Online Appendix for Is Liquidity Risk Priced in Partially Segmented Markets?

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1 Benchmark case: Liquidity risk premium in the U.S. using a value-weighted market portfolio

Table 1 Summary statistics for illiquidity-sorted portfolios

	Return		*Bid-ask spread*		$100 \times \beta$				
Portfolio	Average (%) (i)	Volatility (%) (ii)	Average (%) (iii)	Volatility (%) (iv)	r_j with r_m (v)	r_j with c_m (vi)	c_j with r_m (vii)	c_j with c_m (viii)	Total liquidity (ix)
Panel A: United States of America - Monthly returns and AR bid-ask spread - 1994-2018									
1	9.18	9.91	0.46	0.16	43.94	-0.82	-1.14	0.10	2.05
5	8.57	14.96	0.69	0.27	86.94	-1.67	-1.33	0.16	3.17
9	10.80	18.88	0.88	0.34	112.98	-1.93	-1.55	0.18	3.66
15	11.17	28.60	1.27	0.50	154.18	-2.16	-2.14	0.21	4.51
21	12.50	39.81	1.96	0.73	205.08	-3.05	-1.62	0.24	4.91
25	11.63	35.25	4.74	1.54	110.56	-1.84	-3.02	0.19	5.05
25-1 portfolio spread liquidity risk premia (%) - $\lambda = 2.495\%$						0.31	0.56	0.03	0.90
Market portfolio liquidity risk premia (%) - $\lambda = 2.495\%$						0.45	0.45	0.06	0.95
25-1 portfolio spread liquidity risk premia (%) - $\lambda = 0.089\%$						0.01	0.02	0.00	0.03
Market portfolio liquidity risk premia (%) - $\lambda = 0.089\%$						0.02	0.02	0.00	0.03
Panel B: United States of America - Weekly returns and AR bid-ask spread - 1994-2018									
1	9.67	12.10	0.51	0.23	56.32	-1.76	-1.69	0.56	4.01
5	12.47	15.30	0.69	0.34	78.26	-2.38	-2.46	0.85	5.70
9	10.27	18.81	0.81	0.40	97.35	-2.59	-2.62	1.01	6.22
15	7.38	25.78	1.15	0.55	130.46	-3.50	-2.47	1.14	7.11
21	11.99	35.20	1.79	0.83	159.81	-4.16	-3.35	1.25	8.76
25	12.14	36.27	4.38	1.59	107.99	-3.70	-3.88	1.11	8.69
25-1 portfolio spread liquidity risk premia (%) - $\lambda = 2.495/4\%$						0.58	0.65	0.16	1.40
Market portfolio liquidity risk premia (%) - $\lambda = 2.495/4\%$						0.78	0.78	0.33	1.90
25-1 portfolio spread liquidity risk premia (%) - $\lambda = 0.002\%$						0.00	0.00	0.00	0.00
Market portfolio liquidity risk premia (%) - $\lambda = 0.002\%$						0.00	0.00	0.00	0.01

This table reports the summary statistics for the $P_1, P_5, P_9, P_{15}, P_{21}, P_{25}$ portfolios of 25 value-weighted illiquidity-sorted portfolios of U.S. stocks from May 1994 to January 2018. We report in Panel A summary statistics of monthly returns using the Abdi and Ranaldo (2017) measure as proxy for the bid-ask spread. We report in Panel B summary statistics for weekly returns. Each month (week), we sort all available stocks using their average bid-ask spread over the past four months (weeks). We report in columns (i-iv) the annualized average return and volatility, the average of the bid-ask spreads and their volatility. We report the beta between portfolio returns and market returns (column v), between portfolio returns and market unexpected bid-ask spread shocks (column vi), between portfolio unexpected bid-ask spread shocks and market returns (column vii), and between portfolio and market unexpected bid-ask spread shocks (column viii). Column (ix) shows the sum of the liquidity betas i.e. column (viii) minus the sum of columns (vi-vii). The unexpected bid-ask spread shocks are the residuals from an AR(2) model for monthly returns and AR(6) model for weekly returns. We use the value-weighted portfolio with all available stocks as the market portfolio. We express each covariance in its β form by dividing each covariance by the variance of net market returns and multiply by a factor of 100 such that figures are comparable to those in Acharya and Pedersen (2005). The volatilities of returns in Panel B and C are not directly comparable to those in Panel A; AP report the average of daily stock return volatilities whereas we report the volatility of portfolio returns.

2 Number of country- and region-related mutual funds, investment trusts, and ETFs

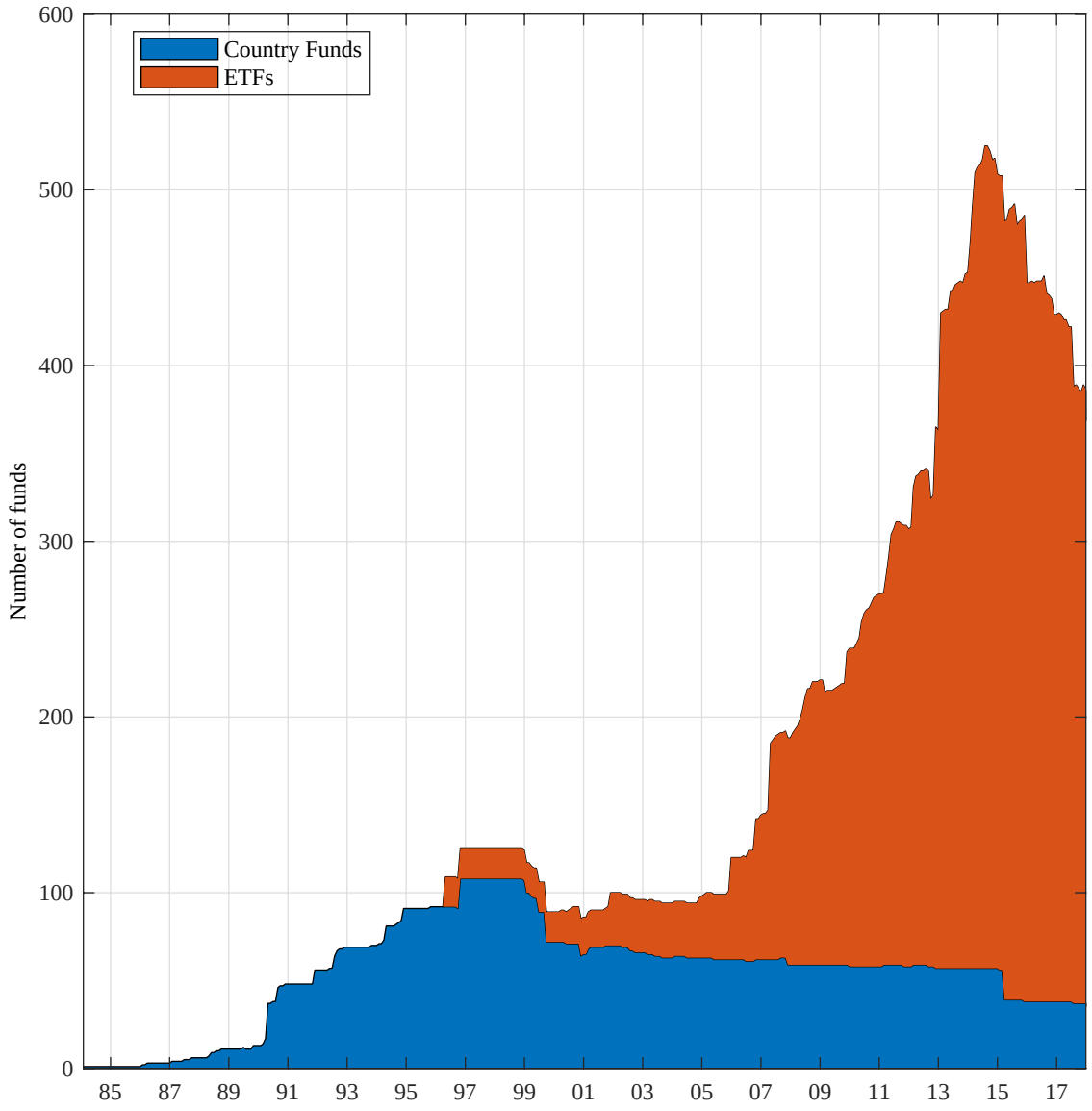

Figure 1 Number of country funds and ETFs - 1984-2018
We report the total number of country funds and exchange trade from 1984 to 2018. Country funds are any mutual or investment trust whose long name include either the country name or one of its key region name (Latin America, Asia Pacific, Central European, BRIC, Emerging Asia, Middle East & Africa, and Eastern Europe). ETFs are Exchange Traded Funds whose long name include either the country name or one of its key region name.

3 Cross-sectional distribution of MSCI Foreign Inclusion Factors

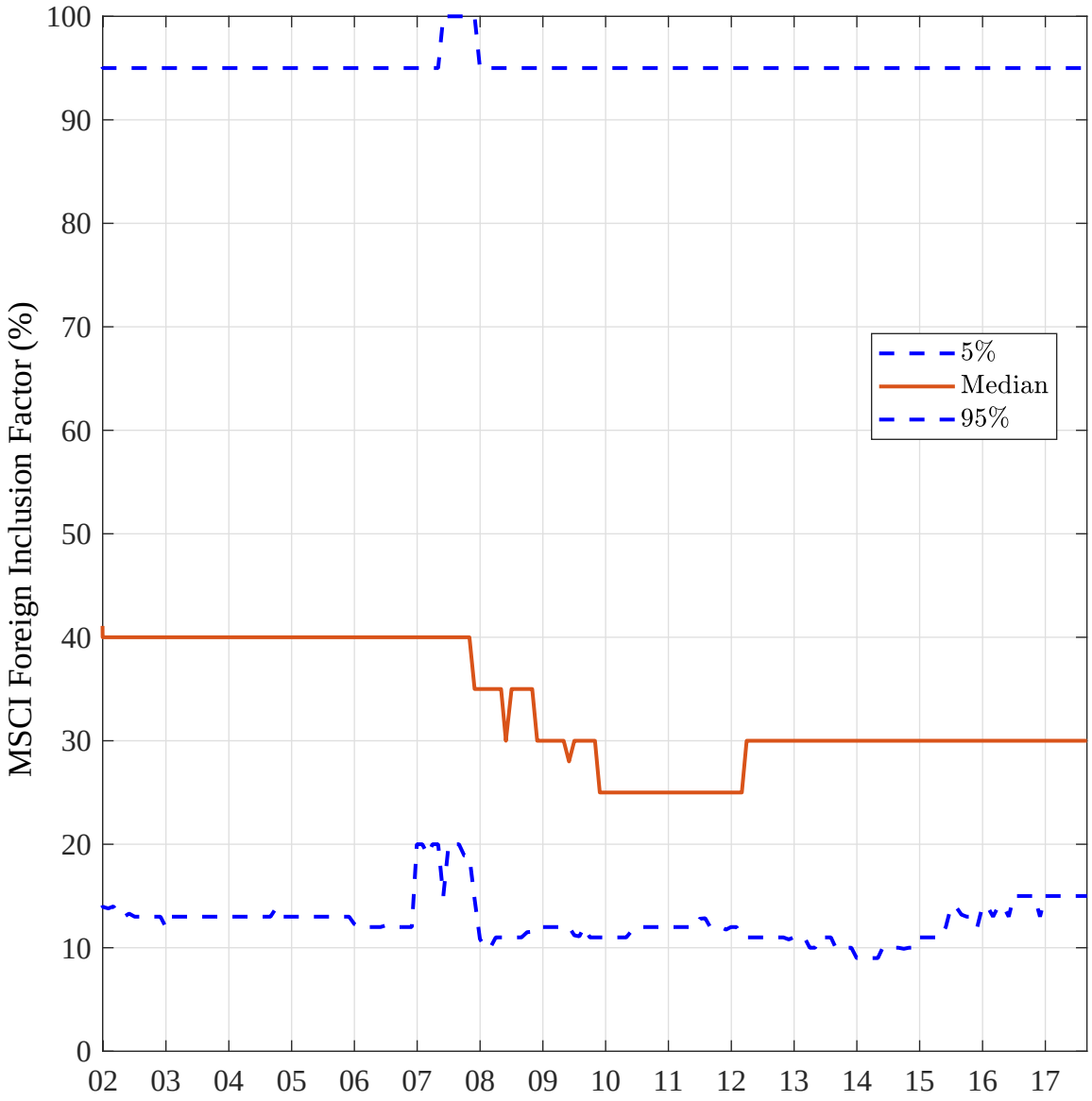

Figure 2 MSCI Foreign Inclusion Factors quantiles across all emerging market stocks We report the 5^{th}, 50^{th}, and 95^{th} percentiles of MSCI Foreign Inclusion Factors (FIFs) across all emerging market stocks from June 2002 to January 2018. FIFs are MSCI's estimates of the fraction of the market capitalization available to foreign investors for each stock.

4 Portfolio summary statistics for developed markets

Table 2 Summary statistics for developed market portfolios

		Return		*Bid-ask spread*	
Country	Number of stocks January 2018	average (%)	volatility (%)	average (%)	volatility (%)
Australia	1,471	9.22	21.61	0.74	0.27
Austria	41	12.31	24.64	0.89	0.41
Belgium	111	8.58	21.10	0.73	0.36
Canada	1,102	6.83	18.01	0.75	0.31
Denmark	139	11.66	18.89	0.82	0.36
Finland	142	13.26	28.89	0.93	0.46
France	576	7.99	20.70	0.80	0.34
Germany	513	7.76	21.43	0.75	0.37
Hong Kong	1,676	9.12	24.28	0.93	0.36
Ireland	33	5.30	29.60	1.29	0.75
Italy	250	5.09	23.66	0.89	0.48
Japan	2,891	1.95	19.73	0.90	0.35
Netherlands	94	9.08	20.30	0.65	0.34
New Zealand	104	12.00	18.19	0.71	0.22
Norway	157	11.67	25.38	0.89	0.40
Singapore	453	6.85	20.76	0.95	0.35
Spain	133	8.95	22.86	0.73	0.33
Sweden	523	12.40	25.46	0.82	0.38
Switzerland	197	8.60	17.55	0.62	0.30
UK	1,300	6.54	18.50	0.75	0.33
USA	3,301	8.53	15.96	0.76	0.34

We report summary statistics for weekly data for developed markets. For each country, we report the number of stocks at the end of our sample period, the annualized average and volatility of returns, and the average and volatility of bid-ask spreads. Start dates, reported in Table 1 of the main text, differ across countries. All data ends on January 24^{th}, 2018. The bid-ask spreads is the daily Abdi and Ranaldo (2017) measure averaged over the week.

References

Abdi, F., and A. Ranaldo. 2017. A Simple Estimation of Bid-Ask Spreads from Daily Close, High, and Low Prices. *Review of Financial Studies* 30:4437–4480.

Acharya, V., and L. H. Pedersen. 2005. Asset pricing with liquidity risk. *Journal of Financial Economics* 77:375–410.