Introduction: Market Microstructure Matters

In recent years, North and South American equity markets have continued to evolve in response to a number of factors. Regulations, technological developments and efforts at improvement of execution quality have led to significant changes in equity market microstructure. Instinet continues to focus on the analysis of trends in microstructure in order to improve our trading solutions.

The quarterly Americas Market Structure Summary issues seek to provide periodic updates on topics such as market concentration, intraday trading profiles, liquidity trends and auction volume participation.

Highlights from this quarter include:

- **United States:**
  - Volumes were 18% higher this quarter, with a secular uptick across market cap categories, biggest gains in the large cap space
  - Contrary to last quarter, large cap volatility bottomed in April, inching upwards in May and June. Small/mid cap volatilities were largely flat
  - Trading costs, however, were stable through the quarter due to volume and volatility effects offsetting each other
• **Canada:**
  - Continues to be the most concentrated in the Americas region, with just 10% of the highest market cap stocks accounting for over 90% of the traded value in the market
  - Canada volumes saw a general decline compared to the highs in April; when combined with lower volatility led to a slight uptick in execution costs

• **Brazil:**
  - Uncertain political climate drove much of the liquidity changes this quarter as Brazil continues to be a challenging market from a trading cost perspective
  - Volatilities spiked in May and maintained their levels at upwards of 40%
  - Volumes saw a brief spike in May but have since slumped 85% off the highs

• **Mexico:**
  - Remains the most diversified market in the Americas region, with large caps accounting for only 51% of market traded volume
  - Lower market volatility, combined with increasing volumes led trading costs to drop over 30% this quarter
  - The close auction accounted for a substantial proportion of volume for large cap (15.7%), but an insignificant amount for small cap stocks (2.2%)
I. Trade Concentration

The charts show the percentage of total securities, of total market capitalization and of total average daily value traded across market capitalization categories for the United States, Canada, Mexico and Brazil. Please see Glossary for more details.

Source: Instinet

Canada continues to lead the region in terms of concentration of trading and market cap. Over 92% of Canada market capitalization was concentrated in the mega cap group. Mexico had a small uptick in increasing diversity of trading activity, with only 51% of traded value attributable to the 10% of securities with the highest market cap.

This distribution of available volume directly affects trading costs, thus making small caps in Canada particularly expensive to trade, even when compared to Mexico and Brazil securities (as highlighted in Section III).
II. Liquidity Trends: Daily Value Traded, Volatility, Bid/Ask Spread

Traded volume actually increased over the quarter across United States, with large cap stocks seeing as much as a 40% jump in mid-June compared with the beginning of the quarter. The quarter ended with the ~18% increase in volume across the market cap spectrum. Brazil volumes spiked 74% in May, in response to uncertainties in the political climate. Canada volumes were 13% lower through the quarter.

Volatility continued to decline in general this quarter with a few notable exceptions. In the United States, large and mid-cap stocks saw an uptick in volatility compared to the lows in April. Volatility in Brazil spiked to 43% in May, coinciding with larger volumes.

In the United States and Canada, small cap spreads have widened steadily to 25 bps and 30 bps respectively. Mexican stocks, however, saw a 16% contraction in bid/ask spreads in June versus April.
III. METRIC Estimated Impact Costs

This chart indicates the estimated cost of trading an index basket of a specified size using a 1-day VWAP trading style, estimated using Instinet’s METRIC model.

Source: Instinet

In the United States, market impact costs were largely flat across the quarter. However, this does not indicate a uniformly benign trading environment – slight increases in volatility/spread were offset by much larger volumes.

Mexico ended the quarter with much lower trading costs than April, led primarily by favorable moves in volatility, spread and mainly volume. However, Brazil continued to see large execution costs through much of the latter part of the quarter, led by volatility concerns, and lowered volumes.

Source: Instinet
IV. Auction Participation

This chart displays the auction volumes as a percentage of daily traded volume, aggregated by country and market capitalization group. Please see Glossary for more details.

Source: Instinet

Auction participation trends are relatively stable over quarters, but Mexico saw an uptick in volume executed in the last hour to more than 15% of the day’s volume. This was more than three times the level seen in the US.

We continue to see considerable variation between developed and emerging markets. While the closing auction is the larger of the two across countries, the proportion is much higher for emerging markets (13% for Brazil, 15% for Mexico). However, this skew drops dramatically for small/mid cap in markets outside the US.

Source: Instinet
V. **Intraday Profiles: Volume, Volatility, Spread**

This chart displays continuous volume in ten-minute buckets compared to daily traded volume, bid/ask spread versus mid-price and volatility based on five-minute price returns scaled to a daily basis. These are aggregated by country and price groups. Please see Glossary for more details.

Source: Instinet

Higher-priced stocks have a much higher close auction volume than lower-priced securities in all countries we studied with the notable exception of Mexico.

Bid/ask spreads on higher-priced stocks showed a much wider variation across the trading day in all countries. On the other hand, spreads on lower-priced stocks were more stable, constrained due to their tick size.

Source: Instinet
Glossary

Trade Concentration:

The charts show the percentage of total securities, of total market capitalization and of total average daily value traded across market capitalization categories for the United States, Canada, Mexico and Brazil. Market capitalization categories are defined by the proportion of total number of traded securities in the country, with the 10% highest market capitalization securities in the “Mega” category, the subsequent 10% in the “Large” category, the subsequent 10% in the “Mid” cap category and the remaining 70% classified in the “Small” category.

Liquidity Trends: Daily Value Traded, Volatility, Bid/Ask Spread

The charts below show the average daily value, annualized 30-day volatility and average quoted spread per week. Average daily value is calculated across the prior five trading days on a weekly basis. The chart represents the cumulative change in average daily traded compared to the first week of the quarter. Volatility is calculated weekly as the 30-day close-to-close volatility. These values are aggregated across market capitalization categories and countries using index weights to calculate averages. We use the following indices to represent large, mid and small cap categories per country:

<table>
<thead>
<tr>
<th>Country</th>
<th>Market Cap Category</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>Large Cap</td>
<td>S&amp;P 500</td>
</tr>
<tr>
<td>US</td>
<td>Mid Cap</td>
<td>S&amp;P Midcap 400</td>
</tr>
<tr>
<td>US</td>
<td>Small Cap</td>
<td>S&amp;P Smallcap 600</td>
</tr>
<tr>
<td>Canada</td>
<td>Large Cap</td>
<td>S&amp;P/TSX Composite Index</td>
</tr>
<tr>
<td>Canada</td>
<td>Small Cap</td>
<td>S&amp;P/TSX SmallCap Index</td>
</tr>
<tr>
<td>Mexico</td>
<td>Large Cap</td>
<td>Mexican Bolsa IPC Index</td>
</tr>
<tr>
<td>Brazil</td>
<td>Large Cap</td>
<td>Ibovespa Brasil Index</td>
</tr>
</tbody>
</table>

Liquidity Trends: METRIC Estimated Impact Costs for $100m basket

This chart indicates the estimated cost of trading a basket composed of the constituents of an index of a pre-specified size, using an open-to-close VWAP trading style over one day, computed using Instinet’s METRIC model. This cost includes the market impact and spread cost. The primary inputs into this model include available volume, bid/ask spread and volatility. We use the following basket sizes to compute estimated impact costs.
### Informed Trading

**Market Structure Trends**

**Americas Q2 2017**

<table>
<thead>
<tr>
<th>Country</th>
<th>Market Cap Category</th>
<th>Basket Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>Large Cap</td>
<td>USD 100 million</td>
</tr>
<tr>
<td>US</td>
<td>Mid Cap</td>
<td>USD 100 million</td>
</tr>
<tr>
<td>US</td>
<td>Small Cap</td>
<td>USD 100 million</td>
</tr>
<tr>
<td>Canada</td>
<td>Large Cap</td>
<td>USD 10 million</td>
</tr>
<tr>
<td>Canada</td>
<td>Small Cap</td>
<td>USD 10 million</td>
</tr>
<tr>
<td>Mexico</td>
<td>Large Cap</td>
<td>USD 10 million</td>
</tr>
<tr>
<td>Brazil</td>
<td>Large Cap</td>
<td>USD 10 million</td>
</tr>
</tbody>
</table>

**METRIC**, the Model-Estimated Trade Impact Cost model, provides a quantitative approach to estimate the execution costs and associate risks given the pre-trade inputs. This model was developed from a combination of empirical studies and theoretical derivation. It is adaptive to trading strategy and is intraday and multi-day aware. It is available via Instinet’s analytics tools including TradeSpex and Indigo, in the form of cost curve data files and as part of automated execution cost reports.

### Auction Participation:

This chart displays the auction volumes as a percentage of daily traded volume, aggregated by country and liquidity group. The aggregation is performed using an average weighted by the daily traded value over the past 20 days. The “Large” category collectively accounts for 50% of the country’s traded value, while the “Mid” and “Small” categories each account for the subsequent 25%.

### Intraday Profiles: Volume, Volatility, Spread

This chart shows a breakdown of intraday volume, volatility and effective spread profiles during the continuous trading session, by country and stock price. These charts do not include open and close data. We use the following indices to represent the securities in each country:

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We use the median price of the index constituents to determine the “high price” and “low price” categories. Aggregations within groups are weighted by average daily traded value. Volume profiles are displayed as percentage volume in ten-minute buckets. Volatility is based on five-minute price returns and expressed in daily percentage point terms. Bid/ask spread is shown as a ratio to the mid-price in basis points.
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