

Liquidity Olympics: How Useful Are Low-Frequency Measures?

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Motivation

Intense interest in the main role of secondary markets: **Providing Liquidity**

Market Efficiency - Transactions cost levels

Empirical Asset Pricing - Correlations of changes in liquidity with SDF.

Many new low frequency measures, some horseraces

Measures Roll (JF84), LOT (RFS99), Amihud (JFQA02), Pastor Stambaugh (JPE03) Hasbrouck (JF08), Bekeart, Harvey, Lundblad (RFS07), Goyenko, Holden, Trzcinka (JFE08), Holden (WP08), Corwin Schultz (WP08)

Horseraces **US:** Hasbrouck (JF08), Goyenko, Holden, Trzcinka (JFE08),
Int'l: Lesmond (JF05), Agudelo, Henkel, Holden, Trzcinka (WP08)

Do these measures actually work?



Methodology

- Look at the international performance - greater variation in institutions and securities
- Compare with closing quoted bid-ask spreads
- Look at Levels (Bias and RMSE), Joint Time-series Cross-sectional Correlations, and Pure Time-Series Correlations
- What explains the relative performance of liquidity proxies?



Classes of Low-Frequency Measures

Class 1: Price-based measures (Requires only closing prices)

Inverse Price	Rule of Thumb
Roll Spread	Roll (1984), Hasbrouck (2006), Holden (2008)
LOT	Lesmond, Ogden & Trzcinka (1999)
Zero returns	Bekaert, Harvey & Lundblad (2007)

Class 2: Price-Volume measures

Turnover	Rule of Thumb
Gamma	Pastor & Stambaugh (2003)
Illiquidity	Amihud (2002)
Liquidity Ratio	Cooper, Groth & Avera (1985)

Class 3: Price-Range Measures

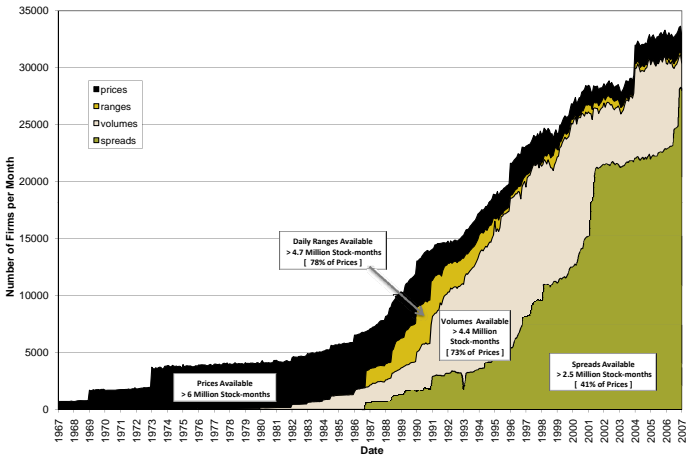
CS Range-based measure	Corwin & Schultz (2008)
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Class 4: Closing Spread Measures - Benchmarks



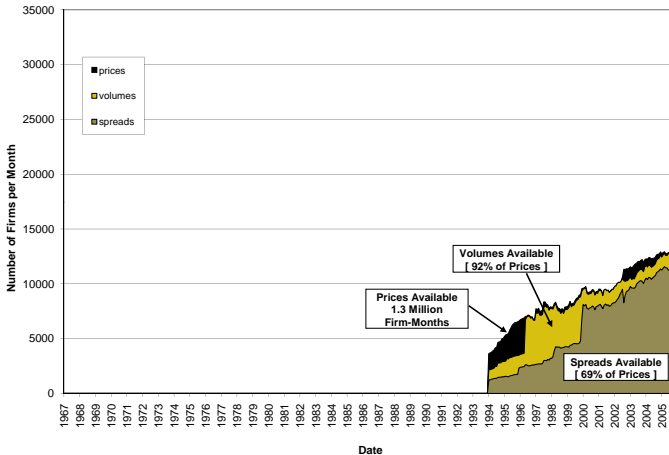
Daily Datastream Availability

71 countries, but only 46 with spread data (19 Developed, 27 Emerging Markets)



Daily Bloomberg Availability

28 Emerging Markets, 16 Overlapped with Datastream



Filters

- 1 **Ince & Porter:** Return Filters
- 2 **Nontrading/Dead Filters:** >2 trades and >2 spread obs per month
- 3 **Griffin, Kelly & Nardari:** Equity Filters
- 4 **Microstructure Filters:** Min Price (>US\$1) and Market Values (>US\$25MM)
- 5 **AHHT:** Spread Location and Scale Filters

$$\text{Location Filter} = \left| \frac{\text{Price} - \text{Midpoint}}{\text{Midpoint}} \right| < 0.5$$

$$\text{Scale Filter} = \left| \frac{\text{Price} - \text{Midpoint}}{\text{Spread}} \right| < 5$$

Results are robust to arbitrary changes in filters [2], [4] and [5].



Sample Selection

Millions of Stock-Months

Country	Stock - months	Main Exch / Equities	Minimum Avg Price	Spread Filters
Developed Countries	4.33	3.29	2.45	0.84
Emerging Markets (<i>DS</i>)	1.47	1.07	0.48	0.23
Emerging Markets (<i>BB</i>)	1.44	1.44	1.30	0.51
Totals	7.24	5.79	4.23	1.58
Percentages of Total		80%	58%	22%



Closing Prices and Benchmark Spreads

Average Frequency of Closing Price Location Relative to Bid-Ask Spreads (%)

Group	Below Bid	At Bid	Inside Below	At Midpoint	Inside Above	At Ask	Above Ask
Developed Countries	5.1	32.3	8.9	7.0	9.5	31.9	5.2
<i>Weighted Avg</i>	3.1	25.7	8.7	20.3	14.6	24.8	2.9
Emerging Markets (<i>DS</i>)	5.1	32.7	12.5	3.5	10.6	31.4	4.2
<i>Weighted Avg</i>	2.2	43.8	5.0	1.8	4.9	39.3	2.9
Emerging Markets (<i>BB</i>)	8.8	29.1	12.8	3.6	11.2	29.3	5.2
<i>Weighted Avg</i>	6.9	36.3	8.7	3.0	7.4	34.5	3.7
Totals	4.1	35.3	7.5	8.3	9.0	32.8	3.2

Analysis is from 27 million daily observations, 15 million from developed countries.



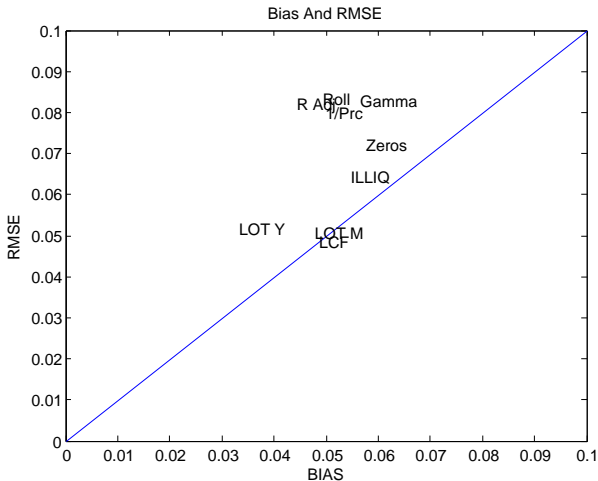
Benchmark: Proportional Spreads

Averages

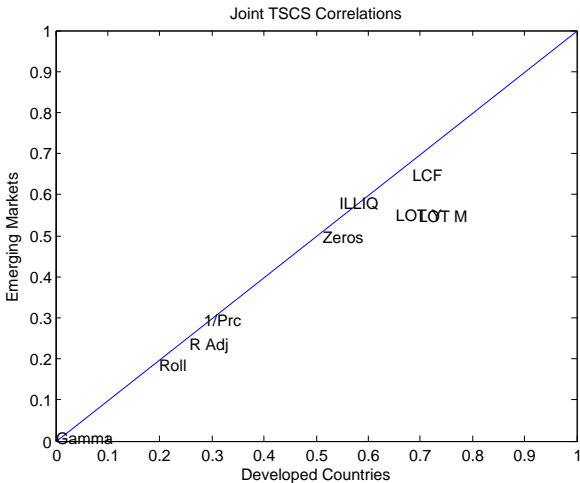
Group	MEAN	STD DEV	5 th	95 th
Developed Countries	3.0	4.1	0.3	10.0
<i>Weighted Avg</i>	3.2	4.4	0.4	10.2
Emerging Markets (<i>DS</i>)	3.9	4.7	0.7	12.7
<i>Weighted Avg</i>	2.2	2.6	0.4	7.0
Emerging Markets (<i>BB</i>)	10.2	11.7	1.0	34.5
<i>Weighted Avg</i>	6.7	7.5	0.6	22.0
Totals	5.7%	6.9%	0.7%	19.0%



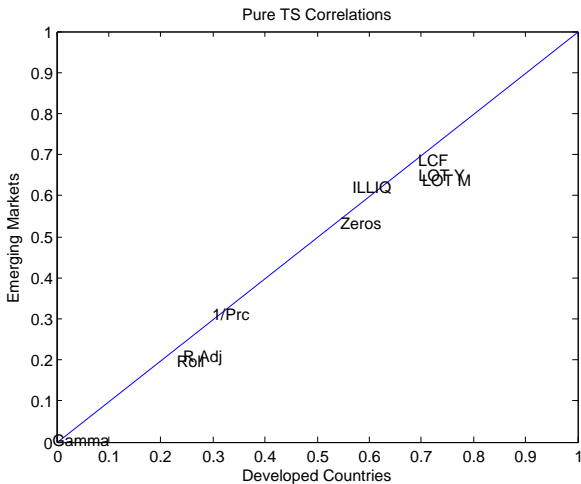
Bias & Error



Joint TSCS Correlations



Pure TS Correlations



Summary of Findings and Extensions

- 1 Overall, LOT, ZEROS, and ILLIQ are most useful.
- 2 Substantial heterogeneity in performance country-by-country - LCF measure helpful.
- 3 What fundamental market and stock characteristics determine the relative performance of the measures?

