of Propositions 1 and 2

Proposition 1.

To characterize the extra risk premium we partition the vector of expected returns and the covariance matrix as follows:

$$(1a) \qquad \left(\underline{\mu}_N - r\underline{i}_N \right) = \begin{pmatrix} \underline{\mu}_p - r\underline{i}_p \\ \underline{\mu}_k - r\underline{i}_k \end{pmatrix}; \quad \Omega = \begin{bmatrix} \Omega_{pp} & \Omega_{pk} \\ \Omega_{kp} & \Omega_{kk} \end{bmatrix} = \begin{bmatrix} \Omega_{pN} \\ \Omega_{kN} \end{bmatrix}$$

Using the partition in equation (1a), we expand equation (13) as:

$$(2a) \qquad \left(\underline{\mu}_p - r\underline{i}_p \right) = A\, \Omega_{pN}\, \underline{M}_N$$

$$(2b) \qquad \left(\underline{\mu}_k - r\underline{i}_k \right) = A\, \Omega_{kN}\, \underline{M}_N + \frac{A}{A^D J_W^D} \lambda_k$$

Taking the domestic investor's demand for the foreign securities in S_k as given, we expand equation (13) as:

$$\left(\underline{\mu}_N - r\underline{i}_N \right) = A^D \begin{bmatrix} \Omega_{pp} & \Omega_{pk} \\ \Omega_{kp} & \Omega_{kk} \end{bmatrix} \begin{pmatrix} \pi_p^D \\ \pi_k^D \end{pmatrix} + \frac{1}{J_W^D} \begin{pmatrix} \underline{0}_p \\ \underline{\lambda}_k \end{pmatrix}$$

which is equivalent to:

$$(3a) \qquad \left(\underline{\mu}_p - r\underline{i}_p \right) = A^D (\Omega_{pp}\underline{\pi}_p^D + \Omega_{pk}\underline{\pi}_k^D)$$

$$(3b) \qquad \left(\underline{\mu}_k - r\underline{i}_k \right) = A^D (\Omega_{kp}\underline{\pi}_p^D + \Omega_{kk}\underline{\pi}_k^D) + \frac{1}{J_W^D} \underline{\lambda}_k$$

From equation (3a), we obtain:

$$(4a) \qquad \underline{\pi}_p^D = \frac{1}{A^D}\Omega_{pp}^{-1}\left(\underline{\mu}_p - r\underline{i}_p\right) - \Omega_{pp}^{-1}\Omega_{pk}\underline{\pi}_k^D$$

Plug equation (4a) into equation (3b), solve for the vector of Lagrangian multipliers:

$$(5a) \qquad \frac{1}{J_W^D}\underline{\lambda}_k = \left(\underline{\mu}_k - r\underline{i}_k\right) - A^D[\Omega_{kp}(\frac{1}{A^D}\Omega_{pp}^{-1}\left(\underline{\mu}_p - r\underline{i}_p\right)$$

$$-\Omega_{pp}^{-1}\Omega_{pk}\underline{\pi}_k^D) + \Omega_{kk}\underline{\pi}_k^D]$$

$$= \left(\underline{\mu}_k - r\underline{i}_k\right) - \Omega_{kp}\Omega_{pp}^{-1}\left(\underline{\mu}_p - r\underline{i}_p\right) + A^D(\Omega_{kp}\Omega_{pp}^{-1}\Omega_{pk} - \Omega_{kk})\underline{\pi}_k^D$$

Substitute equation (5a) in equation (2b), solve for the expected return on the risky assets in S_k:

$$\frac{1}{A}\left(\underline{\mu}_k - r\underline{i}_k\right) = \Omega_{kN}\,\underline{M}_N + \frac{1}{A^D J_W^D}\underline{\lambda}_k$$

$$\frac{1}{A}\left(\underline{\mu}_k - r\underline{i}_k\right) = \Omega_{kN}\,\underline{M}_N + \frac{1}{A^D}[\left(\underline{\mu}_k - r\underline{i}_k\right)$$

$$-\Omega_{kp}\Omega_{pp}^{-1}\left(\underline{\mu}_p - r\underline{i}_p\right) + A^D(\Omega_{kp}\Omega_{pp}^{-1}\Omega_{pk} - \Omega_{kk})\underline{\pi}_k^D]$$

Recall that the aggregate risk aversion satisfies the identity $1/A = 1/A^F + 1/A^D$, we can simplify the above equation as:

$$\frac{1}{A^F}\left(\underline{\mu}_k - r\underline{i}_k\right) = \Omega_{kN}\,\underline{M}_N - \frac{1}{A^D}\Omega_{kp}\Omega_{pp}^{-1}\left(\underline{\mu}_p - r\underline{i}_p\right) + (\Omega_{kp}\Omega_{pp}^{-1}\Omega_{pk} - \Omega_{kk})\underline{\pi}_k^D$$

Finally, replacing the term $(\underline{\mu}_p - r\underline{i}_p)$ with the result in expression (2a) gives:

$$(6a) \qquad \frac{1}{A^F}\left(\underline{\mu}_k - r\underline{i}_k\right) = \Omega_{kN}\,\underline{M}_N - \frac{A}{A^D}\Omega_{kp}\Omega_{pp}^{-1}\,\Omega_{pN}\,\underline{M}_N - (\Omega_{kk} - \Omega_{kp}\Omega_{pp}^{-1}\Omega_{pk})\underline{\pi}_k^D$$

$$= Q - (\Omega_{kk} - \Omega_{kp}\Omega_{pp}^{-1}\Omega_{pk})\underline{\pi}_k^D$$

$$\text{where } Q = \Omega_{kN}\,\underline{M}_N - \frac{A}{A^D}\Omega_{kp}\Omega_{pp}^{-1}\Omega_{pN}\underline{M}_N$$

Next we compute Q using the matrix partition as in equation (1a) and noting that $A = \frac{A^D A^F}{A^D + A^F}$,

$$
\begin{aligned}
Q &= \Omega_{kk}\underline{M}_k + \Omega_{kp}\underline{M}_p - \frac{A^F}{A^D + A^F}\Omega_{kp}\Omega_{pp}^{-1}(\Omega_{pp}\underline{M}_p + \Omega_{pk}\underline{M}_k) \\
&= \Omega_{kk}\underline{M}_k + \Omega_{kp}\underline{M}_p - \frac{A^F}{A^D + A^F}\Omega_{kp}\underline{M}_p - \frac{A^F}{A^D + A^F}\Omega_{kp}\Omega_{pp}^{-1}\Omega_{pk}\underline{M}_k \\
&= \Omega_{kk}\underline{M}_k + \frac{A^D}{A^D + A^F}\Omega_{kp}\underline{M}_p - \frac{A^F}{A^D + A^F}\Omega_{kp}\Omega_{pp}^{-1}\Omega_{pk}\underline{M}_k \\
&= \frac{A^D}{A^D + A^F}(\Omega_{kk}\underline{M}_k + \Omega_{kp}\underline{M}_p) + \frac{A^F}{A^D + A^F}(\Omega_{kk} - \Omega_{kp}\Omega_{pp}^{-1}\Omega_{pk})\underline{M}_k \\
&= \frac{A^D}{A^D + A^F}\Omega_{kN}\underline{M}_N + \frac{A^F}{A^D + A^F}(\Omega_{kk} - \Omega_{kp}\Omega_{pp}^{-1}\Omega_{pk})\underline{M}_k
\end{aligned}
$$

Substituting Q back into equation (6a), we obtain:

$$
\frac{1}{A^F}\left(\underline{\mu}_k - r\underline{i}_k\right) = \frac{A^D}{A^D + A^F}\Omega_{kN}\underline{M}_N + (\Omega_{kk} - \Omega_{kp}\Omega_{pp}^{-1}\Omega_{pk})\left(\frac{A^F}{A^D + A^F}\underline{M}_k - \underline{\pi}_k^D\right)
$$

Collecting terms and noting $\underline{\pi}_k^D = \underline{\omega}_k \circ \underline{M}_k$, we get:

(7a)
$$
\begin{aligned}
\left(\underline{\mu}_p - r\underline{i}_p\right) &= A\,\Omega_{pN}\,\underline{M}_N \\
\left(\underline{\mu}_k - r\underline{i}_k\right) &= A\,\Omega_{kN}\,\underline{M}_N + A^F\Phi_{kk}\underline{T}_k
\end{aligned}
$$

where $\Phi_{kk} = (\Omega_{kk} - \Omega_{kp}\Omega_{pp}^{-1}\Omega_{pk})$, and $\underline{T}_k = (\frac{A^F}{A^D + A^F}\underline{M}_k - \underline{M}_k \circ \underline{\omega}_k)$.

With the aid of the world factor $\widetilde{R}_W$ and the local factors $\widetilde{R}_{K_1}, \widetilde{R}_{K_2}$, we have the following identities:

$$
\begin{aligned}
\Omega_{pN}\,\underline{M}_N &= M\,cov(\underline{\widetilde{R}}_p, \widetilde{R}_W) \\
\Phi_{kk}\underline{M}_k &= M_{K_1}cov(\underline{\widetilde{R}}_k, \widetilde{R}_{K_1}|\underline{\widetilde{R}}_p) \\
\Phi_{kk}\underline{M}_k \circ \underline{\omega}_k &= M_{K_2}cov(\underline{\widetilde{R}}_k, \widetilde{R}_{K_2}|\underline{\widetilde{R}}_p)
\end{aligned}
$$

where M, M_{K_1}, M_{K_2} are the total capitalization of the assets constituting the respective

factors. Replacing these quantities in equation (7a) obtains equations (14) and (15).

Proposition 2.

The domestic investor's holdings of the foreign securities in S_k are given by the binding investability constraint $\underline{\pi}_k^D = \underline{\omega}_k \circ \underline{M}_k$. His/her holdings of the other risky assets are derived from (4a). Using the result in (7a) gives:

$$
\begin{aligned}
\underline{\pi}_p^D &= \frac{A}{A^D}\Omega_{pp}^{-1}\,\Omega_{pN}\,\underline{M}_N - \Omega_{pp}^{-1}\Omega_{pk}\underline{\pi}_k^D \\
&= \frac{A^F}{A^D + A^F}\Omega_{pp}^{-1}(\Omega_{pp}\underline{M}_p + \Omega_{pk}\underline{M}_k) - \Omega_{pp}^{-1}\Omega_{pk}\underline{\pi}_k^D \\
&= \frac{A^F}{A^D + A^F}\underline{M}_p + \Omega_{pp}^{-1}\Omega_{pk}\big(\frac{A^F}{A^D + A^F}\underline{M}_k - \underline{\pi}_k^D\big) \\
&= \frac{A^F}{A^D + A^F}\underline{M}_p + \Omega_{pp}^{-1}\Omega_{pk}\underline{T}_k
\end{aligned}
$$

The foreign investor, facing no constraints, will be forced to clear the market. Therefore, his/her holdings are given by:

$$
\begin{aligned}
\underline{\pi}_p^F &= \frac{A^D}{A^D + A^F}\underline{M}_p - \Omega_{pp}^{-1}\Omega_{pk}\underline{T}_k \\
\underline{\pi}_k^F &= (\underline{i}_k - \underline{\omega}_k) \circ \underline{M}_k.
\end{aligned}
$$

TABLE A.2

List of ADRs/GDRs and CFs

This table provides the names and starting dates of ADRs/GDRs and CFs used for the construction of the residual factors and

diversification portfolios described in Section III.A.1.

	Depositing Receipts	Country Funds
Argentina	TELEFONICA ARG.GLB.SHS (24-Jul-92), TELECOM ARGENTINA GDS (23-Sep-92), BUE.ARS.EMBOTELLADORA SPN.ADR 1 ADR=1/50 (6-May-93), BANCO DE GALICIA ADR.'B' 1:4 (17-Jun-93), YPF 'D' SPN.ADR 1:1 (29-Jun-93)	Argentina Fund (11-Oct-91)
Brazil	ARACRUZ CELULOSE PNB SPN.ADR 1:10 (28-May-92), TELEBRAS PF.ADR 1:1 (9-Nov-93), VALE PREFERRED ADR 1:1 (28-Mar-94), TEKA SPN.ADR 1 ADR=5000 SHS (1-Aug-94), AGROCERES ON ADR. 1 ADR = 1000 SHARES (10-Aug-94)	Brazil Fund (31-Mar-88)
Chile	CTC 'A' SPN.ADR 1:4 (20-Jul-90), COMPANIA CERVECERIAS UNIDAS SPN.ADR 1:5 (24-Sep-92), MADECO SPN.ADR 1:100 (28-May-93), MASISA SPN.ADR 1:50 (17-Jun-93), SQM 'B' SPN.ADR. 1:1 (21-Sep-93)	Aberdeen Chile Fund (26-Sep-89)
China	SINOPEC SHAI.PETROCHEM. ADR 1:100 (26-Jul-93), DOUBLE COIN HDG. 'B' ADR 1:10 (12-Jan-94), SHANGHAI ERFANGJI SPN. ADR. 1:10 (12-Jan-94), SHAI.CHLOR CHM. 'B' ADR 1:10 (4-Apr-94), SHANDONG HUANENG PWR. SPN.ADR.1 ADR=50 SHS (4-Aug-94)	China Fund (21-Apr-92)
Colombia	BANCO GANADERO GDS PRP. 100 C NV.CUM.PF.SH. (5-Nov-93), CEMENT.DIAMANTE 'B' GDS 3:1 (12-Sep-94), CORFIVALLE ADR. (15-Sep-94), BBVA BNC.GAN.ADR 1:100 (15-Nov-94), GANADERO SPN.ADR. 1 ADR=100 SHARES (2-Dec-94)	
India	RELIANCE IND.GDS 1:2 (24-Sep-92), HINDALCO INDS. GDR (27-Jul-93), STHN.PETROCHEMICAL GDR (2-Aug-93), USHA BELTRON GDR 1:5 (2-Aug-93), ARVIND MILLS GDR (4-Feb-94)	India Fund (15-Feb-94)

Depositing Receipts	Country Funds
Indonesia — CHANDRA ASRI PETROCH. SPN. ADR. 1:10 (26-Jul-94), INTER-PAC.BK.SPN.ADR 1:10 (18-Aug-94), INDOSAT ADS. (17-Oct-94), PT INDOSAT SPN. ADR 1:50 (18-Oct-94), TOBA PULP LESTARI SPN. ADR 1:3 (27-Dec-94)	Aberdeen Indonesia Fund (5-Mar-90)
Israel — BANK LEUMI ISRAEL. ADR. (2-Jan-73), TEVA PHARM. ADR. 1:1 (16-Feb-82), ISRAEL LAND DEV.SPN.ADR. 1:3 (6-Dec-90), TADIRAN SPN.ADR. (6-Aug-92), ELITE INDS.SPN.ADR 1:1 (25-Aug-95)	Aberdeen Israel Fund (22-Oct-92)
Korea — KIA MOTORS GDS 1 GDS= 1 SHARE (21-May-93), SAMSUNG CO.GDS ORD. (21-May-93), LG ELECTRONICS GDS (13-Jul-94), POSCO ADR 4:1 (14-Oct-94), KOREA ELEC.PWR.SPN.ADR 2:1 (27-Oct-94)	Korea Fund (22-Aug-84)
Malaysia — SELANGOR PROPERTIES ADR. 1 ADR= 1 SHARE (2-Aug-93), SILVERSTONE BHD.SPN.ADR 1:1 (3-Jan-94), KESANG SPN.ADR 1:5 (22-Aug-94), BANDAR RAYA DEVS.ADR 1:1 (27-Dec-94), BERJAYA INDL.ADR. 1:10 (27-Dec-94)	Malaysia Fund (8-May-87)
Mexico — TLFS.DE MEX.SAB DE CV SR.A SPN.ADR 1:20 (2-Jan-73), TUBOS DE ACERO ADR. 1:50 (2-Jan-73), TELEFONOS DE MEXICO 'L' ADR 1:20 (14-May-91), GRUPO CARSO ADR DUPL SEE 320081 (27-Sep-91), VITRO SPONSORED ADR. 1:3 (20-Nov-91)	Mexico Fund (4-Jun-81)
Pakistan — PAKISTAN TELECOM GDR (19-Sep-94), HUB POWER GDS (4-Jul-97), PAKISTAN CEMENT GDR (28-Jul-98)	Pakistan Investment Fund (17-Dec-93)
Peru — MILPO ADR (28-Jan-94), BANCO WIESE ADR. 1:4 (21-Sep-94), CEMENTOS LIMA SPN.ADR 1:1 (14-Mar-95), CIA.MINAS BUENVENTURA ADR 1:1 (15-May-96), TELF.DEL PERU B SPN.ADR 1:10 (2-Jul-96)	
Philippines — PLDT.TEL.SPN.ADR 1:1 (2-Jan-73), SAN MIGUEL 'B' ADR 1:10 (2-Aug-93), JG SUMMIT GDS (8-Oct-93), MANILA ELEC.(MERALCO)GDR (3-Jan-94), AYALA REG S GDS (MUN) (28-Mar-94)	

	Depositing Receipts	Country Funds
Peru	MILPO ADR (28-Jan-94), BANCO WIESE ADR. 1:4 (21-Sep-94), CEMENTOS LIMA SPN.ADR 1:1 (14-Mar-95), CIA.MINAS BUENVENTURA ADR 1:1 (15-May-96), TELF.DEL PERU B SPN.ADR 1:10 (2-Jul-96)	
Philippines	PLDT.TEL.SPN.ADR 1:1 (2-Jan-73), SAN MIGUEL 'B' ADR 1:10 (2-Aug-93), JG SUMMIT GDS (8-Oct-93), MANILA ELEC.(MERALCO)GDR (3-Jan-94), AYALA REG S GDS (MUN) (28-Mar-94)	
S. Africa	PALABORA MNG.ADR.CL.A (1-Jan-73), ANGLO AMER.GOLD ADR (2-Jan-73), BLYVOORUITIZICHT ADR. 1:3 (2-Jan-73), BUFFELSFONTEIN GD.MNS. ADR.NEW (2-Jan-73), DE BEERS CONS.MINES ADR. 1 ADR = 1 SHARE (2-Jan-73)	
Taiwan	ASIA CMT.CORP.GDS 1 GDS=10 SHS (31-Jul-92), UNI-PRESIDENT ENTS.GDS (30-Nov-92), CHIA HSIN CEMENT GDR (22-Jun-93), MICROTEK GDR (16-May-94), TAIWAN SEMICON.SPN.ADR 1:5 (8-Oct-97)	Taiwan Fund (16-Dec-86)
Thailand	ADVANCED INFO.SER.ADR 1:1 (2-Aug-93), LORAINE GD.MNS.ADR. 1 ADR=1 SHARE (7-Oct-93), TELECOM ASIA GDR (16-Nov-93), TT&T PUBLIC CO.GDR REG S (17-Jun-94), CHRO.PKPH.GROUP ADR 1:4 (27-Dec-94)	Thai Fund, Inc. (16-Feb-88)
Turkey	TOFAS GDR REG. 'E' 1 GDR= 1 REG. 'E' SH. (14-Mar-94), TURKIYE GARANTI GDS RPR.200 COMMON SHARES (22-Apr-94), NET HOLDING SPN.ADR. 1 ADR = 5 SHARES (27-Dec-94), DEMIRBANK SPN.ADR. 1 ADR = 500 SHS. (2-Dec-96), UZEL MAKINA SANAYI ADR. 1 ADR = 250 SHS. (3-Oct-97)	Turkish Investment Fund, Inc. (8-Dec-89)

Note: We thank Ines Chaieb for providing the list of these securities.

TABLE A.3

Summary Statistics for Portfolios' Excess Returns from 01/01/1989 - 20/04/2007

Excess returns are obtained by subtracting the weekly return of the eurodollar one-month rate from portfolios' returns. Returns are measured as a percentage per week. EN-AN and EN-AP are Engle and Ng (1993) negative and positive size bias tests, respectively.

Panel A. Non-Investable Portfolios

	Mean	Min	Max	Std. Dev.	Skewness	Kurtosis	J-B	Q(z)12	Q(z2)12	EN-AN	EN-AP
Argentina	0.05	-17.26	24.60	6.19	0.71**	6.31**	290.71**	10.08	172.90**	-8.75**	-3.99
Brazil	0.45	-16.23	13.79	5.36	-0.35**	3.66	26.03**	15.24	196.80**	-3.42	-3.38
Chile	0.11	-5.85	5.97	2.21	0.05	3.27	1.78	54.90**	30.74**	18.79**	17.96**
China	0.24	-7.43	10.39	3.17	0.55**	4.18*	47.00**	19.49	35.30**	0.42	-2.95
Colombia	0.28	-7.20	7.92	2.81	0.06	3.71	11.57**	47.72**	94.46**	6.79	6.36
India	0.47	-11.36	10.32	3.97	-0.33**	3.41	12.08**	24.10*	46.59**	-3.14	-1.75
Indonesia	0.36	-33.58	31.72	8.30	-0.09	8.39**	652.35**	49.07**	544.60**	-5.20*	-1.72
Israel	0.35	-14.43	15.49	5.11	-0.02	3.93	19.23**	19.64	139.94**	-0.18	1.15
Korea	-0.01	-18.43	19.46	5.57	0.11	5.33**	170.16**	35.46**	546.87**	-7.49**	-7.23**
Malaysia	0.17	-10.23	10.85	3.36	0.03	4.99**	157.48**	20.79	826.07**	-4.49	-2.52
Mexico	0.18	-12.86	11.41	3.77	-0.16	4.94**	111.67**	81.89**	222.26**	-9.71**	-7.08*
Pakistan	0.34	-11.47	10.01	3.95	-0.40**	3.59	21.94**	26.87**	67.58**	3.30	3.93
Peru	0.29	-9.05	10.37	3.19	0.27**	4.74**	96.67**	17.47	96.84**	-5.24	-1.28
Philippines	0.03	-11.30	10.03	3.19	-0.18	5.07**	117.73**	40.06**	328.03**	-4.21	2.46
S. Africa	0.33	-14.77	12.91	4.33	-0.36**	4.75**	111.15**	55.36**	773.22**	-13.20**	-16.64**
Taiwan	0.19	-19.61	18.87	5.97	0.07	4.53**	47.82**	42.60**	292.46**	-5.72*	-6.59**
Thailand	-0.02	-19.37	18.61	5.50	-0.11	5.77**	291.27**	16.90	591.05**	-4.12	-0.78
Turkey	0.57	-27.47	25.85	8.75	-0.07	4.54**	53.58**	16.38	217.62**	0.43	1.44

*Superscripts * and ** indicate statistical significance at the 5% and 1% levels, respectively.*

Panel B. Partially Investable Portfolios

	Mean	Min	Max	Std. Dev.	Skewness	Kurtosis	J-B	Q(z)12	Q(z2)12	EN-AN	EN-AP
Argentina	0.41	-12.00	11.24	4.61	-0.26*	3.08**	6.12*	16.82	60.96**	1.77	0.63
Brazil	0.12	-22.56	20.35	7.42	-0.30**	4.22**	51.44**	18.56	437.81**	0.95	1.23
Chile	0.03	-12.31	10.17	3.66	-0.20	4.54**	56.71**	17.72	128.94**	-3.38	-3.21
China	0.29	-15.56	13.28	4.90	-0.34**	3.95	24.95**	16.47	161.74**	1.83	1.79
Colombia	0.09	-15.20	18.45	6.07	0.42**	3.74	27.89**	30.97**	63.42**	3.05	2.25
India	0.27	-11.62	13.18	4.44	0.11	3.78	13.20**	22.58*	55.00**	-1.98	-0.89
Indonesia	0.08	-19.61	20.65	6.68	0.08	4.53**	53.18**	36.47**	283.14**	-5.60**	-5.01*
Israel	0.18	-11.80	8.65	3.65	-0.45**	3.74	30.33**	27.05**	25.78*	-14.16**	-10.30**
Korea	-0.76	-63.12	42.51	11.97	-1.63**	14.03**	4113.61**	45.10**	1853.20**	0.05	6.36**
Malaysia	0.02	-13.75	10.50	3.55	-0.46**	5.97**	385.42**	41.76**	1086.91**	-8.92*	-2.86
Mexico	-0.49	-20.34	19.98	6.42	-0.04	4.84**	97.71**	45.90**	367.04**	-5.23**	-3.00
Pakistan	-0.82	-15.34	13.73	5.74	-0.02	3.09**	0.20	26.10*	57.52**	-3.76*	-3.89*
Peru	0.13	-12.25	13.60	4.22	0.14	4.32**	52.90**	15.32	192.69**	0.00	1.61
Philippines	-0.10	-13.01	13.83	4.43	0.06	4.36**	50.02**	47.02**	366.76**	2.11	0.73
S. Africa	0.44	-11.83	14.56	4.68	0.21*	3.72	21.96**	13.49	148.24**	-2.64	-1.17
Taiwan	0.21	-8.91	10.08	3.39	0.12	3.91	18.05**	9.72	123.98**	-11.73**	-10.47*
Thailand	-0.05	-20.76	23.54	6.58	0.49**	5.48**	268.11**	17.46	241.97**	-4.18*	-3.50*
Turkey	0.31	-24.78	27.22	7.84	0.02	4.95**	85.57**	13.32	42.14**	-2.61	-2.60

*Superscripts * and ** indicate statistical significance at the 5% and 1% levels, respectively.*

Panel C. Unrestricted Portfolios

	Mean	Min	Max	Std. Dev.	Skewness	Kurtosis	J-B	Q(z)12	Q(z2)12	EN-AN	EN-AP
Argentina	0.11	-15.79	16.75	5.26	-0.05	4.22**	33.36**	25.39*	121.63**	-5.24*	-2.65
Brazil	0.30	-16.18	12.68	5.15	-0.49**	3.87	47.85**	13.12	119.62**	-7.65**	-6.90**
Chile	0.14	-8.92	7.22	2.77	-0.35**	3.65	20.25**	35.91**	127.02**	-5.65	-7.48
China	0.50	-11.03	10.13	3.91	-0.31**	3.79	18.49**	16.05	89.85**	-9.16*	-5.82
Colombia	-0.08	-11.18	10.03	3.91	-0.11	3.59	8.87*	38.64**	32.91**	-5.22	-0.54
India	0.33	-11.37	9.55	3.50	-0.48**	4.12*	43.94**	20.14	19.65	-10.63*	-10.76**
Indonesia	0.07	-23.29	23.20	6.89	-0.05	5.82**	178.88**	39.70**	312.31**	-3.10	-3.56
Israel	0.20	-8.14	6.81	3.07	-0.42**	2.99**	15.48**	16.57	13.88	-11.47**	-8.48*
Korea	0.18	-14.15	16.36	5.05	0.16	4.38**	62.70**	11.02	248.13**	-4.49*	-4.07
Malaysia	0.08	-12.21	9.84	3.46	-0.51**	5.19**	232.44**	51.32**	832.39**	-7.52*	-4.65
Mexico	0.17	-11.00	9.99	3.97	-0.30**	3.48	16.77**	28.19**	231.89**	-11.22**	-9.55**
Pakistan	-0.32	-13.73	12.48	4.82	0.04	3.36	2.96	29.71**	44.72**	-0.72	-0.83
Peru	0.29	-9.18	8.84	3.25	-0.20*	3.77	21.66**	10.28	137.80**	-5.89	-3.48
Philippines	-0.08	-12.96	11.18	4.03	-0.10	3.93	24.10**	29.44**	220.84**	1.44	0.04
S. Africa	0.27	-10.41	9.43	3.47	-0.37**	4.01**	48.52**	8.07	112.13**	-2.34	0.34
Taiwan	-0.08	-12.36	14.30	4.51	0.02	4.05	22.50**	5.89	101.19**	-6.76*	-5.52
Thailand	0.01	-14.90	15.06	4.85	-0.08	4.56**	92.76**	30.81**	682.57**	-5.45*	-6.92**
Turkey	0.41	-21.51	22.65	7.09	-0.09	4.32**	39.66**	12.93	48.32**	-3.08	-4.73*

*Superscripts * and ** indicate statistical significance at the 5% and 1% levels, respectively.*

TABLE A.4

Global Information Variables

The global information set includes the world dividend yield in excess of the return on the one-month eurodollar (XWDY), the change in the U.S. term premium (ΔTP), the U.S. default premium (DP), and the change in the one-month Eurodollar return (ΔRF). The world dividend yield is the dollar-denominated dividend yield on the Datastream world index. The U.S. term premium is equal to the yield on the 10-year U.S. T-Note in excess of the yield of the 3-month U.S. T-Bill. The U.S. default premium is the yield on Moody's BAA rated bonds in excess of the yield on Moody's AAA rated bonds. The sample period is from 30/12/1988 to 20/04/2007. Summary statistics are reported as a percentage per year.

	Summary Statistics					Correlation			
	Mean	Std. Dev.	Min	Max		XWDY	ΔUSTP	USDP	ΔRF
XWDY	-2.69	2.21	-8.12	1.41	XWDY	1	-0.01	0.21	-0.01
ΔUSTP	0.00	0.13	-0.44	0.90	ΔUSTP		1	0.07	-0.02
USDP	0.84	0.21	0.50	1.49	USDP			1	-0.07
ΔRF	-0.01	0.17	-3.12	2.25	ΔRF				1

TABLE A.5

Residual Diagnostics of the Model

The model residual returns of equations (18) are standardized by the conditional volatility. The residual returns are measured as a percentage per week. EN-AN and EN-AP are Engle and Ng (1993) negative and positive size bias tests respectively.

Panel A. Non-Investable Portfolios

	Mean	Min	Max	Std. Dev.	Skewness	Kurtosis	J-B	Q(z)12	Q(z2)12	EN-AN	EN-AP
Argentina	-1.65	-342.39	505.96	99.84	0.79**	6.06**	266.32**	5.18	5.26	-2.62	8.41
Brazil	-0.43	-358.46	356.80	100.58	-0.23*	3.46	11.99**	5.58	7.35	5.42	-7.96
Chile	0.13	-308.54	312.90	99.93	-0.07	3.42	4.38	6.54	19.11	12.00	-16.03
China	1.30	-285.71	377.02	100.01	0.43**	4.29*	43.41**	8.24	5.90	11.95	-8.90
Colombia	0.56	-323.82	363.16	100.07	0.15	3.71	13.33**	6.42	9.55	1.38	-10.33
India	-1.49	-338.92	274.56	100.28	-0.27*	3.43	9.74*	6.09	11.06	-3.98	1.45
Indonesia	0.43	-374.16	496.20	99.69	0.20	5.15**	107.56**	9.43	12.12	-3.40	1.67
Israel	0.65	-343.59	340.41	100.52	-0.13	3.54	8.10*	6.06	8.28	-9.40	3.09
Korea	3.79	-369.09	263.25	100.02	-0.57**	3.81	43.80**	5.54	3.05	2.04	2.68
Malaysia	-0.10	-438.44	393.79	99.97	0.08	4.28**	65.96**	4.33	6.18	2.95	-3.85
Mexico	0.33	-464.72	318.42	99.87	-0.18	4.81**	98.37**	4.77	3.11	5.84	-2.29
Pakistan	3.65	-375.51	261.15	99.94	-0.57**	3.79	43.07**	5.09	3.22	2.20	2.74
Peru	-1.93	-348.81	433.62	100.35	0.40**	4.93**	127.23**	11.87	17.07	-24.32*	26.73**
Philippines	-1.46	-400.00	294.61	99.99	-0.20*	3.74	18.66**	11.39	10.93	-10.84	5.73
S. Africa	-1.42	-315.42	405.53	100.00	0.10	3.70	16.57**	5.26	7.82	1.75	-2.67
Taiwan	0.70	-260.59	414.27	100.19	0.29**	3.72	17.32**	6.55	12.60	2.58	-1.71
Thailand	-0.77	-463.41	560.30	99.95	0.30**	5.40**	230.74**	4.83	13.24	3.84	-6.10
Turkey	-1.46	-550.09	384.31	100.39	-0.34**	5.43**	142.96**	6.77	12.07	-3.42	4.15

*Superscripts * and ** indicate statistical significance at the 5% and 1% levels, respectively.*

Panel B. Partially Investable Portfolios

	Mean	Min	Max	Std. Dev.	Skewness	Kurtosis	J-B	Q(z)12	Q(z2)12	EN-AN	EN-AP
Argentina	-0.20	-316.45	252.90	100.03	-0.33**	2.99**	9.57*	11.69	5.16	9.03	-10.95
Brazil	-1.16	-425.70	288.08	100.89	-0.50**	3.56	36.70**	7.33	10.94	9.41*	-6.82*
Chile	-2.65	-336.75	353.28	99.82	-0.05	3.75	12.72**	3.28	11.71	3.07	-6.14
China	-1.96	-323.72	266.73	102.13	-0.26*	2.97**	4.95	6.16	9.87	0.96	5.13
Colombia	2.21	-432.29	336.41	100.64	0.30**	3.99	30.12**	5.62	9.67	5.16	-7.75
India	-0.69	-367.42	328.58	100.27	0.01	3.66	8.85*	9.10	4.04	-0.11	-5.06
Indonesia	-1.99	-437.16	336.28	101.07	-0.06	3.82	15.46**	12.80	5.80	-6.64	1.08
Israel	-0.31	-394.98	243.78	100.57	-0.60**	4.02	55.17**	14.34	6.86	0.73	2.21
Korea	0.72	-309.23	300.31	100.08	0.01	3.05**	0.07	15.42	15.69	-2.31	-3.08
Malaysia	-0.02	-481.59	343.40	99.93	-0.18*	4.46**	89.67**	11.20	6.40	-5.48	-2.05
Mexico	-3.95	-441.28	361.62	99.67	-0.07	4.11**	35.99**	7.08	8.72	0.00	1.36
Pakistan	-0.11	-277.12	272.48	100.24	0.02	2.99**	0.05	14.32	13.23	-2.22	-2.98
Peru	-0.65	-339.41	549.54	100.71	0.28**	4.64**	87.61**	6.00	5.08	-1.62	-1.73
Philippines	0.43	-409.16	358.24	100.22	-0.09	3.94	24.81**	6.01	5.95	2.17	2.82
S. Africa	2.78	-360.01	386.98	100.67	0.00	3.54	9.11*	8.54	2.84	-2.49	-1.16
Taiwan	0.15	-377.76	283.38	101.02	0.00	3.35	2.45	3.22	11.75	-6.15	0.44
Thailand	0.40	-450.46	431.44	100.81	0.24**	4.83**	134.98**	9.89	8.63	-0.74	-0.43
Turkey	-1.47	-359.24	384.38	100.83	-0.01	4.37**	42.11**	13.38	10.67	0.77	-0.42

*Superscripts * and ** indicate statistical significance at the 5% and 1% levels, respectively.*

Panel C. Unrestricted Portfolios

	Mean	Min	Max	Std. Dev.	Skewness	Kurtosis	J-B	Q(z)12	Q(z2)12	EN-AN	EN-AP
Argentina	-0.96	-409.26	311.24	99.60	-0.19	3.83	18.69**	10.36	8.60	-7.03	5.45
Brazil	-0.15	-392.90	268.16	100.64	-0.55**	3.82	53.04**	2.25	8.05	0.48	-6.47
Chile	-0.01	-374.50	281.94	99.86	-0.25*	3.43	9.76*	6.34	5.10	4.52	-5.47
China	0.80	-357.12	229.92	101.24	-0.38**	3.33	12.15**	6.32	3.64	-9.74	-1.57
Colombia	-0.33	-321.12	296.62	100.26	0.05	3.34	2.74	7.25	9.25	-8.85	7.91
India	-2.02	-375.42	318.58	100.21	-0.42**	3.90	30.61**	16.49	9.41	0.29	-0.61
Indonesia	-1.55	-405.71	299.35	99.42	-0.14	4.02	25.04**	12.88	6.22	2.04	-2.76
Israel	-0.24	-310.98	244.45	100.20	-0.36**	2.88**	12.06**	14.07	4.07	1.91	10.46
Korea	0.71	-289.33	272.02	100.07	-0.02	2.96**	0.07	9.24	2.43	-0.75	-0.59
Malaysia	0.42	-551.64	409.12	100.14	-0.41**	5.04**	192.85**	6.35	9.05	-3.87	-5.84
Mexico	-0.52	-370.07	273.32	100.22	-0.33**	3.21	13.86**	11.03	9.98	-0.94	3.87
Pakistan	0.76	-291.74	288.48	100.18	-0.01	2.99**	0.02	8.86	3.58	-0.54	-0.35
Peru	-0.36	-382.20	373.45	100.52	-0.09	3.84	21.15**	3.95	7.90	-0.61	1.30
Philippines	0.02	-355.85	351.22	100.59	-0.08	3.53	8.27*	4.75	7.55	1.87	-0.13
S. Africa	0.97	-409.23	256.31	100.03	-0.46**	4.05**	60.87**	3.98	7.99	-4.90	-3.29
Taiwan	-1.01	-384.27	301.73	100.72	-0.20	3.23	4.28	3.56	11.40	3.13	-2.06
Thailand	-0.82	-439.50	375.31	99.83	-0.11	3.94**	35.35**	4.70	17.77	-2.33	-4.82*
Turkey	-0.90	-350.87	327.98	100.62	-0.04	3.89	18.07**	14.23	13.19	6.19	-10.77*

*Superscripts * and ** indicate statistical significance at the 5% and 1% levels, respectively.*

TABLE A.6

IFCI versus MSCI

The IFCI is from the S&P's EMDB. The MSCI Emerging Market Free (EMF) indices are from Datastream. Returns are measured as a percentage per month, and denominated in USD. The period is from January 1989 or later to December 2006. For each country, the table presents the starting dates (this is the latest from the two benchmarks IFCI or MSCI EMF), the return difference, the volatility difference, the tracking error (defined as the standard deviation of the difference between the index returns), and the correlation between the IFCI and MSCI EMF index, respectively.

	Start Date	Average Return Difference (IFCI-MSCI)	Volatility Difference (IFCI-MSCI)	Tracking Error (IFCI-MSCI)	Correlation IFCI vs. MSCI
Argentina	Jan-89	0.10%	3.30%	9.10%	87%
Brazil	Jan-89	0.10%	1.20%	3.00%	99%
Chile	Jan-89	0.00%	0.00%	1.60%	98%
China	Jan-93	0.50%	0.30%	6.10%	84%
Colombia	Jan-93	0.40%	-0.20%	2.20%	97%
India	Dec-92	-0.10%	-0.10%	1.80%	98%
Indonesia	Oct-90	0.10%	-0.40%	2.20%	99%
Israel	Feb-97	0.30%	-0.80%	3.60%	88%
Korea	Feb-92	-0.10%	0.70%	1.60%	99%
Malaysia	Jan-89	-0.10%	0.40%	3.60%	92%
Mexico	Jan-89	-0.10%	-0.10%	1.80%	98%
Pakistan	Jan-93	1.00%	0.20%	2.40%	98%
Peru	Jan-93	0.10%	-0.60%	2.30%	97%
Philippines	Jan-89	-0.20%	0.50%	3.70%	93%
S. Africa	Jan-93	0.20%	0.10%	1.50%	98%
Taiwan	Feb-91	0.00%	-1.10%	1.20%	99%
Thailand	Jan-89	0.00%	-0.40%	2.20%	98%
Turkey	Sep-89	-0.20%	0.20%	4.60%	96%
Average		0.10%	0.20%	3.00%	96%

Note: Colombia and Pakistan end in Oct. 2001

TABLE A.7

IOF, ADRs/GDRs and IWF

This table reports summary statistics on the ADR/GDR sample and firms with foreign institutional holdings. In both cases, only the firms that are in the IFCG are included. The IOF is the percentage of a firm's market capitalization held by foreign institutional investors and the IWF is the investable weight factor.

	Year	IOF Firms			DR Firms	
		IOF Mean	IWF Mean	No. of Firms	IWF Mean	No. of Firms
Argentina	1999	0.023	0.857	11	0.945	16
	2006	0.007	0.385	12	0.394	10
	Average	0.021	0.574		0.564	
Brazil	1999	0.006	0.615	11	0.708	24
	2006	0.081	0.446	44	0.451	39
	Average	0.028	0.549		0.576	
Chile	1999	0.009	0.927	13	0.907	13
	2006	0.010	0.449	30	0.397	15
	Average	0.009	0.478		0.551	
China	1999	0.037	0.375	8	0.615	13
	2006	0.135	0.214	89	0.318	29
	Average	0.102	0.351		0.515	
Colombia	1999			*		*
	2006					
	Average					
India	2003	0.019	0.303	3	0.233	36
	2006	0.070	0.269	82	0.323	59
	Average	0.051	0.268		0.286	
Indonesia	2003	0.027	0.048	3		*
	2006	0.080	0.407	19		
	Average	0.051	0.205			
Israel	1999	0.006	0.710	10	0.821	10
	2006	0.096	0.554	43	0.595	13
	Average	0.073	0.602		0.655	
Korea	1999	0.008	0.801	9	0.611	3
	2006	0.082	0.473	108	0.685	22
	Average	0.059	0.648		0.661	

	Year	IOF Firms			DR Firms	
		IOF Mean	IWF Mean	No. of Firms	IWF Mean	No. of Firms
Malaysia	1999	0.005	0.728	19		*
	2006	0.056	0.454	70		
	Average	0.033	0.486			
Mexico	1999	0.013	0.941	13	0.787	31
	2006	0.093	0.371	33	0.382	29
	Average	0.067	0.599		0.538	
Pakistan	1999	0.015	0.475	10		*
	2006	0.005	0	16		
	Average	0.009	0.124			
Peru	1999			*		*
	2006					
	Average					
Philippines	1999	0.010	0.253	14	0.428	10
	2006	0.070	0.226	17	0.243	7
	Average	0.031	0.131		0.250	
S. Africa	1999	0.010	0.948	6	0.867	30
	2006	0.049	0.708	91	0.738	41
	Average	0.038	0.740		0.774	
Taiwan	1999	0.007	0.500	14	0.500	18
	2006	0.076	0.798	89	0.794	50
	Average	0.040	0.580		0.571	
Thailand	1999	0.003	0.315	4		*
	2006	0.054	0.329	47		
	Average	0.044	0.249			
Turkey	1999	0.016	0.513	14	0.875	7
	2006	0.102	0.344	38	0.363	13
	Average	0.051	0.401		0.526	
Global Average		0.044	0.437		0.539	

Note: For each EM, the average IOF and IWF are for the entire sample period for which the data are available.

*Superscript * indicates countries that have less than 10 firms with IOF and/or DR data during the sample period.*

TABLE A.8

Robustness Results

This table reports the estimates of the cost of capital as a percentage per annum for three cases: a) using the IFCI and non-investable portfolios, b) using the depository receipt (DR) and non-DR portfolios, and c) using the foreign institutional ownership (IOF) and non-IOF portfolios.

Panel A. IFCI and Non-Investable Portfolios

	The Cost of Capital		Change
	Non-Investable	IFCI	
Argentina	17.33	9.38	46%
Brazil	16.38	8.50	48%
Chile	13.59	8.08	41%
China	15.15	8.49	44%
Colombia	11.17	10.03	10%
India	17.13	8.81	49%
Indonesia	12.32	9.60	22%
Israel	13.05	11.43	12%
Korea	15.17	8.34	45%
Malaysia	10.17	10.32	-1%
Mexico	13.16	7.80	41%
Pakistan	21.30	10.73	50%
Peru	18.51	8.09	56%
Philippines	16.12	8.15	49%
S. Africa	11.39	10.09	11%
Taiwan	13.03	8.33	36%
Thailand	12.33	8.40	32%
Turkey	10.70	7.57	29%
Average	14.33	9.01	34%

Panel B. DR and Non-DR Portfolios

	The Cost of Capital		Change
	Non-DR	DR	
Argentina	12.05	9.01	25%
Brazil	15.11	9.76	35%
Chile	9.05	7.73	15%
China	10.35	7.32	29%
Colombia *			
India	13.93	7.44	47%
Indonesia *			
Israel	13.95	9.55	32%
Korea	12.70	8.28	35%
Malaysia *			
Mexico	17.03	9.79	43%
Pakistan *			
Peru *			
Philippines	8.90	8.47	5%
S. Africa	16.56	10.56	36%
Taiwan	12.56	9.83	22%
Thailand *			
Turkey	12.76	8.78	31%
Average	12.91	8.88	29%

*Superscript * indicates countries that have less than 10 firms with DR data during the sample period.*

Panel C. IOF and Non-IOF Portfolios

| | The Cost of Capital | | |
	Non-IOF	IOF	Change
Argentina	16.70	8.23	51%
Brazil	18.64	8.67	53%
Chile	15.21	8.89	42%
China	14.10	10.36	27%
Colombia *			
India	18.76	10.11	46%
Indonesia	12.67	10.83	15%
Israel	10.20	8.26	19%
Korea	9.77	9.21	6%
Malaysia	14.40	8.06	44%
Mexico	14.13	7.69	46%
Pakistan	11.67	7.02	40%
Peru *			
Philippines	12.05	8.26	31%
S. Africa	9.37	7.46	20%
Taiwan	13.17	8.67	34%
Thailand	15.95	7.60	52%
Turkey	9.98	8.85	11%
Average	13.55	8.63	34%

*Superscript * indicates countries that have less than 10 firms with IOF data during the sample period.*