

# MOC Activity on the TSX

Thoughts on recent Market-on-Close  
Activity on the TSX

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Quantitative Execution Services

(416) 359-5743  
qes@bmo.com

**Doug Clark**  
(416) 359-4151  
doug.clark@bmo.com

**Rizwan Awan, CFA**  
(416) 359-5195  
rizwan.awan@bmo.com

**Jeremy Dietrich**  
(416) 359-5692  
jeremy.dietrich@bmo.com

**Andrew Ng**  
(416) 359-8692  
andrew.ng@bmo.com

The TSX has seen a surge in trading volume and volatility within its MOC facility of late. In an attempt to explain what is driving this activity and better describe the effect this surge of activity has had on the marketplace, we have examined the data from the last 3 quarter end months – March, June and September 2008.

	March 2008	June 2008	Sept 2008
Trading days	21	21	22
ADV for TSX (mm shares)	431	388	501
Avg. spread on TSX60 (bps)	20.9	17.1	39.5
Median closing value for VIX	26.9	21.9	29.8
MOC imbalances for month (mm shares)	69.8	59.7	118.4
MOC imbalances per day (mm shares)	3.32	2.84	5.38
MOC print sizes for month (mm shares)	162.6	146.4	274.9
MOC print sizes per day (mm shares)	7.74	6.97	12.49
MOC print as percentage of total volume	1.8	1.8	2.5
Imbalance as percentage of MOC print	42	43	43
Avg move between 4pm - MOC (bps)	37	31	75

## Highlights

- In September the MOC print accounted for 2.5% of TSX volume, up from 1.8% in both March and June.
- The average price move between the 4pm last tick and the MOC print was 75 bps in September, double the March and June numbers of 37 bps and 31 bps.
- The number of large moves on the MOC print has risen dramatically. In March there were a total of 79 moves greater than 2%, the number rose to 501 in September.
- The MOC print moved in the opposite direction of the imbalance (i.e. buy imbalance has an MOC print below the 4pm tick) roughly 10% of the time, with a move roughly 4X greater than the average.

## Explanations

### Explaining the Rise in MOC volume

We propose the following two reasons for MOC volumes to have grown so dramatically over the past 6 months.

**ETF Delta hedging:** The explosion of ETF products over that last 24 months has resulted in the creation of ETFs that attempt to achieve 2X market exposure – either on the up or down side. These products have very flexible trading constraints that allow them to achieve this result with a wide variety of cash and derivative products. Invariably the ETF managers end up using significant derivative product and are forced to adjust their delta to 2 (or -2) on a periodic basis. These managers have chosen to adjust these deltas once daily, using the MOC for this adjustment. As delta adjustments are necessarily larger when markets have larger moves, the ETF contribution to the MOC facility has grown significantly in recent months. (The sectors with the most prevalent ETF products – Golds, Energy and Financials – have seen the greatest growth in MOC trading).

**Increased Closing Benchmark Risk:** The unprecedented volatility in the markets has increased the benchmark risk associated with starting a trade early. Currently traders who are benchmarked to the closing price are holding off trading until later in the day, and placing larger portions of their trade into the MOC facility. The risk of extra market impact is now lower, in many instances, than the risk of starting a trade early and having the market move against you.

### Explaining the Rise in MOC Volatility

It would be easy to suggest that increased volatility during the normal trading day should result in increased volatility in the MOC, but we would like to suggest a few other factors in play that are causing larger moves to occur.

**Increased market correlation:** When markets start trading more on macro news events rather than micro news you see market correlations rise. This means that traders are selling entire sectors, geographies or markets rather than making relative bets by selling the overvalued and buying the undervalued. We have seen evidence of this correlation in the imbalances as daily imbalances have moved away from historical levels averaging roughly 60% - 40% in one direction (e.g. 60% names have buy imbalances, 40% have sell imbalances) to recent levels closer to 85% - 15%. This one way imbalance prevents arbs from making spread bets off of the MOC imbalances. Traditionally such spread traders could be counted on to partially offset some imbalances (e.g. buy imbalance on G, sell imbalance on ABX).

**Increased overnight risk:** The average difference between the closing value of the S&P/TSX 60 index skyrocketed in September to a whopping 11.31 points – versus 2.74 in June and 5.15 in March. This increase in overnight risk has greatly reduced the incentive for traders to offset MOC imbalances with anything other than natural flow. Traditionally prop traders have stepped in at what they deemed to be favourable prices to offset large imbalances. The data indicates that these traders have prudently lowered their risk tolerance by standing in for less stock and at wider spreads. This risk has also resulted in some natural flow shying away from offsetting imbalances as the cost of not completing an order can be significantly larger than the price improvement gained in the MOC facility.

**Short sell ban:** Finally we would argue that some portion of the increased MOC moves can be attributed to the short sell ban on financial securities that took effect on September 20<sup>th</sup>. As a result of this ban derivative arbitrage activity has been curtailed resulting in wider spreads on the affected stocks – the spread on TD widened out from 7 bps to 35 bps after the short sell ban. This is important as the MOC price is set based on where the net imbalance after offsets will clear in the regular limit order book – any widening of spreads will mean having to move further in the book to clear the imbalance.

The purpose of this piece is to highlight some of the recent changes in trading patterns and the effect they have had on trading around the close. If you are interested in discussing how you can use this information to more effectively trade your own flow we would be thrilled to sit down and discuss various potential strategies with you.

***BMO Quantitative Execution Services***  
***qes@bmo.com***  
***416 359-5743***

***Doug Clark***  
***Rizwan Awan, CFA***  
***Jeremy Dietrich***  
***Andrew Ng***

All Data was sourced from Bloomberg, Reuters or the TSX.

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