

PRODUCT INNOVATION, CLEARING, AND COMPETITION AMONG U.S. DERIVATIVES EXCHANGES*

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Abstract

Futures traders are attracted to market liquidity—the ability to buy and sell without the transaction having a large impact on market price. Market liquidity is associated with a large number of buyers and sellers and high average daily volumes of trading. This Article discusses the reluctance of futures traders to switch to a new exchange which does not have as much liquidity as an older, established exchange and the difficulty that these new exchanges face in acquiring even a marginal portion of the market share. These difficulties arise because these exchanges choose to use a clearing house that they own or control and they do not list fungible products that can be offset at other exchanges. The Article further suggests that this strategy protects the established exchanges from competition from new exchanges.

I. Introduction

My first job after graduate school was designing new futures contracts for the Chicago Mercantile Exchange (“CME” or, since 2007, “CME Group”). It was not an uplifting job, because most of what we created—about eighty percent—failed. But the process got me thinking about why some contracts succeed and others fail. One basic rule I learned was that a sure way to fail was to create a near clone of some product that was already actively traded at another exchange. It was virtually impossible to capture market share from a product that had already become successful at a competing exchange.

II. Liquidity Driven Monopolies in Futures Markets

Why? The market structure that has evolved in the futures industry has resulted in each exchange having its own portfolio of monopoly products. On the day that they merged in 2007, the CME had about seventy futures products and the Chicago Board of Trade (“CBOT”) had about thirty-five products. Not a single contract was actively traded at both exchanges. What is going on is simple.

* This discussion was adapted from a powerpoint presentation, appendix A of this Article, by Professor Michael Gorham, Director of the IIT Stuart Center for Financial Markets at the Illinois Institute of Technology. The presentation was given at The John Marshall Law School conference, *Derivatives: The Changing Legal and Compliance Landscape* (Apr. 17, 2012).

It is a process best described as “liquidity-driven monopoly.” One of the most important things that futures traders want is market liquidity. They want to be able to buy and sell without their transaction having much of an impact on market price. It is not just having a narrow bid-ask spread, because that might exist only for small transactions. Market liquidity is generally associated with lots of buyers and sellers and high average daily volumes of trading. If an exchange has a liquid market in some product and a second market is created in the same product at another exchange, the imitator almost always fails. The new market cannot create enough liquidity to attract traders away from the older liquid market.

Exchanges still try to capture market share from other exchanges. Since 2009, Electronic Liquidity Exchange Futures (“ELX Futures”) has competed directly with CME Group by listing clones of its Treasury and Eurodollar contracts, but ELX Futures’ volume has now shrunk almost to zero. NYSE Liffe U.S. has launched a similar attack, but with some margining advantages that have allowed it to reach between one percent and two percent market share so far. But I never had high hopes for either imitator, or for the exchange called Broker Tec that tried a similar failed attack on CBOT Treasury products back in 2000.

So it clearly pays to be first. This first-mover advantage is illustrated in a few classic battles. Back during the magic period when financial innovations totally rearranged the landscape of the once sleepy futures markets, the CME launched a T-bill contract. It took other exchanges three years to realize what a great product that was. But it was too late. It is apparent from the chart that the New York Futures Exchange, COMEX and the American Commodity Exchange never made a dent in CME’s T-bill business (see chart titled “Competition: T-bill Futures, First Mover Wins” in Appendix A). The CME had such tremendous liquidity, that it made no sense for traders and brokers to shift their trading to the other markets.

In another competition, COMEX, the metals exchange listed silver futures back in 1963. It traded very low volumes for four years, but when it started to take off in 1967–68, it caught the attention of the world’s then-largest exchange, the CBOT. And with their marketing power, the CBOT almost caught up with the much smaller COMEX (see chart “Competition: Silver Futures, First Mover Wins”). But after the silver bubble (created by the Hunt Brothers) collapsed in 1979, silver futures trading dropped significantly at both exchanges, but only COMEX was able to bounce back.

So, what happens when a number of exchanges get the same idea at the same time and there is no first mover? In 1974, Congress repealed the Gold Reserve Act of 1934, making it possible again for Americans to own gold. On the day the law went into effect, five exchanges listed gold contracts. And for three years, COMEX and the CME were neck and neck (see chart “Gold Futures Simultaneous Launches”). Then, in 1979, COMEX started pulling rapidly ahead and CME began losing volume as traders moved from the less to the more liquid market. Why did COMEX win? For our purposes it does not matter. The point is that this is generally a winner-take-all game. But for the curious, the likely reason is that COMEX was the long-time metals exchange with established distribution channels and relationships in the metals community.

In principle, if the exchange attacking the monopoly product of another exchange offered some spectacular benefit, it could be sufficient to convince traders to transfer their business to the new market. The only case in which I have seen this happen is when an electronic exchange attacked a floor-based exchange. And this has occurred during this fragile period when new electronic exchanges were being launched and old, member-owned exchanges were reluctant to give up their floors. The first of these was in 1998 when the electronic German exchange known as Deutsche Terminbörse (“DTB”) captured all trading in the German Bund away from the London International Financial Futures Exchange (“LIFFE”). The Bund had been the floor-based LIFFE’s most actively traded product and its loss violated the liquidity driven monopoly principle and seriously frightened the floor-based exchanges of the world.

The second case took place in 2006, when the all-electronic ICE Futures Europe,¹ listed a clone of the New York Mercantile Exchange’s (“NYMEX”) huge crude oil futures contract benchmark, West Texas Intermediate (“WTI”).² NYMEX was an easy target. Not only was it very slow in developing its own electronic system, it actually was moving in the other direction by opening floor-based energy exchanges in Dublin and London. So, the industry was shocked to see ICE capture a thirty percent market share in a matter of a few months. NYMEX saved itself from losing its entire market share by striking a deal to use the CME’s Globex to provide a quality electronic platform to NYMEX customers.

III. Why Are There Not Monopolies in Equity Options?

Why does this liquidity driven monopoly principle take hold in futures markets but not in the huge market for exchange-traded equity options? It has nothing to do with the fact that we are talking about two different types of derivatives—futures and options. It has everything to do with regulation and clearing. Exchange-traded futures, which were introduced about a century and a half ago at the end of the Civil War, enjoyed a long early period virtually free of federal regulation, until the enactment of the Grain Futures Act in 1922.

During the next fifty-two years of federal regulation, market oversight was relatively light. The regulator was a small, relatively weak entity called the Commodity Exchange Authority (“CEA”), which was buried within the very large U.S. Department of Agriculture. In 1974, the law was strengthened and industry oversight was given to an independent entity, called the Commodity Futures Trading Commission (“CFTC”). But one of the key features of the market structure of futures trading was that each exchange had the right to have its own clearing house or share a clearing house with other exchanges, whichever it wished. Even when several exchanges shared a clearing house, each exchange had its own set of independent contracts and did not make them fungible with one another. In other words, a customer could not establish a position at one exchange and offset it at another. A position could be offset only at the exchange on which the position was

1. ICE Futures Europe was known as the London-based International Petroleum Exchange (“IPE”) before it was purchased by IntercontinentalExchange (“ICE”) in 2001.

2. It was not a total clone in that unlike the NYMEX physically delivered contract, ICE’s version was cash settled. And to add insult to injury, it used NYMEX’s crude oil futures price as the basis for settlement.

created.³ This structure was the result of the organic evolution of the business, with little regulatory interference.

In 1973, the members of the world's largest futures exchange, the CBOT, decided to create a totally new exchange to trade equity options. And because the underlying asset was a security and because options were still banned on futures exchanges, it had to be regulated by the Securities and Exchange Commission ("SEC"), not the futures regulator. Initially, the CBOE intended to model itself on its mother exchange, which had an independent, but slightly captive clearing house called the Board of Trade Clearing Corporation ("BOTCC"). When other SEC-regulated securities exchanges saw the CBOE's success, they wanted to also list options. While I do not know all the details, I suspect that the SEC decided to apply the existing securities industry model for clearing and settlement to the new options industry. So the SEC convinced the CBOE to spin its own clearing house off into an industry utility serving all the new exchange traded equity options and insisted that all options be identically structured and fungible.⁴

This resulted in much more inter-exchange product competition than ever existed in the futures industry. In futures, you get married to the exchange on which you open a position (i.e., go long or short) because when you want to offset it, you can only do it at that same exchange whose clearing house holds your position. In the new options industry, you can be promiscuous, putting a position on at whichever exchange offers you the best price, and offsetting the position again at whichever exchange offers you the best price, because your position is not held at the exchange, but at the common clearing house used by all exchanges.

What does that look like?⁵ In March 2012, there were 3,554 different equity options and exchange traded fund options listed at the nine different U.S. options exchanges. For ninety percent of all these options, every one of the nine exchanges had some market share. The average market share of the dominant exchange was only twenty-nine percent. This is the polar opposite of futures exchanges, where each exchange has a portfolio of monopoly products. And in cases where two or more exchanges list the same product, as mentioned earlier in Treasuries and Eurodollars, the dominant exchange has something closer to ninety-five percent or ninety-eight percent market share.⁶

While the first mover seems to have a clear advantage in futures competitions, this does not seem to hold in equity options. There is one exception. While the dominant product on options exchanges is the generic option on some company's stock, options on indexes typically involve a licensing agreement whereby the index publisher grants an exclusive license to an exchange to list an option based on the index. Whoever gets to the publisher first can lock up this right for a number of years in a renewable contract. In those cases, the options exchange does have 100% market share.

3. The only exception to this I can recall was in 1984 when the Chicago Mercantile Exchange ("CME") entered into an agreement with Singapore-based SIMEX to share a single fungible Eurodollar contract that allowed customers to put a position on at SIMEX (today called SGX) and then transfer it to the CME's clearing house in Chicago, Illinois. Today, the relationship is two-way and includes five products.

4. This industry utility is known today as the Options Clearing Corporation ("OCC").

5. Data in this paragraph came from the Market Data section of the OCC's website. *Market Data*, OCC, <http://www.optionsclearing.com/market-data/>.

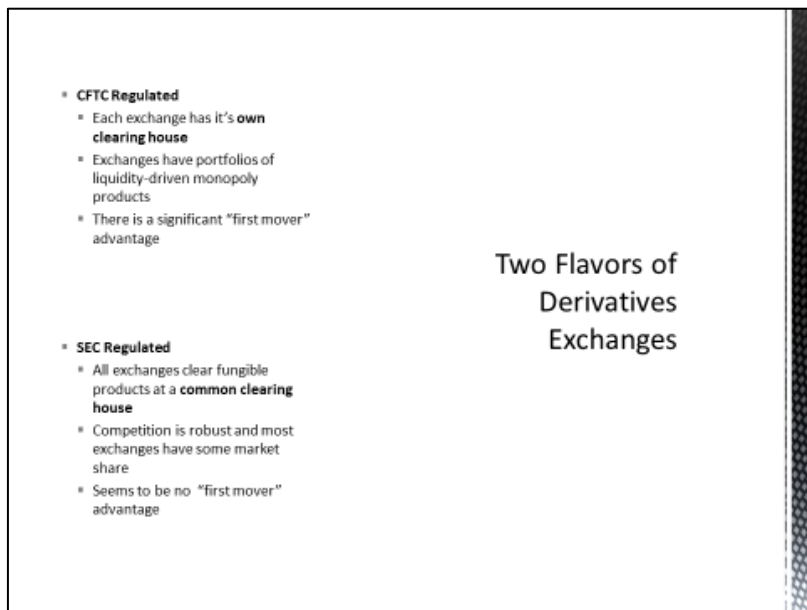
6. See generally Michael Gorham & Poulomi Kundu, *A Half Century of Product Innovation and Competition at U.S. Futures Exchanges*, 20 REV. OF FUTURES MARKETS 105 (July 2012).

IV. Conclusion

U.S derivatives exchanges compete with one another for market share, but the nature of that competition depends crucially on the clearing model used. When given a choice, exchanges choose to use clearing houses that they own or control and they do not list fungible products that can be offset at other exchanges. This protects them from competition from these other exchanges. Because the futures industry was unregulated during its first half century, it organically evolved along these lines.

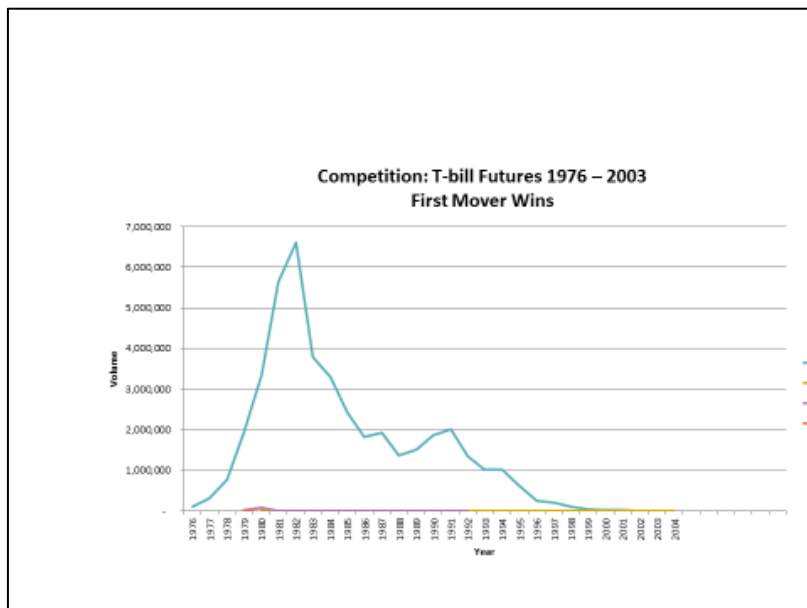
Only when imposed by a regulator, exchanges are forced to accept a clearing arrangement that results in vigorous competition—this is what the SEC imposed on the options industry from the beginning. The result is serious competitive pressures on trading fees, something that happens at futures exchanges only during rare competitive battles for products. In the early part of the last decade, the broker-backed Futures Industry Association pushed the CFTC to impose an SEC type system on the futures exchanges. Naturally this met with serious push back on the part of the exchanges. And even the CFTC felt that it was inappropriate for it to try to impose a new market structure on the futures exchanges. I think it is unlikely that either Congress or the CFTC would push for such a change in the foreseeable future.

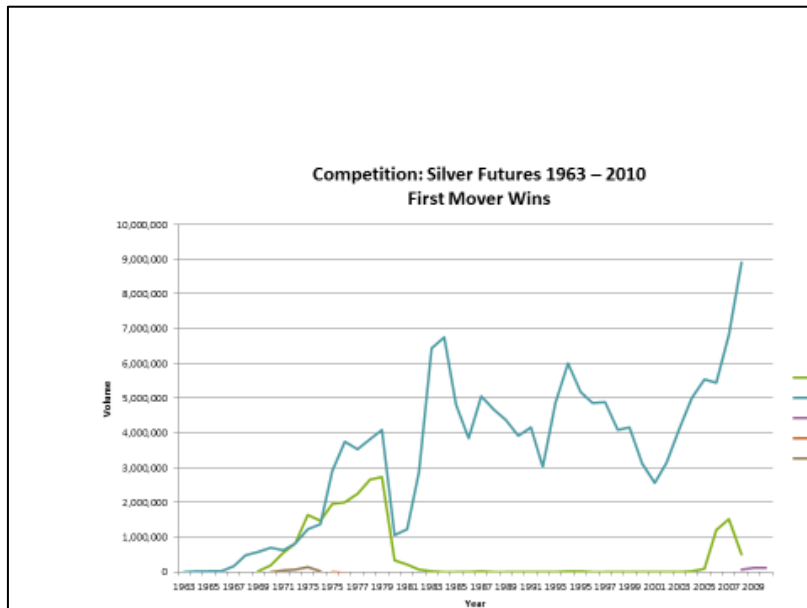
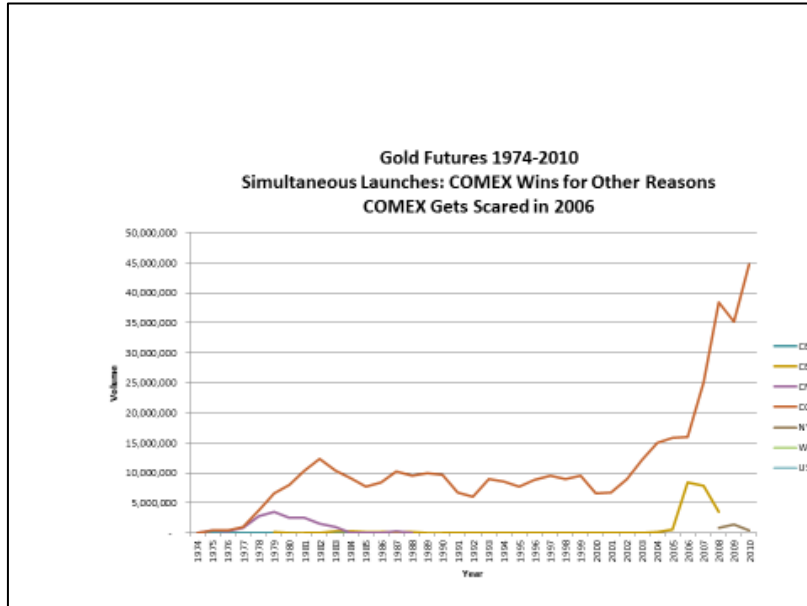
Appendix A
powerpoint presentation



- Traders care about liquidity. They want:
 - A good price
 - Assurance they can offset their position when they need to – and avoid the "roach motel"
- So...they gravitate to the markets with the greatest liquidity and the most counterparties
 - And thus...once an exchange has developed decent liquidity and a critical mass of traders in a product, it is very, very, very difficult for another exchange to list that same product and develop any significant market share

Liquidity-Driven Monopoly





- **When the attacking exchange has some huge advantage**
 - When DTB captured 100% of LIFFE's market share in the German Bund in 1998
 - When CBOT captured 25% of COMEX's market share in Silver
 - When ICE Europe captured 30% of NYMEX's market share in WTI in 2006
 - Eurex US attacks CBOT & CME – was a nail biter
- **Most of the time, there is no huge advantage**
 - Broker Tec attacks CBOT - failed
 - ELX attacks CBOT & CME – doesn't look promising

**Sometimes...the
Liquidity-Driven
Monopoly
Principle Doesn't
Hold**

There is a single clearing entity and government mandated product fungibility

- as in U.S. equity derivatives
- In March 2012, there were 3,554 different equity options and ETF options traded on the nine US options exchanges
 - 90% of these options had the participation of all nine exchanges
 - The average market share of the dominate exchange was only 29%
 - Take Bank of America
 - AMEX & CBOE each had a 24% share
 - PHLX had 16%
 - ISE had 14%
 - The rest had 7%, 6%, 5%, 2% and 1%

**But...the
Liquidity-
Driven
Monopoly
Principle
Absolutely
Doesn't
Hold When**

- **On the day the CME and the CBOT merged**

- The CBOT had about 35 futures contracts and the CME about 70
- But there was not a single, actively traded futures contract they shared in common

In Contrast...

The structure of clearing matters!

- **References**

- Michael Gorham and Poulomi Kundu, "A Half Century of Product Innovation and Competition at U.S. Futures Exchanges, Review of Futures Markets, Volume 20, Special Edition, July 2012.
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- Options Clearing Corporation's website, <http://www.optionsclearing.com/market-data/>