IMPROVING ORDER EXECUTION

The Ascent of E-mini Equity Index Futures and What It Means for Your Bottom Line

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with questions and comments CLICK HERE

CME Group E-mini equity index futures have solidified their leadership position in the listed equity index derivatives market.

The desire to effectively leverage the growth of E-mini futures has many clients asking, "*Do I have the right order placement and/or execution strategy for today's market?"*

The appropriate order placement strategy, of course, depends on the customer's trading and risk-management goals, which can be unique to their circumstances. To help market participants' identify their optimal execution strategy, we have compiled a comprehensive, quantitative review of our executed orders. Specifically, we examined:

- **Distribution of Original Orders' Sizes**
- **Speed of Execution**
- **Market Impact Costs**
- **Changes in E-mini Volume and Open Interest over the Last Five Years**

The Methodology

For the purposes of this discussion, we have confined our analysis to Immediately Executable Orders. The concept is akin to that of a market order, with the exception that the order is deemed immediately executable if it can be executed at least partially at the moment it reaches the central limit order book. All the trade executions associated with the Immediately Executable Order are then re-assembled for evaluating execution quality. All data is generated by CME Group.

Initial Observations (E-mini S&P 500)

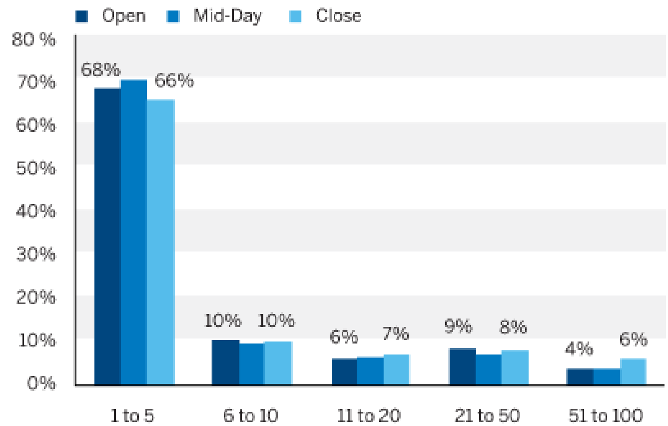
- Order quantities between six and 49 contracts are being executed with lower market impact than orders of five or fewer contracts

- Approximately 90 percent of all orders of fewer than 50 contracts are being **executed** in 50 milliseconds or less.

Distribution of Original Orders' Sizes

Given the diversity of the user base, there is a wide distribution of order sizes within an individual product. As the graph in Exhibit 1 shows, across hours, the majority of filled orders have original order quantities of 100 contracts or fewer.

Exhibit 1: Filled Orders by Size and Time
All times are listed in Chicago time. Open: 8:30- 9:00 a.m.; Mid-Day: 11:30 a.m.-12 p.m.; Close: 2:30-3:00 p.m.



Of course, orders are not equally distributed across these three time periods. Similar to flows in the underlying cash markets, there is increased order activity around the open and close of the cash markets.

As a result, we see a different average order size during different time periods. Exhibits 2 and 3 show our average order size in contract and notional dollar terms from a representative time period at market open, mid-day and close.

Exhibit 2: Average Order Size – Contracts

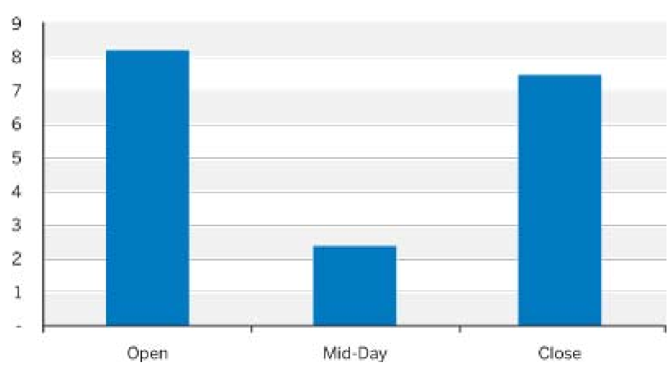
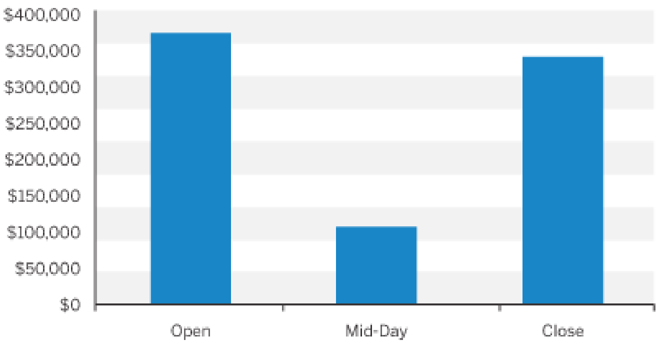


Exhibit 3: Average Order Size – Notional $ Value

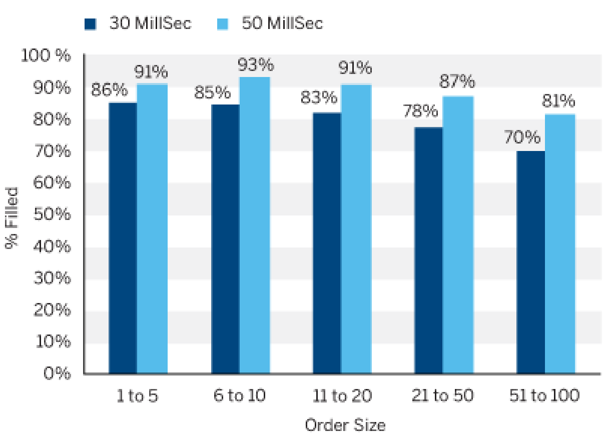


Speed of Execution

The use of E-mini contracts by many broker-dealers to hedge positions and the growth of high frequency trading strategies place a significant premium on speed of access. Addressing this need requires both a highly efficient and scalable platform and a deep and diverse pool of market participants.

With our advanced CME Globex platform and broad client base, we have been able to satisfy both requirements. As Exhibit 4 illustrates, over 80 percent of orders across all order sizes are filled and reported within 50 milliseconds of the orders' **arrival/entry** to CME Globex.

Exhibit 4: Order Execution Percentage by Size/Speed



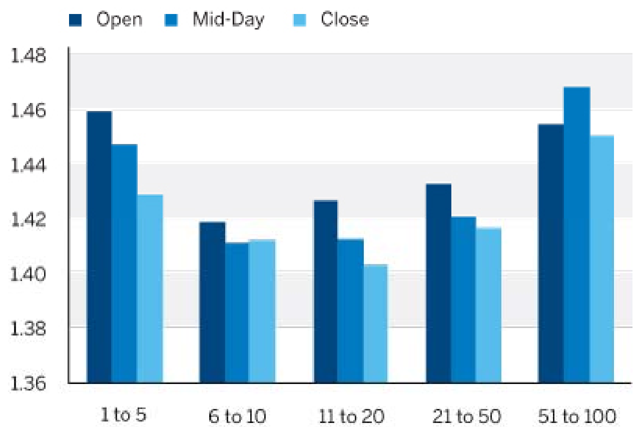
Note: Due to cancellations, the filled percentage will not reach 100 percent of the order quantity.

Market Impact Costs

Clearly, the ability to transact orders without moving the market is critical. Although a number of different metrics may be used to assess market impact, we considered the difference between the middle of the market at the time of the order's arrival and the order's execution price, or the average execution price in the event of fills at different prices.

Our rationale is that while many variables can influence an order's impact on the market, the depth of book, size of the order and the client's urgency will have a significant effect. The graph in Exhibit 5 reflects the average market impact, by order size, in the E-mini S&P 500 futures contract at different times of the day.

Exhibit 5: E-mini S&P 500 Market Impact Costs (in Basis Points)



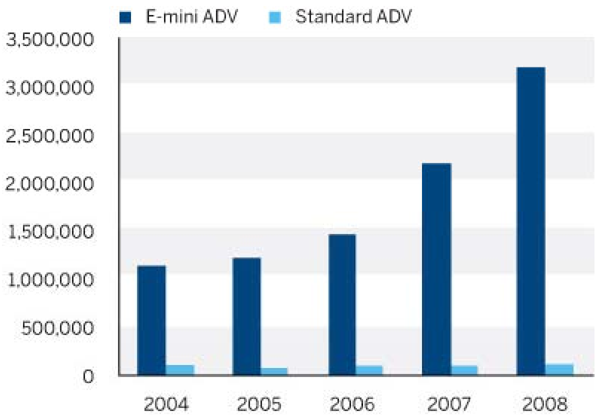
Changes in E-mini Volume and Open Interest over the Last Five Years

The substantial growth in E-mini volume over the past five years has been fueled by both investors' and traders' adoption of electronic trading – a trend that followed the success of electronic trading in cash equities and options in the United States and listed derivatives in Europe and Asia. The historical perspective that E-mini trading is preferred mainly by traders and managers with high turnover strategies needs to be updated to reflect adoption of electronic trading across a much broader spectrum of client segments.

Options and exchange-traded fund ("ETF") market makers, portfolio trading desks at dealers and high frequency trading strategies were among those who first migrated to electronic futures trading. Following in their footsteps, institutional investors have migrated to trading futures electronically. E-mini futures now represent more than 95 percent of equity index futures trading by contract volume and 83 percent by notional value executed. To provide historical context, in early 2002, only the NASDAQ-100 futures contract had more than 50 percent of its volume executed electronically.

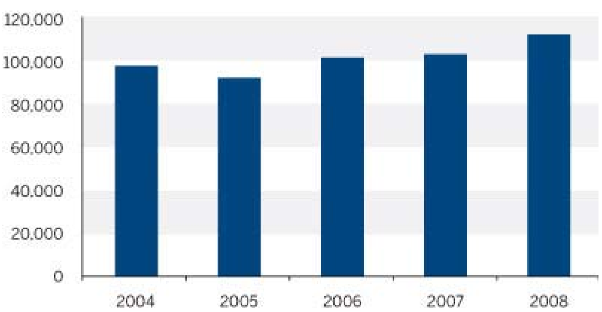
Exhibit 6 on the following page illustrates the growth in average daily volume (ADV) of E-mini equity index contracts over the past five years (includes E-mini contracts on the S&P 500, NASDAQ-100, Dow Jones Industrial Average, S&P MidCap 400, S&P SmallCap 600, MSCI EAFE and MSCI Emerging Markets indexes).

Exhibit 6: Growth of CME Group Equity Index Contracts (E-mini and standard contracts) by ADV



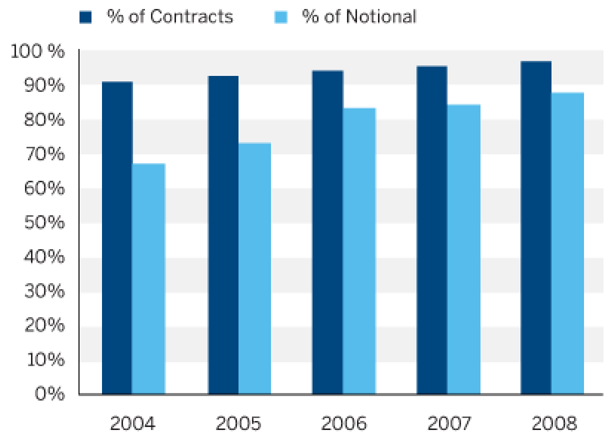
It is important to note that, while E-minis have grown at a substantial pace, their ascent has not reduced the absolute level of trading activity in the standard equity index futures contracts. Exhibit 7 shows the growth in ADV for standard equity index contracts over the last five years.

Exhibit 7: Growth in ADV of Standard Equity Index Contracts



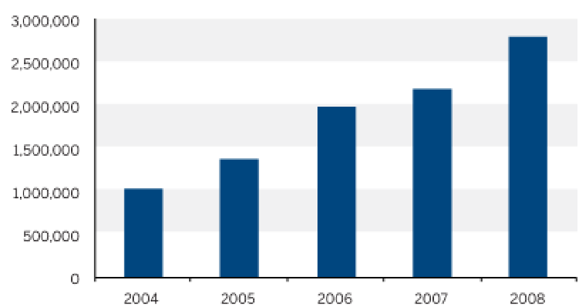
As Exhibit 8 shows, however, the E-mini S&P 500 futures' pace of growth has increased the E-mini contracts' percentage of volume in both contract and notional terms.

Exhibit 8: E-mini S&P 500 Futures Growth in Percentage of Contracts and Notional Value



Over the last five years, the level and percentage of open interest in E-mini contracts also has grown. Exhibit 9 shows the aggregate number of contracts of open interest across all E-mini futures contracts. Additionally, the E-mini open interest-to- volume ratio (number of contracts of open interest divided by ADV) has remained within 10 percent of its 2004 level. The ratio can be used to measure the level of long- versus short-term investing strategies using futures. In 2004, the ratio was 0.98, versus 0.88 in 2008.

Exhibit 9: Growth in E-mini Open Interest



As the table in Exhibit 10 on the next page reflects, all major equity index futures are now trading electronically. Across the portfolio of CME Group products, the average notional value traded during the month of December 2008 was more than $145 billion daily.

Exhibit 10: CME Group Equity Index Futures Snapshot (for December 2008)

December 2008		Ticker	Average Daily Volume: ADV Contracts	Average Daily Volume: ADV $Notional ($millions)	Open Interest: Open Interest Contracts	Open Interest: O.I. $Notional ($millions)	Index Close 31-December-'08	2008 YTD Price Return	20 Day Hist. Volatility
S&P 500	E-mini S&P 500	ES	2,299,411	$103,847	2,365,472	$106,831	903.25	-38.49%	34.70%
	S&P 500	SP	96,010	$21,680	483,682	$109,221			
	S&P 500 Total		2,395,421	$125,527	2,849,154	$216,052			
S&P 400	E-mini S&P MidCap 400	EMD	47,172	$2,539	115,217	$6,202	538.28	-37.28%	44.25%
	S&P MidCap 400	MD	616	$166	3,929	$1,057			
	S&P MIdCap 400 Total		47,788	$2,705	119,146	$7,259			
S&P 600	E-mini S&P SmallCap 600	SMC	377	$10	2,126	$57	268.73	-31.99%	47.99%
	S&P SmallCap 600	SMP	0	$0.00	0	$0			
	S&P SmallCap 600 Total		377	$10	2,126	$57			
ND100	E-mini NASDAQ-100	NQ	298,697	$7,238	229,620	$5,564	1211.65	-41.89%	37.77%
	NASDAQ-100	ND	4,604	$558	19,989	$2,422			
	NASDAQ-100 Total		303,301	$7,796	249,609	$7,986			
DJIA	E-mini Dow $5	YM	200,656	$8,805	54,554	$2,394	8776.39	-33.84%	31.36%
	DJIA - $10 Dow	DJ	2,626	$230	9,816	$861			
	DJIA Total		203,282	$9,036	64,370	$3,255			
NK225	Nikkei 225 (US$)	NK	14,609	$647	31,015	$1,374	8859.56	-42.12%	39.56%
	Nikkei 225 (Yen)	NIY	17,260	$765	37,030	$1,640			
	Nikkei 225 Total		31,869	$1,412	68,045	$3,014			
EAFE	E-mini MSCI EAFE	EFE	4,074	$252	28,363	$1,755	1237.42	-45.09%	26.79%
EM	E-mini MSCI Emerging Mkts	EMI	1,733	$49	12,776	$362	567.04	-54.48%	30.01%
S&P 500	E-mini S&P 500 Euro Denom	EME	10	€ 0.45	11	€ 0.50	903.25	-38.49%	34.70%

With the breadth of products available, CME Group E-mini futures offer global investors "one-stop shopping" for their execution, trading, reporting and risk-management needs.

Taking the Analysis to the Next Level

In this paper, we've provided customers with a foundation for comparing their current execution strategy to the opportunities available through our liquid E-mini futures markets.

As stated earlier, identifying the optimal execution strategy can depend on execution and risk-management factors unique to each client's situation.

To help customers get a clearer picture and make an informed decision based on their own circumstances, we have similar analysis on each of our E-mini products.

Contact the CME Group Equity Products Team Today

For more information on the range of our analysis, or for questions related to the methodology used here, contact a member of the CME Group Equity products team:

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For more information and research, visit the CME Group Equity Index Research Center at **www.cmegroup.com/equityindexresearch.**

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