“[A] much more complex form of fragmentation comes from the ability of market participants to trade the same stock via multiple products. For instance, an investor who wants exposure to stocks composing the S&P 500 index can do so by:”
• “Purchasing those individual stocks;
• Purchasing call options or selling put options on those stocks (both on exchanges and over-the-counter);
• Purchasing call options or selling put options on the index itself (also both on exchanges and over-the-counter);
• Purchasing futures contracts on the index, or on individual stocks;
• Investing in shares of a mutual fund that holds individual S&P 500 stocks, or otherwise tracks the index;
• Buying a structured note that is linked to the performance of the S&P 500 index or some complex formula involving a combination of one or more individual stocks;

• Engaging in equity swaps, volatility swaps, or dividend swaps, on individual stocks or the index as a whole;

• Purchasing shares of an ETF that tracks the S&P 500 or some subset of S&P 500 stocks; and even

• Selling shares of an ETF that inversely tracks the S&P 500 index. In this case though two “wrongs” may not make a “right,” two shorts do make a long.
Number of Options and Futures Contracts in Millions in United States
1973-2011

Stock Market Daily Average
Volume in Millions of Shares 1990-2010 (Source: SIFMA Key Statistics)
Stock Market Daily Average Value in $ Billions 1990-2010 (Source: SIFMA Key Statistics)

Source: www.bis.org/statistics/index.htm; data since 1998 not strictly comparable to prior years.

- NYSE % of NYSE-Listed 1976-2007
- NASD % of NYSE-Listed 1976-2004
- Other Exchange % of NYSE-Listed 1976-2004
- NYSE % of Total Exchange Volume 1960-1975
- AMEX % of Total Exchange Volume 1960-1975
- "Other" Exchange % of Total Volume 1960-1975
(http://www.nyse.com/financials/1143717022567.html)
Figure 1: NYSE and NYSE Group Number of Trades (in thousands) and Average Share Size of Trades, 1968-2010 (Average Size reads off right axis; 2004-2010 computing differently than prior years)
Number of Trades (thousands) and Average Share Trade Size, NYSE Group, January 2004-October 2011 (Size reads off right axis). Not comparable to NYSE data in Figure 1.

The Divided U.S. Stock Market: Exchange and Off-Exchange Trading Today

Prepared by US Senate Permanent Subcommittee on Investigations, December 2010
Equity Trading in the 21st Century

Fig. 16. Average quotes per minute.

Source: Knight Capital Group.
Faster Executions

Market Order Execution Speed (ms)

- NVSE-listed
- Nasdaq-listed
Equity Trading in the 21st Century

**Fig. 2.** Value-weighted daily average effective spread, NYSE, 1993–2002.


**Fig. 3.** TAQ and CRSP/Gibbs estimates of effective cost in the comparison sample.


Closing Value CBOE Volatility Index (VIX) January 2 1990 Through December 2 2011

FIGURE 1.1: E-Mini Volume and Price

E-Mini Volume and Price

Volume (contracts per minute)

Price

9:30 9:45 10:00 10:15 10:30 10:45 11:00 11:15 11:30 11:45 12:00 12:15 12:30 12:45 13:00 13:15 13:30 13:45 14:00 14:15 14:30 14:45 15:00 15:15 15:30 15:45 16:00

Price

90,000 80,000 70,000 60,000 50,000 40,000 30,000 20,000 10,000 0
FIGURE 1.3: E-Mini Buy-Side and Sell-Side Market Depth (all quotes)
FIGURE 1.4: SPY Buy-Side and Sell-side Market Depth within 500 basis points of mid-quote
FIGURE 1.5: Buy-Side Market Depth for E-Mini (all quotes) and SPY (within 500 basis points of mid-quote)

- Securities commissions
- Trading & investments
- Other income related to securities business
- Underwriting
NYSE Member Firms' Revenue From Major Revenue Source, in $ Millions, 1976-2009 (Source: NYSE Member Firms' Income Statements, SIFMA 2009 Electronic Factbook)
% of NYSE Member Firms' Revenue From Major Revenue Source, 1976-2009
(Source: NYSE Member Firms' Income Statements, SIFMA 2010 Electronic Fact Book)