Policy Brief The Heartland Institute

January 2015

Why Do Some Futures Contracts Succeed and Others Fail?

by Hilary Till*

Table of Contents

Why do some futures contracts succeed and others fail?

Although the U.S. futures markets have evolved in a trial-and-error fashion, research suggests key elements have determined whether particular futures contracts succeeded or failed. This knowledge could be useful for new financial centers as they build successful futures markets. It also should guide government regulators, whose past interventions have been frequent and whose future interventions could work against innovation and economic prosperity.

Three elements appear to determine whether a futures contract succeeds or fails:

1. There must be a commercial need for hedging;
2. A pool of speculators must be attracted to the market; and
3. Public policy must not be too discouraging of futures trading.

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The information in this article has been assembled from sources believed to be reliable, but it is not guaranteed by the author. Research assistance from Katherine Farren of Premia Risk Consultancy, Inc. is gratefully acknowledged. She would also like to thank Joseph Bast of the Heartland Institute for very insightful comments and inferences. That said, the author takes responsibility for the content of the article, including any inadvertent errors or omissions.

1. Success: A Commercial Hedging Need

New futures contracts historically have arisen to deal with new risks or to better hedge existing risks. Numerous researchers have provided case studies on new and existing futures contracts, creating a wealth of material to cite and summarize. The review below surveys textbooks, trade publications, academic papers, and think-tank articles to distill lessons from more than 160 years of (largely) U.S. experience with commodity trading.

A. New Risks

The very start of modern futures trading always begins with the history of Chicago.

Chicago Became a Large-Scale Grain Terminal in the Mid-1800s. Once Chicago became a transportation hub and grain terminal in the middle of the nineteenth century, grain merchants had to figure out how to manage the price risk for their accumulating volume of grain inventories. In 1848, the solution was the formation of an exchange: the Chicago Board of Trade (CBOT), whose function gradually evolved from arbitrating commercial disputes and spot trading, to bilateral forward trading, and finally to becoming a member-owned exchange with standardized futures contracts.

New futures contracts historically have arisen to deal with new risks or to better hedge existing risks.

For further historical context, it should be noted "[b]y the time of the Crimean War in the 1850s, Chicago, with its rich outlying agriculture area, was in an excellent position to supply the disrupted world grain trade. During the [U.S.] Civil War, Chicago served as the chief grain concentration point of the Union armies," wrote Hieronymous in *Economics of Futures Trading* (1971). With the concentration of grain in Chicago came the need for managing the price risk of these immense inventories during the unpredictable times brought on by the two successive wars. Hence, a commercial hedging need arose that was met with the institutional development of a commodity exchange in Chicago.

Collapse of the Bretton Woods System Ushered in a New Era of Financial Market Volatility. Another historical example is the transformation of currency arrangements. In "the summer of 1944, delegates from 44 countries met in the midst of World War II [at Bretton Woods, New Hampshire to reshape] the world's international financial system," Schifferes (2008) explained. At this conference, John Maynard Keynes unsuccessfully floated the idea of an alternative post-war currency, the "Bancor," which was to be anchored by 30 commodities, a broader base than the gold standard.

Instead, noted Conte and Karr (2001), "the leaders decided to tie world currencies to the dollar, which, in turn, they agreed should be convertible into gold at $35 per ounce." This created a modified gold standard. Therefore, when the Bretton Woods system functioned, there was no pressing economic need for derivatives to hedge currency risk.

"In 1971, the US … unilaterally went off the gold standard and devalued the dollar … This led to the abandonment of fixed exchange rates and the introduction of floating rates, where the value of all the main currencies was determined by market trading," explained Schifferes (2008). With the U.S. dollar no longer pegged to gold or anything of fixed value, the risk of large price changes entered the markets.

The Chicago futures exchanges developed innovative financial hedging instruments in both currencies and interest rates in the 1970s and 1980s.

As reviewed by Leo Melamed (1994), chairman emeritus of the Chicago Mercantile Exchange (CME), "the collapse of the Bretton Woods Agreement … ushered in an era of considerable risk in currency price fluctuation – risks which could be limited if there were a viable market for currency futures trading." To address those risks, the Chicago futures exchanges developed innovative financial hedging instruments in both currencies and interest rates in the 1970s and 1980s. Equity index futures contracts were added in the 1980s. "[T]he economic benefits of risk transfer and price discovery that were indigenous to futures became available to those outside the agricultural sector," explained Melamed.

Given that the launch of financial futures trading in Chicago became hugely successful, it may be surprising to read about the early skepticism that greeted these efforts. According to Melamed (1994), "Some … thought it ludicrous that [in the early 1970s] a 'bunch of pork belly crapshooters' would dare" launch futures contracts on foreign exchanges. Later this lineage became a point of pride; former CME Chairman Jack Sandner said, "Financial futures were spawned out of the belly of the hog," according to Baeckelandt (2012).

Silber (1985) later discussed why financial futures became such a success: "Futures markets bring the low cost of transacting faced by [interbank] dealers to the rest of the financial community. … [T]his 'democratization of efficient transactions services' underlies much of the success of financial futures." In practice, "high price volatility and a large cash market for the particular financial instrument [has] increase[d] the chances for success for a new futures contract," added Silber.

Figure 1 summarizes the commercial hedging needs that were met by the institutional development of financial futures contracts.

Ultimately, "[t]he success of the stock index contracts and the Eurodollar contract … made the cash settlement procedure the likely source of continued innovation in financial futures," wrote Silber.

Forced Shift to Spot Oil Market. The volatile 1970s provides another example of new risks that were later successfully managed by the development of futures markets. In particular, Yergin (1992) recounts how the structure of the oil industry changed after numerous national-izations in oil-producing countries in the 1970s. This forced some oil companies to shift from long-term contracts to the spot oil market.

Figure 1
A Summary of Successful Financial Futures Contract Launches
Based on Silber (1985)

	Launched	Economic or Unique Contribution	Examples(s) of How the Contracts Are Used	Substantial Risk Reduction Compared to Other Hedging Vehicles	Public Policy Obstacles
Currency Futures	1972	Provided additional liquidity to the organized forward market	For multinational corporations, a vehicle for hedging international risk exposure		
Treasury Bond Futures	1977	Added price discovery in the opaque dealer market for Treasury securities	For dealers, short-term hedges of inventory For asset managers, asset/liability matching, hedging, and "temporary substitutes for cash market transactions"	"the reduction in risk offered by the new bond contract … was significant … compared with the residual risk of cross-hedging Treasury bonds with [the then existing] GNMA futures"	
Eurodollar (Short-Term Interest Rate) Futures	1981	Provided short-selling capability to non-financial corporations	For non-financial corporations, ability to hedge future borrowing costs For banks, asset/liability matching		
Treasury Note Futures	1982			"it offered substantially better facilities for hedging ten-year Treasury notes compared … with the bond [futures] contract"	
Stock-Index Futures	1982	"[S]hort-sale restrictions were overcome by … stock index futures."	For dealers, hedging inventory during institutional block-trading For asset managers, "temporary substitutes for cash market transactions" and passive index-linked strategies		"Extensive regulatory review was required … primarily because of concerns over the … similarity of the cash settlement process to gambling."

Verleger (2012) added the U.K. government's choice of how to tax North Sea oil, starting in the 1970s, also contributed to the development of spot oil markets. "[T]he U.K. Treasury granted itself the right to decide the value of any oil processed by the company that produced it. Exxon, for example, would have been at the mercy of U.K. tax authorities had it processed crude from its fields. Rather than take such a risk, producers chose to sell their crude and then buy crude for processing from others. Their transactions created the first observable spot market for crude," Verleger wrote.

With the structure of the oil industry changing, an economic need for hedging volatile spot oil price risk emerged. The New York Mercantile Exchange (NYMEX) responded to this need with a suite of energy futures contracts, starting with the heating oil contract in 1978.

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According to Yergin (1992), "The initial reaction to the futures market on the part of the established oil companies was one of skepticism and outright hostility. … A senior executive of one of the … [major oil companies] dismissed oil futures 'as a way for dentists to lose money.' But the practice … [of] futures [trading] … moved quickly in terms of acceptability and respectability. … Price risk being what it was, … no [commercial entity] … could afford to stay out."

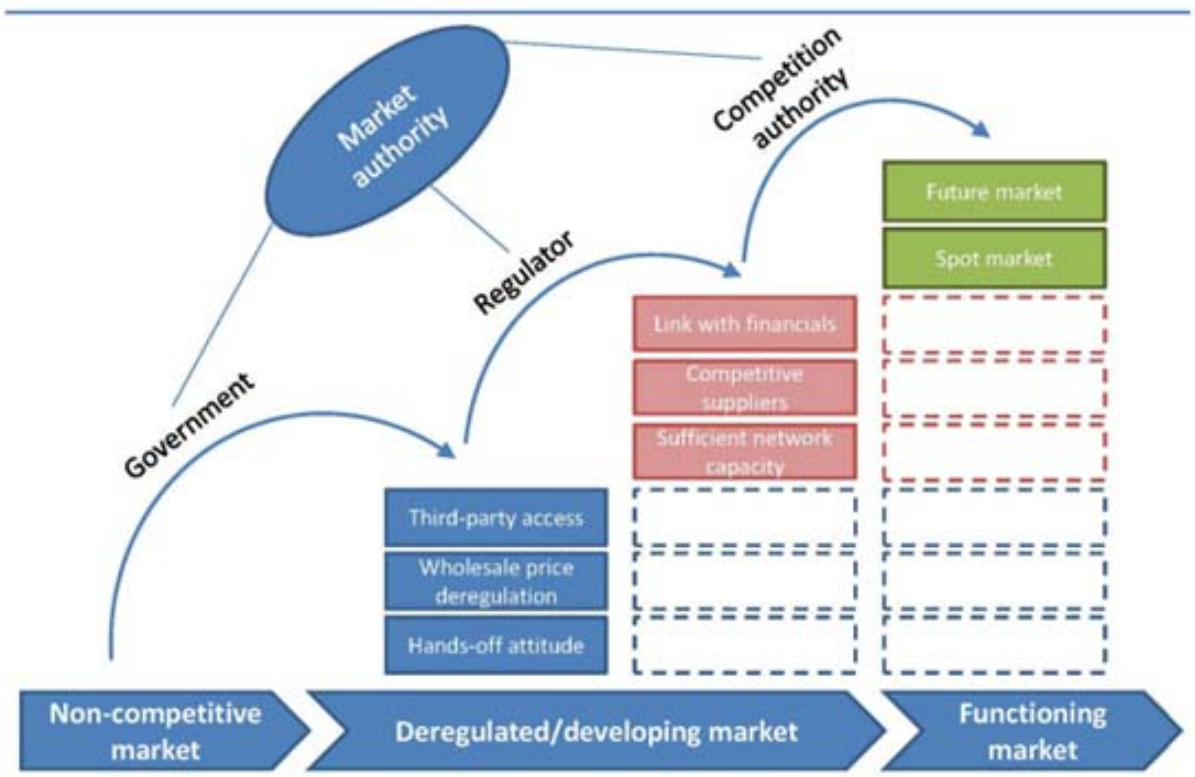
Gradual Deregulation of the U.S. Natural Gas Market. The success of the petroleum-complex futures markets provided a precedent for how to manage the price risks of natural gas once this market was deregulated.

In the past, the U.S. natural gas industry was so heavily regulated there was no need for price hedging, analogous to the Bretton Woods era for currencies. What follows is a brief recounting of the history of U.S. natural gas regulation and deregulation, which is also conceptually illustrated in Figure 2.

According to the International Energy Agency (IEA) (2012): The "1938 Natural Gas Act … introduce[d federal] regulation … on gas prices. The next four decades until 1978 saw a progressive growth of regulatory oversight of gas prices." In particular, "[t]he US system in the 1950s to 1970s" was one where "regulatory agencies controll[ed] most parts of the business in different parts of the gas value chain." Unfortunately, "[t]his heavy-handed regulation resulted in gas shortages appearing in the regions which needed to import gas from producing areas, notably in the Northeast and Midwest."

Starting in 1978, a very gradual deregulation of the U.S. natural gas market began. "In November of 1978, at the peak of the natural gas supply shortages, Congress enacted legislation known as the Natural Gas Policy Act (NGPA)," according to the Natural Gas Supply Association (NGSA) (2013). "The Natural Gas Policy Act took the first steps towards deregulating the natural gas market, by instituting a scheme for the gradual removal of price ceilings at the wellhead," wrote NGSA.

Figure 2
Steps in Creating a Wholesale Natural Gas Market



Source of Schematic: International Energy Agency (2012), Figure 11.

"However, it wasn't until Congress passed the Natural Gas Wellhead Decontrol Act (NGWDA) in 1989 that complete deregulation of wellhead prices was carried forth. Under NGWDA, the NGPA was amended and all remaining regulated prices on wellhead sales were repealed. As of January 1, 1993, all remaining NGPA price regulations were to be eliminated, allowing the market to completely determine the price of natural gas at the wellhead," noted NGSA.

Joskow (2013) continues: "By the early 1990s, wellhead price regulation had come to an end, the intra-state and interstate markets had been integrated, the natural gas production sector was governed by competitive market forces, and gas shortages … disappeared. The natural gas market matured during the 1990s as liquid gas trading hubs … [including the] Henry Hub developed, [and] liquid spot, term, and derivatives markets [also] developed." Johnston (2002) explained, "[in] an important sense, exchange-traded contracts are a substitute for regulation in providing manageable stability in commodity prices, especially for energy."

Following the creation of a spot market in natural gas, NYMEX "launched the first gas futures contract with delivery at the Henry Hub in April 1990," reported IEA (2012). "The trading activity related to financial gas markets has been increasing, enhanced by the development of

internet and electronic trading systems over the past two decades. On the first day of trading on NYMEX, 918 contracts were traded compared to over … [270,000] today. … The futures were progressively expanded to 36 months in 1997 and to 72 months in 2001. Today, futures reach until 202[3]," noted IEA's (2012) report. (Figures shown in brackets are updated to take into account changes since the IEA (2012) report was written.)

B. New Ways to Hedge Existing Risks

The launch of successful new futures contracts does not require that new risks emerge. Innovation and entrepreneurship have created new ways to hedge existing risks from the 1930s through the 1970s. Three examples of this are as follows:

> Futures contracts also can be successful if they provide new ways to better hedge existing risks.

Futures Contracts in the Soybean Complex. Weitzman (2011) writes: "In response to slumping trade in its traditional contracts, the [Chicago] Board of Trade [successfully launched] … soybean futures in 1936, soybean oil contracts in 1950 and soymeal futures contracts the following year."

The success of the soybean futures contract during the incremental, trial-and-error process led market practitioners to believe innovation should focus on only commodities that are storable. That assessment later proved to be false.

First Futures Contract on a Non-Storable Commodity: Live Cattle Futures Contracts. With the successful launch of live cattle futures contracts, market practitioners found that as long as the commodity will be available in the future, a futures contract on the commodity can be successful. In other words, a commodity need not be storable in order for a contract to be successful.

Starting in the early 1960s, CME began introducing livestock futures. By 1980, the live cattle futures contract had become the largest contract on the exchange, according to Melamed (1980). This contract's success provides a note of warning to those who create lists of conditions for whether a contract would be expected to be successful or not.

Chicago Board Options Exchange. The bear market of 1973–74 was so financially destructive that market participants became open to the idea that perhaps there was a "scientific and rational way to tame the markets, to use the power of mathematics to conquer risk," as explained in the 1999 BBC documentary *The Midas Formula* (BBC2 1999). The stage was set for the Chicago Board of Trade to establish in April 1973 an exchange that specialized in equity options: the Chicago Board Options Exchange (CBOE). The CBOE continued this innovative tradition with the launch of a futures exchange in 2004 that provides futures on implied volatility such as the VIX. (The VIX is an index of equity option implied volatilities, calculated by the Chicago Board Options Exchange, and is frequently seen as an "investor fear gauge.")

2. Failure: An Insufficient Commercial Need

Some new contracts historically have failed because there was an insufficient need for commercial hedging. This occurred when economic risks were not sufficiently material or contracts already provided sufficient risk reduction.

A. Risks Not Sufficiently Material

Two instances where contracts failed because risks were not sufficiently material were as follows:

Currency Futures Launch Before the Collapse of the Bretton Woods Agreement. Weitzman (2011) noted: "In April 1970 – several years before financial futures traded in Chicago – the International Commodity Exchange … [in New York] launched futures trading on nine currencies." But this "effort was introduced while the Bretton Woods system [of fixed exchange rates] was still in place, denying the new market the volatility it needed to flourish."

Consumer Price Index (CPI) Futures. Shiller (1998) summarized why CPI futures failed in the United States: "Much has been made of the fact that the U.S. experiment in establishing a consumer price index (CPI) futures market was a failure. The … futures market cash-settled in terms of the CPI, [which] … allow[ed] people to hedge inflation risk by making … offsetting bets on the course of the CPI. … [The idea was originally] proposed … [in] 1973."

Shiller explained, "[d]espite the potentially revolutionary importance of such a market, its establishment was [hampered] … by regulatory delays, until 1985, *when inflationary uncertainty had [already] died down to virtually nothing*." [Italics added.] "The CPI futures market had only a couple of flurries of activity in 1985 and in early 1986," recounted Shiller. The volume in 1987 was limited to only two contracts, and there were none in 1988.

B. Redundant Contracts

U.S. Interest-Rate Futures Contracts (1970s and 1980s). If a "newly innovated financial futures contract" does not offer a substantial "reduction in risk" compared to the risk reduction when "cross-hedging the underlying financial instrument with an already existing, close substitute financial futures contract," then the new contract is at risk of failure, explained Silber (1985). For example, "[t]he commercial paper contract … failed because it did not significantly reduce price risk exposure below what would be accomplished by cross-hedging commercial paper with the Treasury-bill contract."

Sixty-four percent of financial futures contracts launched between 1975 and 1982 failed.

Figure 3 illustrates how 64 percent of financial futures contracts launched between 1975 and 1982 failed.

Figure 3
Financial Futures Innovations
1975–1982

Contract	Exchange	Date of Innovation	Average Daily Volume	Wall Street Journal Listing	Traded in 1985
GNMA-CDR[1]	CBT	10/20/75	1995	Yes	Yes
Treasury Bills (90-day)	CME	1/6/76	1610	Yes	Yes
Treasury Bonds	CBT	8/22/77	7954	Yes	Yes
Commercial Paper (90-day)	CBT	9/26/77	99	No	No
Treasury Bills	CME	9/11/78	63	No	No
GNMA-CD[2]	CBT	9/12/78	180	No	No
GNMA-CD[2]	ACE[3]	9/12/78	180	No	No
Commercial Paper (30-day)	CBT	5/14/79	12	No	No
Treasury Notes (4–6 year)	CBT	6/25/79	88	No	No
Treasury Bills (90-day)	ACE[3]	6/26/79	52	No	No
Treasury Notes (4-year)	CME	7/10/79	93	No	No
Treasury Bills (90-day)	COMEX	10/2/79	286	No	No
GNMA-CD[2]	COMEX	11/13/79	47	No	No
Treasury Bonds	ACE[3]	11/14/79	130	No	No
Treasury Bonds	NYFE	8/7/80	867	Yes	No
Treasury Bills (90-day)	NYFE	8/14/80	188	No	No
Treasury Notes (2-year)	COMEX	12/2/80	290	No	No
CD (90-day)	NYFE	7/9/81	914	No	No
CD (90-day)	CBT	7/22/81	895	No	No
CD (90-day)	CME	7/29/81	5103	Yes	Yes
Eurodollar (3-month)	CME	12/9/81	2012	Yes	Yes
Value Line Index	KCBT	2/24/82	2683	Yes	Yes
S&P 500 Index	CME	4/21/82	24156	Yes	Yes
Treasury Notes (6-1/2 – 10-year)	CBT	5/3/82	4228	Yes	Yes
NYSE Composite Index	NYFE	5/6/82	11656	Yes	Yes

Notes: CBT = Chicago Board of Trade; CME = Chicago Mercantile Exchange; ACE = Amex Commodity Exchanges; COMEX = Commodity Exchange; NYFE = New York Futures Exchange; KCBT = Kansas City Board of Grade
1. GNMA-CDR = Collateralized Depository Receipt GNMA contract
2. GNMA-CD = Certificate of Deposit GNMA contract
3. No longer in existence

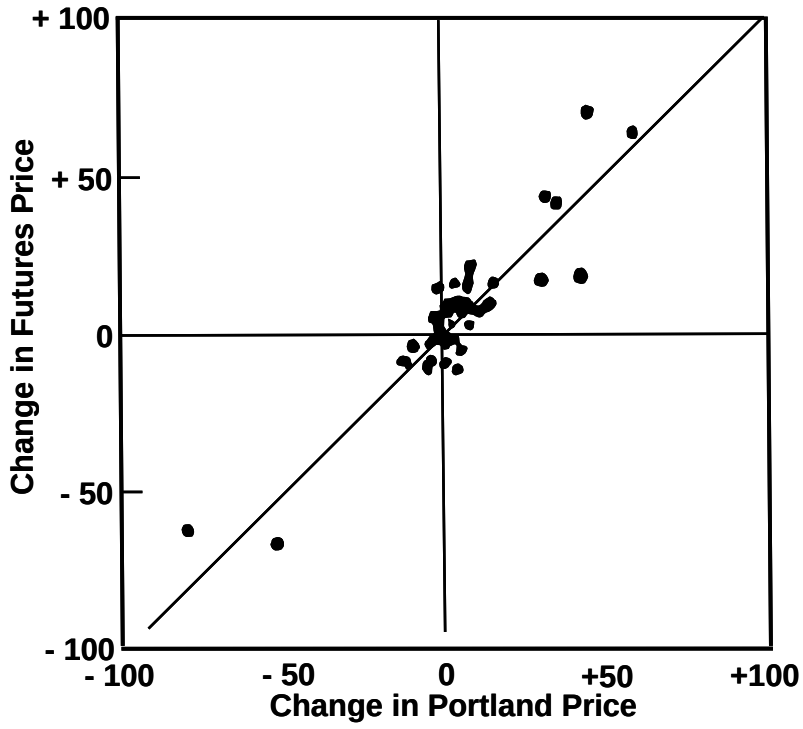
Source of Table: Black (1985), as reproduced in Silber (1985), Table 2.2.

Pacific Northwest Wheat Futures Contracts (1950s). Working (1953) discussed why efforts to "provide good hedging facilities for Pacific Northwest wheat" invariably failed.

As shown in Figure 4, Chicago wheat futures prices exhibited extreme changes when the Portland wheat spot price exhibited extreme changes. This indicates Chicago wheat futures contracts could have protected commercial hedgers (commercials) with exposure to Portland wheat prices, perhaps imperfectly. Given that Chicago wheat futures contracts were liquid, the cost of entering and exiting Chicago wheat contracts was small enough to make the cost of this "insurance" attractive to commercial market participants. This, in turn, meant illiquid contracts specifically designed for Portland and other Pacific Northwest wheat markets had trouble attracting enough business to succeed.

Figure 4

Relations of Two-Month Changes in Prices of Chicago Wheat Futures to Simultaneous Changes in Portland Spot Prices in Cents per Bushel September 1946 to May 1952



Source of Graph: Excerpted from Working (1953), Chart 1.

Canadian Coin Futures Contracts (1973). Flood (1992) describes efforts to create a Canadian coin futures contract: On "October 1, 1973, the IMM [the International Monetary Market of CME] opened trading in a new futures contract on Canadian silver coins. The purchaser of a contract promised to pay a certain future amount in U.S. dollars at [a] specific future maturity date; in exchange, the purchaser would receive future delivery of five bags of Canadian silver coins with each bag worth 1,000 Canadian dollars at face value.

"This innovation was a failure," notes Flood. "After 13 months of meager trading, the IMM discontinued the … contract. Why did this contract fail? A good cross-hedge [already] existed in the much more liquid silver futures market. There, hedgers could achieve similar results at lower cost."

Barley Futures Contracts. Another example includes the failed launch of barley futures contracts in the United States several times in the past. As it turned out, corn futures contracts successfully hedged commercial exposure to barley prices, so apparently there had been no need for a barley futures contract in the United States.

Notable Exceptions: Hedging "Transformation Activities." A caveat is necessary concerning redundant contracts: Highly correlated commodity futures can and do underlie successful futures contracts. For example, heating oil, gasoline, and crude oil futures contracts are all highly correlated, and each of these contracts is highly successful. This is similarly the case with soybean, soymeal, and soyoil futures contracts.

Highly correlated commodity futures can and do underlie successful futures contracts. Futures markets can hedge not only inventory risk, but also "transformation activities" such as soybean crushing and crude oil cracking.

In other words, heating oil and gasoline are not redundant contracts, nor are soymeal and soyoil. But barley, whose prices are highly correlated to corn, has been a redundant contract in the U.S.

Why is this the case? Because futures markets can hedge not only inventory risk, but also "transformation activities," as explained in Rausser and Bryant (2004).

Accordingly, soybean crushing – the separation of soybeans into soymeal and soyoil – can be hedged with the soybean crush spread, which consists of simultaneously taking short positions in soymeal and soyoil futures contracts and long positions in soybean futures contracts. In other words, soybean crushers can hedge their margins with these three futures contracts. Their natural commercial position is to be long a margin, and the futures market enables them to short this margin and lock in its value.

Similarly, crude oil cracking – separating crude oil into its derivative products, such as heating oil and gasoline – can be hedged with the crude oil crack spread, which consists of simultaneously taking short positions in heating oil and gasoline futures contracts and long positions in crude oil futures contracts. In other words, analogous to soybean crushers, oil refiners can hedge their margins with these three futures contracts. Their natural commercial

position is to be long a margin, and the futures market enables them to be short this margin and lock in its value.

Another example concerns the cattle market: Both feeder cattle futures contracts and live cattle futures contracts can simultaneously exist, since a feedlot has exposure to the difference between the price paid for feeder cattle and the eventual selling price of the fully fed cattle, which is also a margin.

Similarly, 10-year Treasury bond futures contracts and long bond futures contracts are highly correlated, and yet both of these contracts exist very successfully. The reason for this is there is also a transformation activity that needs to be hedged. Banking activity can be considered a "maturity transformation." Banks take in short-term deposits and "transform" them into long-term investments, by investing the short-term deposits in long-term bonds or loans.

How can a 10-year futures contract exist when a long bond futures contract can already reduce much of the risk of owning a 10-year bond? The answer lies in understanding what interest rate risk a bank is actually exposed to. It is not outright interest risk. It is the asset/liability maturity mismatch of the bank's portfolio.

Like an oil refiner, which is not exposed to spot crude oil price risk, a bank's risks are a type of margin risk. Banks and oil refiners are commercial entities exposed to margin risks on a leveraged basis. And those margins can be hedged through futures spreads. A bank's asset-liability portfolio managers can reduce and/or increase exposure to any particular maturity bucket through the use of standardized fixed-income derivatives across maturities, including using 10-year futures contracts as well as long bond futures contracts.

3. Failure of Existing Contracts

It is not only new futures contracts that risk failure. Once-successful existing contracts also have failed, for one or more of four reasons.

Returning to the discussion of why some futures contracts have failed, it is not only new futures contracts that risk failure. Once-successful existing contracts also have failed for one or more of the following four reasons: (a) obsolescence; (b) contract terms becoming disadvantageous for hedgers; (c) the perishable nature of the commodity, making physically delivered futures contracts vulnerable to manipulation; and (d) competition.

A. Obsolescence

Technological Change: Butter and Eggs. One of the ways a contract can become obsolete is through technological change. For example, "[t]echnological changes … transformed the production and distribution of butter and storage eggs from seasonally produced commodities

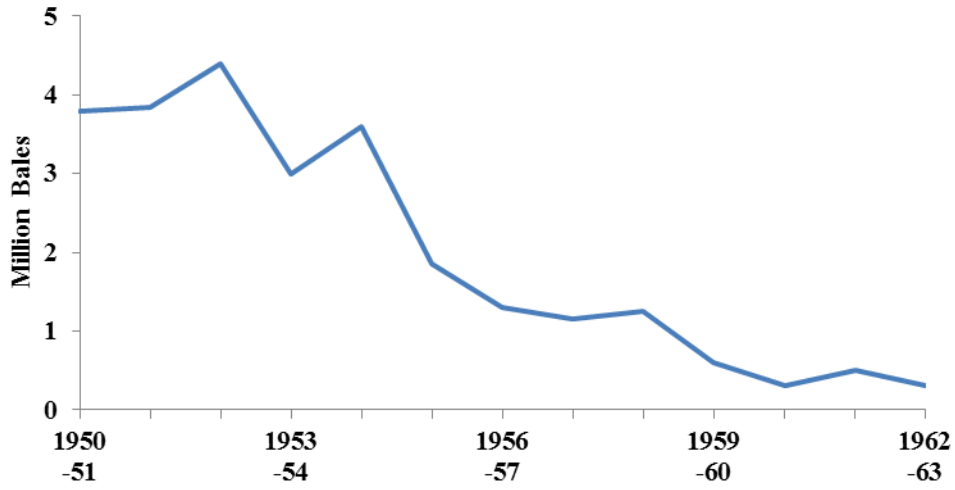
with classical production and price cycles to basically new and different products in their production, price, and distribution patterns. The economic necessity of hedging markets provided by a futures market had greatly diminished," recalled Harris (1970) in discussing past challenges of CME.

Risks Shifted to the Government: Cotton. Another way a futures contract can become obsolete, at least temporarily, is if the price risks associated with holding inventories of the commodity are shifted to the government. One historical example is from the cotton market.

Brand (1964) notes there was a "sharp decline of trading in cotton futures which began in the 1955/56 marketing year," illustrated in Figure 5 below.

Figure 5

Cotton: Average Month-End Open Contracts, October Through February, All Markets Combined, Annually, 1950/51 - 1962-63*



Source of Graph: Brand (1964), Chart 1.

"The degree … of governmental intervention in the marketing of various commodities ha[s] probably affected the level of use of futures markets more than any other single factor, excepting of course, outright prohibition. … [T]he level of use of futures markets is fundamentally determined by the demand for hedging facilities; furthermore, that hedging does not consist primarily in 'matching one risk with an opposing risk,' but is done to facilitate business operations and secure profits in a variety of ways. … [One] category of hedging … is carrying-charge hedging[;] that is[,] hedging 'done in connection with the holding of commodity stocks for direct profit from storage,'" explained Brand.

In the late 1950s, the U.S. Commodity Credit Corporation (CCC), a government entity, began assuming "the cost of carrying cotton stocks for export, so that cotton exporters no longer need[ed] to carry them, nor to hedge in order to secure a carrying charge," Brand wrote.

Essentially, the U.S. government took on the role of a cotton merchant and bore the risk of holding inventories. There was, therefore, a dramatically declining need for private industry to hedge inventories. As a result, "the cotton futures market became superfluous in … [that] environment," concluded Brand.

Only after the government inventories were reduced did cotton futures trading revive.

Risks Shifted to the Government: Butter. Gray (1966) added another example: "A similar fate befell the butter futures market, as government acquisitions of butter stocks … [eliminated] the need for private interests to carry inventories."

B. Contract Terms Becoming Disadvantageous for Hedgers

Futures contracts must serve the needs of commercial hedgers; otherwise, they can become nearly extinct. Working (1954) provides an example.

Futures contracts must serve the needs of commercial hedgers; otherwise, they can become nearly extinct.

Kansas City Wheat Futures Contracts. "In the summer of 1953 a sharp conflict of opinion developed in the Kansas City Board of Trade. Kansas City … [was] pre-eminently a market for hard winter wheat, and for many years permitted delivery of only that class of wheat on its futures contracts. In 1940, however, the contract was changed to allow delivery, at the seller's option, of soft winter wheat [also known as 'soft red' wheat.] … The change had little practical effect until 1953, because … soft red … ha[d] ordinarily been priced too high in Kansas City to be profitably delivered on futures contracts there," reported Working.

That changed in 1953 with the price of soft winter wheat becoming depressed relative to hard winter wheat: "[I]n the spring and summer of 1953 … the Kansas City future became in effect a red wheat future. … Prices of different classes of wheat tend to move somewhat differently. Consequently the change in effective character of the Kansas City future made it less effective than before as a hedging medium for millers of hard wheat and dealers in such wheat," explained Working.

Those hedgers "petitioned the Kansas City Board of Trade for a change in delivery provisions that would make the Kansas City future again a hard winter wheat contract." But that proposal was rejected at the exchange. Eventually, "large numbers of millers withdrew their hedging business from Kansas City." As a result, "[t]otal open interest at Kansas City dropped rapidly from 30 million bushels on July 15 [1953] to 10 million bushels in November [1953]," continued Working.

Working (1970) recounted this cautionary tale almost two decades later: By not serving the commercial hedgers, the exchange (at the time) "promptly lost most of its futures business, both 'hedging' and speculative."

Government National Mortgage Association Futures Contracts. One can find a similar example with Government National Mortgage Association (GNMA) futures contracts.

By not serving the needs of commercial hedgers, the Kansas City wheat exchange lost most of its futures business.

Launched in 1975, the GNMA futures contract was based on a pool of mortgages. "The GNMA contract, the first interest rate future, averaged nearly 2,000 contracts per day during its first three years and traded an average of more than 10,000 per day during the last quarter of 1980," wrote Silber (1985).

"During the last three months of 1984 the GNMA contract traded an average of only 1,000 contracts per day … [T]he GNMA contract [was] no longer provid[ing] an effective hedge for GNMA securities. The futures contract [began] pric[ing] off the cheapest deliverable cash GNMA, which … [for several] years ha[d] been high-coupon GNMAs that behave[d] more like two-year securities than like thirty-year mortgages. Thus mortgage bankers, savings and loans, and market makers in cash GNMAs … stopped hedging with the GNMA futures contract," explained Silber.

Maine Potato Futures Contracts. "Experience with futures markets has shown that it is very difficult to maintain trading in a futures contract with delivery terms that do not reflect commercial reality and facilitate delivery. Commercial traders are reluctant to participate in a market where it is difficult to obtain or … [make delivery] of the actual commodity," summarized a report from the U.S. Senate (2009).

"The defunct futures market for Maine potatoes provides a good example of how an inadequate delivery process helped cause the demise of the market. The problems in the Maine potato futures market included a failure of the cash and futures prices to converge at contract expiration. This lack of convergence resulted from the relatively small amount of potatoes that could be delivered under the terms of the contract," noted the Senate report.

More precisely, "[t]he basis (difference between futures price and immediate-delivery cash price) … bec[a]me more variable … [than in the past,] and it … tended not to narrow as trading near[ed] an end for a given contract," explained Paul, *et al.* (1981) in a U.S. Department of Agriculture (USDA) study.

"In a properly functioning futures market, cash and futures prices generally converge as trading ceases and the contract matures. Lack of convergence for potato contracts stem[med] from [the] increasing hardship (high cost) in making acceptable delivery of the actual commodity," continued the USDA study.

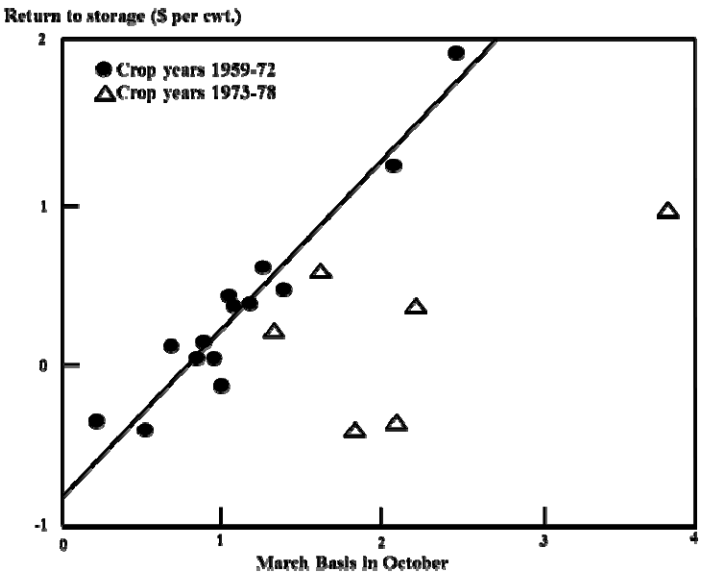
The default in the delivery of 50 million pounds of potatoes in 1976, and the failure of deliveries to pass inspection under the March 1979 contract hastened the loss of confidence in the Maine Potato Futures Contract.

"Hedges (taking a [short] position in futures) … [were] less successful as a result. In 1973–78, … [futures hedging] did not stabilize returns as well as [it] had done in 1959–72," as shown in Figure 6, drawing from the USDA study.

The USDA researchers reported that from 1959 to 1972, "approximately 92 percent of the variation in the return to storage was associated with the initial basis; that is[,] a close predictable relationship existed. This relationship deteriorated badly in 1973–78; only 30 percent of the variation in the change in the basis can be associated with the initial basis. Returns to storage in Maine were far less in 1973, 1975, 1976, and 1978 than would have been expected based on prior historical relationships …" The contract thereby became less useful to a number of hedgers.

"The default in the delivery of 50 million pounds of potatoes in 1976, and the failure of deliveries to pass inspection under the March 1979 contract hastened the loss of confidence in this futures market. After years of declining volume, NYMEX delisted the Maine futures potato contract in 1986," noted the U.S. Senate (2009) report.

Figure 6
Relation Between March Basis in October and Return to Storage



Note: "cwt" stands for 100-pounds.
Source of Graphic: Paul et al. (1981), Figure 11.

C. Perishable Nature of the Commodity Made Physically Delivered Futures Contracts Vulnerable to Manipulation

Perishable goods can be vulnerable to manipulation of delivery, making prices inherently volatile and therefore not good candidates for future contracts. Potatoes provide a good example.

Perishable goods can be vulnerable to manipulation of delivery, making prices inherently volatile and therefore not good candidates for future contracts.

Maine Potato Futures Contracts. "[I]n 1976, both a big long [commercial] and a big short [commercial] were trying to manipulate the contract simultaneously, with the short trying to ship huge quantities of potatoes from Idaho to Maine (the delivery point) and the long tied up most of the railroad cars on the Bangor & Aroostook Railroad (in which delivery had to be made). There was a large default against the futures contract. The default severely damaged NYMEX's reputation," summarized Pirrong (2007).

"Perishability makes prices inherently volatile, and also can make some manipulative strategies possible. Indeed, short manipulations are likely to be more profitable for [commodities] like … potatoes than other products because dumping additional supplies on the market can depress prices sharply because the perishable good must be consumed almost immediately. This allows someone short futures to profit substantially," hypothesized Pirrong.

D. Competition

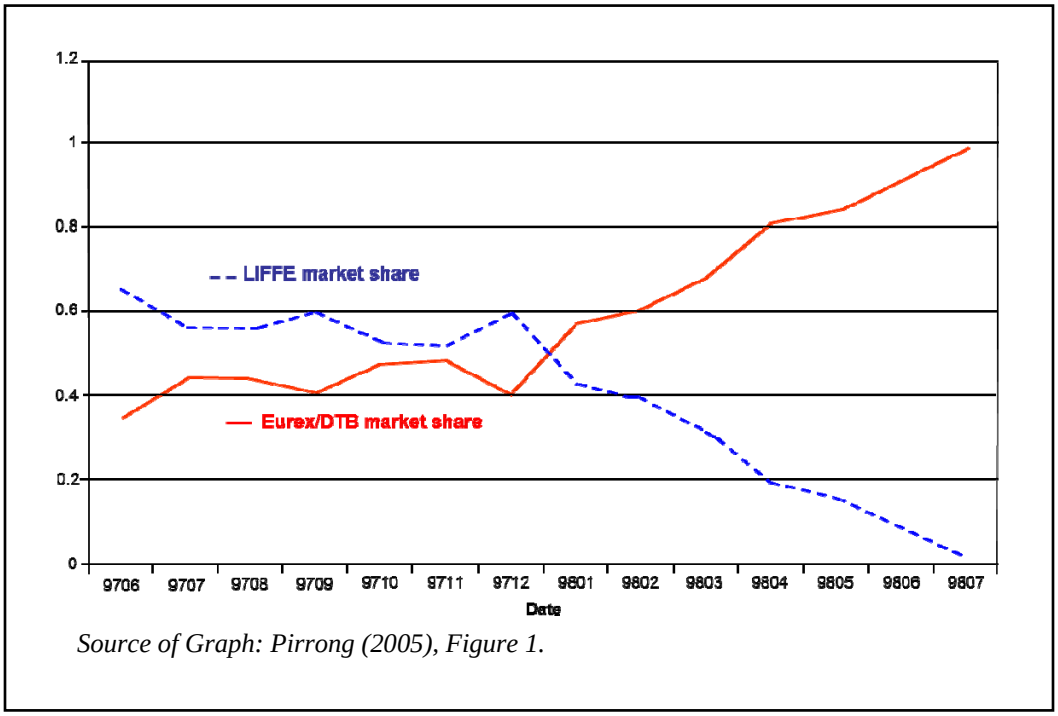
Arrival of new competitors also has been a reason why existing futures contracts fail.

Bund Futures Contracts on the London International Financial Futures and Options Exchange (LIFFE). "In 1998, trading on [German] Bund futures … [moved] from LIFFE (an open outcry exchange) to Eurex (an electronic exchange)," reported Pirrong (2005). "Eurex had grown prior to 1997 due primarily to the patronage of German banks that … [also owned] the exchange. These banks provided sufficient volume to permit Eurex to survive and provide liquidity-related costs that were at worst only slightly higher than those on LIFFE," explained Pirrong.

"This put Eurex within striking distance of LIFFE. Lower access costs due to the operational efficiencies of an electronic market apparently attracted additional business (from the United States), which narrowed the liquidity cost differential further throughout the course of 1997 … When the liquidity differential was nearly closed by the end of that year, Eurex was positioned to … [win] with its fee cut," noted Pirrong.

Unfortunately for LIFFE, it did not respond quickly enough to this fee cut for its contract to survive, as shown in Figure 7. "If LIFFE had responded in kind rather than … [waiting] for 3 crucial months, it might have hung on to a big chunk of the Bund business," argued Pirrong (2006).

Figure 7
Eurex/DTB and LIFFE Bund Market Shares



Source of Graph: Pirrong (2005), Figure 1.

4. Continued Success of Contracts and Exchanges

Some contracts and exchanges came under serious competitive threat but were able to survive. Two examples serve to illustrate how they were able to adapt.

NYMEX Light Sweet Crude Oil (WTI) vs. Intercontinental Exchange (ICE) WTI. The NYMEX WTI futures contract could have experienced a fate similar to that of the LIFFE Bund futures contract. "On February 3, 2006 the [innovative] ICE Futures [exchange] introduced electronic trading of … WTI crude oil futures contracts that compete[d] directly with the NYMEX benchmark light, sweet crude oil contracts traded on the floor. … The ICE's futures contract replicate[d] most of the terms of the NYMEX contract and … also [was] based on the WTI crude oil," reported Skouratova, *et al.* (2008).

"This was the first time that US crude oil futures contracts were traded on an exchange outside the US. By early September [2006], trading of the ICE WTI contract had attracted nearly a 35% market share. … NYMEX faced growing competition from ICE WTI contracts and pressure from its customers to offer electronic trading … Thus on September 5, 2006 NYMEX launched its physically-delivered electronic standard-size crude oil futures contracts on the CME Globex platform. Electronic trading of ICE WTI Crude Oil contracts fell to about a [stabilized] 30%

market share by February 2007," explained Skouratova, *et al*. Although the NYMEX contract lost market share, it did not experience extinction like the LIFFE Bund contract.

Chicago Exchanges. In 1998, CBOT and CME faced competitive threats from electronic trading; this brought about wrenching change.

In 1998, CBOT and CME faced competitive threats from electronic trading; this brought about wrenching change.

As noted previously, the electronic exchange, the EUREX (DTB), successfully wrested control of the 10-year German government bond futures contract, the Bund contract, from the (then) open-outcry LIFFE exchange in London with a "price war on fees." This unprecedented victory of an all-electronic venue accelerated change in Chicago. Soon thereafter, both CBOT and CME embraced concurrent open-outcry and electronic trading.

And yet, worries regarding Chicago's competitiveness continued. According to Melamed (2009), "the only way to prepare [CME] for the twenty-first century" was to demutualize; a member-driven organization would be too slow in its decision-making. In the latter case, CME might lose the first-mover advantage that could result from taking advantage of expected disruptive changes resulting from globalization and technological change. Therefore, CME went public in 2002, becoming the first U.S. financial exchange to do so.

By 2006, CME's trading volume "exceeded 2.2 billion contracts – worth more than $1,000 trillion – with three-quarters of … trades executed electronically," according to CME Group (2007). In 2007, CBOT merged into cross-town rival CME, and in 2008, NYMEX merged into the combined Chicago exchange.

The resulting CME Group has continued to respond to market, customer, and regulatory pressures, including establishing an exchange domiciled and regulated in London and separately launching gold futures contracts that physically deliver into gold held in Hong Kong.

5. Attracting Speculators to a Market

As noted earlier, a successful futures contract must respond to a commercial need for hedging as well as attract a pool of speculators. There are three aspects to attracting speculators: (a) a futures exchange must already have a community of risk-takers; (b) there must be a level playing field for speculators; and (c) a speculator must have the ability to manage the price risk of taking on the other side of a commercial hedger's position.

A. Community of Risk-Takers

The evolution of Chicago as a financial center provides an excellent case study on the development of a community of risk-takers. This community of risk-takers has exhibited the

following two characteristics across time: a practical approach to problem-solving and a willingness to risk failure.

Chicago provides an excellent case study on the development of a community of risk-takers.

Chicago as a Case Study. The history of Chicago is inextricably linked to financial risk-taking. As early as the mid-nineteenth century, Chicago was already a well-established center of financial risk-taking because of land speculation that had occurred in Illinois in the 1830s during the building of a crucial canal that ultimately linked productive Illinois farmland to major population centers. "Even before construction [of the canal] began, speculators flocked to Chicago to buy up land in what they hoped would be a thriving canal port. Many made huge profits," noted Baldwin (2000).

In the mid-nineteenth century, CBOT's first directory of 25 members included "a druggist, a bookseller, a tanner, a grocer, a coal dealer, a hardware merchant and a banker," according to Lurie (1979). From this directory, we can see the start of commodity speculation separate from the business of the commodity itself. Stassen (1982) explained the formation of CBOT resulted from businessmen seeking "some order in a world of chaos, and some relief from a hostile judicial system, which only reluctantly enforced businessmen's bargains."

"The Crimean War and subsequently the Civil War resulted in sharply fluctuating prices. Chicago merchants were reluctant to bid vigorously for deferred delivery. They tended to keep the forward bids below prices that they thought would prevail at the time of delivery because of the danger of a price decline. There were other, more venturesome people who would bid up to or above current prices. Many of these were not connected with the grain trade; they were merchants in other lines, land speculators, lawyers, physicians, and the like," wrote Hieronymous (1971).

With hindsight, we now know Chicago's century-plus heritage of financial risk-taking has served the city well. For example, it was Chicago futures traders who successfully responded to the dislocations caused by the collapse of the Bretton Woods system of fixed exchange rates.

Another aspect of Chicago's endowment is the University of Chicago. In the 1970s, the university already had a tradition of training graduates with skills that would become very useful in the then-new field of mathematical finance. Many of those graduates would later become important staff members at Chicago's proprietary trading firms from the 1970s onwards and deepen Chicago's already-diverse group of financial risk-takers.

Chicago's endowment of financial risk-takers and quantitative analysts (quants) arguably allowed the CBOE to succeed. The exchange "opened for business … just one month before the Black-Scholes [1973] paper appeared in print," noted Van Overtveldt (1998).

According to derivatives expert Stan Jonas, in his interview during *The Midas Formula* documentary: "Word of the [Black-Scholes] model began to circulate, particularly amongst people in the University of Chicago, and more particularly amongst the option traders, and

literally before the official publication of the model; traders had effectively started to program the model and begin to use it to trade" at CBOE.

In present-day Chicago, the tradition of having an in-depth pool of financial risk-takers and quants continues. In a 2013 *Opalesque* Round Table on Chicago, Paul MacGregor of FFastFill noted in his interview with Melin (2013): "Chicago is … the only town in the world … where you can walk into a large proprietary firm [and] what you see is literally three guys: The trader, the technology guy and the manager, and that's it. And then you look at the kind of volumes they are trading and you are just staggered. You don't see that … anywhere else in the world."

Other Financial Centers. The experience of other financial centers' attempts to launch futures contracts points to the need for a deep pool of already-existing financial risk-takers in order to increase the chances of success for new contracts. The Kansas Board of Trade "launched the Value Line stock index futures in February 1982 … two months before the … [CME] introduced S&P futures. … Two years earlier, the world's first cash-settled futures contract had been launched … at the Sydney Futures Exchange – a U.S. dollar currency future. … Nevertheless, ultimately [financial futures] contracts thrived … in Chicago, which contained by far the biggest pool of experienced futures traders," wrote Weitzman (2011).

The experience of other financial centers' attempts to launch futures contracts points to the need for a deep pool of already-existing financial risk-takers in order to increase the chances of success for new contracts.

Chicago has not been the only center of innovation in U.S. futures market development. In the 1970s, for example, the New York Mercantile Exchange (NYMEX) had faced possible extinction when its mainstay contract, the Maine potato, lost credibility during scandals in 1976 and 1979. NYMEX responded to structural changes in the energy markets with its launch of petroleum-complex futures from the late 1970s through the mid-1980s and with its launch of natural gas futures in 1990, as noted previously.

A Practical Approach. From the mid-nineteenth century to the present day, another characteristic of successful speculators has been an intensely practical approach.

Mid-Nineteenth Century

"[W]e need look no further back than the frontier of the U.S. in the mid-19th century for the origin of the modern futures trading," wrote Hieronymous (1971). Hieronymous quoted Emery (1896) as follows in describing the business conditions of the mid-nineteenth century:

> Untrammeled by business traditions of past centuries[,] the trade of this country has unconsciously adopted new and direct means for attaining its ends. … There has been little "history" or "evolution" about the process, for the practical mind of the businessman has simply seized the most direct method of "facilitating" business, a course forced on him by the constantly increasing size of transactions.

The 1960s

It was not only the 1970s, with all its financial dislocations, that resulted in experimental product development at the Chicago futures exchanges. Throughout the 1960s, as grain futures trading volumes slumped, the Chicago exchanges launched a whole host of new commodity futures contracts, of which the livestock futures contracts became the most successful. "By the beginning of the 1960s, futures trading had suffered its third year of declining volume with activity dropping to 3,811,462 contracts. From 1960 to 1970, volume increased … to 13,622,607 contracts," according to Sandor (1973). "The success of the cattle, frozen pork belly, and plywood contracts indicated that the feasible set of tradable commodities on organized exchanges could be expanded to include live animals, semi- and fully processed commodities," wrote Sandor. Emphasizing the practical nature of new product development at the Chicago exchanges, one CBOT trader recalled: "We weren't looking in terms of a new exchange. We weren't out to create a whole new world. We just wanted a little pit in the corner of the trading room," reported Weitzman (2011).

Throughout the 1960s, the Chicago exchanges launched a whole host of new commodity futures contracts, of which the livestock futures contracts were the most successful.

Present Day

The present-day innovators are arguably the algorithmic electronic trading firms.

With lightning-fast execution in the new electronic markets, a "whole new world of very short-term algorithmic trading [opened up] to speculators in the [futures] market[s]," wrote Dowd (2007). Product innovation is arguably now moving "from [the] exchanges to electronic trading firms, which develop their own algorithms rather than [relying] … on the exchanges to create new instruments," explained Weitzman (2011).

And innovation by Chicago's proprietary trading firms continues, out of necessity.

In the 2013 *Opalesque* Round Table, Alex Brockmann of TradeLink Capital described a current trend to Melin (2013): "What I have noticed is that the profitability of the prop[rietary] trading businesses has actually been declining since about 2009, and what you see as a consequence is that some proprietary trading firms are edging toward asset management as a way to earn something from the infrastructure and the intellectual capital they have developed."

Willingness to Risk Failure. Vince (1992) states trading "requires discipline to tolerate and endure emotional pain to a level that 19 out of 20 people cannot bear. Anyone who claims to be intrigued by the 'intellectual challenge of the markets' is not a trader. The markets are as intellectually challenging as a fistfight. … Ultimately, trading is an exercise in self-mastery and endurance."

Perhaps the same can be said about product development in the futures markets.

Harris (1970) noted an enduring philosophy of CME has been an acceptance of the possibility of failure in its new product ventures: "Necessity is the mother of invention. Beginning in the early fifties … [CME] members have vigorously researched, tested, and promoted many new contracts for futures trading. … Some have succeeded and some have failed, but fear of failure has not impeded progress," concluded Harris.

B. Level Playing Field for Speculators

Another key aspect to attracting speculators to futures markets is that commercial hedgers cannot have an undue advantage in predicting prices, as demonstrated with two examples below.

Grains. With the highly successful soybean, corn, and wheat futures contracts, the primary uncertainty is the outcome of supply. Therefore, speculators and hedgers are on a level playing field. Hedgers do not have an informational edge over speculators.

By contrast, with agricultural contracts where the primary uncertainty is demand, and where this demand is concentrated among large commercials, a speculator could be at an informational disadvantage.

Another key aspect to attracting speculators to futures markets is that commercial hedgers cannot have an undue advantage in predicting prices, as demonstrated with two examples below.

"[S]peculators have gradually been attracted to commodities … [in which] price fluctuations … occur mostly on the supply side and haven't been attracted to commodities where the price fluctuations come from demand," observed Gray (1966). Gray noted this in providing a possible explanation for why futures contracts on "brans and shorts" had not successfully attracted speculative interest. ("Brans and shorts" are "wheat milling byproducts [that] … are used by feed manufacturers in the production of animal feeds," according to USDA.)

Equities. A similar consideration applies to equities: "One of the problems inherent in market making with specific equities is the risk that a buyer or seller has information that will affect the specific price of a stock. The trade is then information based rather than liquidity motivated," wrote Silber (1985).

"A dealer will make a better market for a package of equities rather than one or two individual stocks because it is then less concerned about inside information. Such buy or sell programs for groups of large blocks of stock are ideally hedged in the stock index futures markets," contributing to the success of equity index futures contracts, according to Silber.

C. The Ability to Manage Risk

In order to participate, speculators must be able to manage the risk of taking on the other side of a commercial hedger's position. There are a number of ways in which professional speculators provide risk-bearing services. For instance, a speculator may be an expert in the term structure of a futures curve and may spread the position taken on from the commercial hedger against a futures contract in another maturity of the futures curve, or the speculator may spread the position against a related commodity.

Alternatively, a speculator may detect trends resulting from the impact of a commercial's hedging activity and be able to manage taking on an outright position from a commercial because the speculator has created a large portfolio of unrelated trades. In this example, the speculator's risk-bearing specialization comes from the astute application of portfolio theory.

Besides a contract serving a commercial hedging need and being able to attract a pool of speculators, the success of a futures contract depends on public policy not being too adverse.

Consumer Price Index (CPI) Futures: Specific Example. If a speculator has no way to manage the risk of taking on an outright futures contract, it is unlikely the futures contract will succeed. "Hedging by itself is not sufficient to ensure success; … [in addition], speculators must provide liquidity to take the other side of a market where hedgers are net short or net long. … For … [those] who might supply speculative capital, one way to minimize these risks is to enter spread positions across markets. By monitoring the basis between related markets, traders are more likely to present bids and offers and supply the necessary liquidity to a new market without incurring too much risk," explained Petzel (2001).

"[T]he lack of a spread vehicle in the 1980s ultimately led to the failure of the CPI futures contract on the" Coffee, Sugar, and Cocoa Exchange in New York, wrote Petzel.

That said, a more general reason for the contract's failure may be because of the lack of an active cash market for the underlying "commodity." The lack of an active cash market also makes it difficult for speculators to manage the risk of taking on a futures position.

6. Past Regulation of Futures Contracts

Besides serving a commercial hedging need and being able to attract a pool of speculators, the success of a futures contract depends on public policy not being too adverse. The history of futures regulation in the United States is one of infrequent but often disruptive interventions following natural disasters or events that undermine public confidence in exchanges.

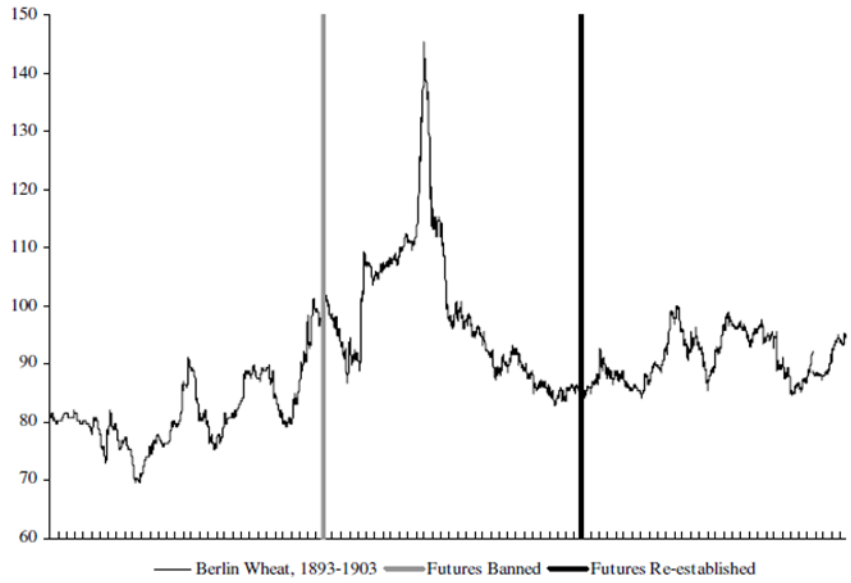
The history of futures regulations reveals four features: (a) a contract must have a convincing economic rationale; (b) it is helpful if contracts are viewed as being in the national interest; (c) competition requires regulatory parity among exchanges; and (d) markets can survive even draconian interventions so long as they are short-term.

A. If the Economic Rationale Is Not Convincing, a Contract Is at Risk of Being Banned or Heavily Curtailed

Berlin Futures Contracts (Late 1890s). According to Jacks (2007), "In the wake of a disastrous harvest in 1891 at home and [in] Russia, grain consumers in the German Reich suffered an increase in both the level and volatility of prices. Public agitation against speculative ventures on the Bourse was met with open arms ... in the Reichstag … [Accordingly,] [f]rom January 1, 1897 … dealing in grain futures was banned outright …"

"It became apparent that … [the law] had seemingly failed to accomplish its most touted benefit, the stabilization of commodity prices," noted Jacks, and as illustrated in Figure 8. The law "was rescinded early in 1900. In April of that year, the Berlin futures market in grain was reopened."

Figure 8
Index of Wheat Prices Over 4,015 Days



Source of Graphic: Jacks (2007), Figure 3.

Onion Futures Contracts (1958). Jacks (2007) also discusses the banning of onion futures trading in the United States. "[T]he United States Congress in the fall of 1958 passed the Onion Futures Act. The intent of the Senate Committee on Agriculture and Forestry was clear: Given 'that speculative activity in the futures markets causes such severe and unwarranted fluctuations in the price of cash onions … [a] complete prohibition of onion futures trading in order to assure the orderly flow of onions in interstate commerce was enacted. … [T]his law is significant in that it mark[ed] the first … time in the history of the United States that futures trading in any commodity was banned."

The reason for the "bill's passage could be explained by a basic lack of knowledge on the workings of the fresh onion market. The ability to store crops from year to year is [effectively] nonexistent," explained Jacks. Therefore, it is natural that there are "sometimes large adjustment[s] in price as the harvest approaches … The finding that there was …[significant] price volatility … should have come as no surprise."

Working (1963) explained, "futures trading in onions was prohibited because too few members of Congress believed that the onion futures market was, on balance, economically useful."

History of U.S. Futures Market Regulation. Working also notes how close the United States came to duplicating the 1890s German experience with a futures trading ban. In the United States, "a bill that would have imposed destructive taxation on all existing futures trading in farm products narrowly escaped passage by both houses of Congress in 1893 ... A similar bill considered by the … [next] Congress gained passage only in the House …"

Jacks (2007), in turn, documents at least 330 bills introduced to the U.S. Congress between 1884 and 1953 to "limit, obstruct, or prohibit futures trading."

Figures 9 through 13 (and Figure 14 a few pages below) show how frequent government interventions have been in the U.S. futures markets since the 1920s. After reviewing this history, it is clear that it always will be an ongoing effort to demonstrate the economic usefulness of futures trading.

Figure 9
Government Interventions in the U.S. Futures Markets
1921–1927

Date	Regulation	Action
September 1921	Futures Trading Act	The Act provides for the regulation of futures trading in grains such as corn, wheat, oats, and rye. The Act empowers the US Secretary of Agriculture to designate exchanges that meet certain requirements as "contract markets" in grain futures. The aim was to prevent market manipulation by the exchanges' members, firms, and employees. The Act also imposed a prohibitive USc20 per bushel tax on all options trades and on grain futures trades that were not executed on a designated contract market as specified by the federal government.
September 1922	Grain Futures Act	The 1921 Futures Trading Act is declared unconstitutional. Instead of taxing futures and options trading, the 1922 Act bans off-contract-market futures trading.
June 1923		The Grain Futures Exchange implements a large-trader reporting system. It requires each clearing member to report on a daily basis the market positions of each trader exceeding a specified size.
February 1927		The Secretary of Agriculture suspends until November 1927 large-trader reporting requirements. This follows complaints that the requirements were preventing large bullish speculators from entering the market, thus allegedly depressing grain prices. Following the suspension, the Grain Futures Administration determines that large-trader reporting requirements did not discourage bullish speculators.
Source of Table: Lewis (2009)		

Figure 10
Government Interventions in the U.S. Futures Markets
1936–1958

Date	Regulation	Action
June 1936	Commodity Exchange Act	Following the collapse in grain and cotton prices during the 1930s, the Commodity Exchange Commission (CEC) was established. The 1936 Act extends and strengthens the government's regulatory powers to a longer list of commodities. The act provided for the adoption of position and trading limits to restrict the number of futures contracts that could be held by large individual speculators. It also prohibits the trading of options on commodities traded on futures exchanges.
December 1947	Amendment to the 1936 Commodity Exchange Act	The Commodity Exchange Authority replaces the CEC. Following a rise in commodity prices after WWII, the Act allows the publication of the names and addresses and market positions of large traders. In its first declaration, the Secretary of Agriculture publishes the names of 35,000 traders. President Truman orders the CEA to require futures exchanges to raise margin requirements to 33% on all speculative positions.
August 1958	Onion Futures Act	Trading in the Golden Globe onion futures contract on the Chicago Mercantile Exchange is banned. This followed [perceived] excessive moves in the onion price during 1955.
Source of Table: Lewis (2009)		

Figure 11
Government Intervention in the U.S. Futures Markets
1974

Date	Regulation	Action
October 1974	Commodity Futures Trading Commission Act	The Commodity Futures Trading Commission (CFTC) is established. It extends the jurisdiction of the CFTC from agricultural commodities to futures trading in all commodities, which becomes effective in April 1975
Source of Table: Lewis (2009)		

"U.S. and international commodity markets experienced a period of rapid increases from 1972–1975, setting new all-time highs across a broad range of markets," according to Cooper and Lawrence (1975). Those price increases were blamed on speculative behavior associated with the "tremendous expansion of trading in futures in a wide range of commodities," noted the two authors.

Not surprisingly, "public pressure to curb speculation resulted in a number of regulatory proposals," wrote Sanders, *et al.* (2008). "In hindsight, economists generally consider this a period marked by rapid structural shifts such as oil embargoes, Russian grain imports, and the collapse of the Bretton Woods fixed exchange-rate system," according to Cooper and Lawrence (1975). The recognition of the fundamental economic factors explaining the dramatic price rises in commodities helped ensure draconian regulation on futures trading did not ensue.

Figure 12
Government Interventions in the U.S. Futures Markets
1977–1979

Date	Regulation	Action
August 1977		The CFTC requests the US District Court in Chicago to instruct the Hunt family of Dallas to liquidate positions that exceed [the] three million bushel speculative position limit for soybean futures on the CBOT.
March 1979		The CFTC votes to prohibit trading in the CBOT March wheat futures contract. This is the first time the Commission has ordered a market to close in the interest of preventing price manipulation.
Source of Table: Lewis (2009)		

One significant regulatory change in the 1980s was the removal of the 50-year ban of options on commodities.

Figure 13
Government Interventions in the U.S. Futures Markets
1980–2009

Date	Regulation	Action
March 1980		After careful consideration, the CFTC votes not to use its emergency powers to order suspension of trading in silver futures as prices plummet.
October 1981	Regulation 1.61	The CFTC requires exchanges to establish speculative position limits in all futures contracts.
January 1991		The CFTC reports to Congress that it finds no evidence that the sharp rise in energy prices has been caused by manipulation or excessive speculation.
August 2004		After a seven-month investigation, the CFTC concludes that there is no evidence that any entity or individual attempts to distort natural gas prices in late 2003.
Summer 2009		The CFTC holds three public hearings to discuss speculative position limits and exemptions in energy markets.
Source of Table: Lewis (2009)		

B. Contracts Are Viewed as Being in the National Interest

From a public policy standpoint, it is clearly helpful if futures markets are seen as a benefit to the nation as a whole, as the following examples illustrate.

Foreign Currency Futures. Milton Friedman invoked the national interest argument in a 1971 paper supporting the development of a foreign-currency futures market. "As Britain demonstrated in the 19th century, financial services of all kinds can be a highly profitable export commodity. … It is clearly in our national interest that a satisfactory futures market [in currencies] should develop, wherever it may do so, since that would promote U.S. foreign trade and investment. But it is even more in our national interest that it develop here instead of abroad," wrote Friedman (1971).

The development of a currency futures market in the United States "will encourage the growth of other financial activities in this country, providing … additional income from the export of [financial] services," concluded Friedman.

Financial Futures. Silber (1985) discusses the advantages for the economy as a whole resulting from the creation of financial futures contracts: The "main contribution" of financial futures "is a reduction in transaction costs [as compared to the relevant cash markets] and an improvement in market liquidity … the ultimate benefit being a reduction in the cost of capital to business firms[, which, in turn, leads to] greater capital formation for the economy as a whole."

Crude Oil Futures. One crucial economic function of commodity futures markets is to enable the hedging of prohibitively expensive inventories with the assumed result that more inventories are privately held than otherwise would be the case. If commodity futures markets do perform that function, then one would expect their existence would lessen price volatility. More oil inventories held than otherwise would be the case could lessen the possibility of oil price spikes, as argued in Verleger (2010).

C. Competition Promotes Regulatory Parity

If a futures exchange does not have regulatory parity with another similar exchange, it could lose market share.

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ICE vs. NYMEX. According to Dowd (2007), as of 2006 there was "a significant regulatory imbalance between the two regulating authorities, the … [U.K. financial regulator] and CFTC. By holding positions in the ICE [WTI] Futures contract, traders d[id] not have CFTC-mandated position limits to worry about, nor … [were] they required to comply with CFTC weekly position reporting requirements. … One former director [of oversight at CFTC] said … [in 2006] that the Nymex '[wa]s at risk of losing WTI', and [then] CFTC Commissioner Walt Lukken … stated that 'agencies must remain flexible and tailored in their approach or fear losing these markets to other jurisdictions,'" wrote Dowd.

The regulatory situation was rebalanced in June 2008: "The U.S. commodity futures regulator … [reported] ICE Futures Europe … agreed to make permanent position and accountability limits for … its U.S.-traded crude contracts, subjecting itself to the same regulatory oversight as its

New York based counterpart. Following intense scrutiny … by Congress … the U.S. Commodity Futures Trading Commission also said it would require daily large trader reports, and similar position and accountability limits from other foreign exchanges" for contracts that are based on U.S. commodities, according to Talley (2008).

CME-Europe. As noted earlier, CME Group continually examines ways to retain its competitiveness. This even includes establishing an exchange in Europe.

"The decision by the CME Group to establish a European derivatives exchange [in London] highlights the growing demand among trading firms for 'regulatory choice' … Clients should not have to choose to trade in the U.S. regulatory environment, or not to trade with us at all. That is not a real choice. The more we have invested in our global infrastructure, the more we have realized that there are customer acquisition opportunities by creating regional access to our services," according to a CME official quoted in Price (2012).

According to Caruthers (2014), "CME Europe made its official debut … [in April 2014], initially launching with 30 foreign exchange futures contracts and biodiesel futures. For CME Group, owner of the world's largest futures exchange, the market is its first outside the United States.

In December 2014, CME Group announced its launch of physically and financially settled European natural gas cleared futures contracts, to be listed on CME Europe.

"London will give us the best location to serve both European and Asian market participants, allowing those clients to have the choice of trading and clearing with CME in a relevant time zone and jurisdiction," said Terry Duffy, executive chairman and president of CME Group in the article by Caruthers.

CME Europe's product offerings continue to expand. In December 2014, the CME Group "announced … the launch of the first suite of physically and financially settled European natural gas cleared futures contracts. The contracts will be listed on CME Group's European exchange, CME Europe for first trade date on January 19, 2015 and are authorized and approved by the United Kingdom (UK) Financial Conduct Authority," according to CME Group (2014).

D. Markets Can Survive Even Draconian Interventions So Long as They Are Short-Term

If regulatory interventions are draconian but only short-term, futures markets can survive.

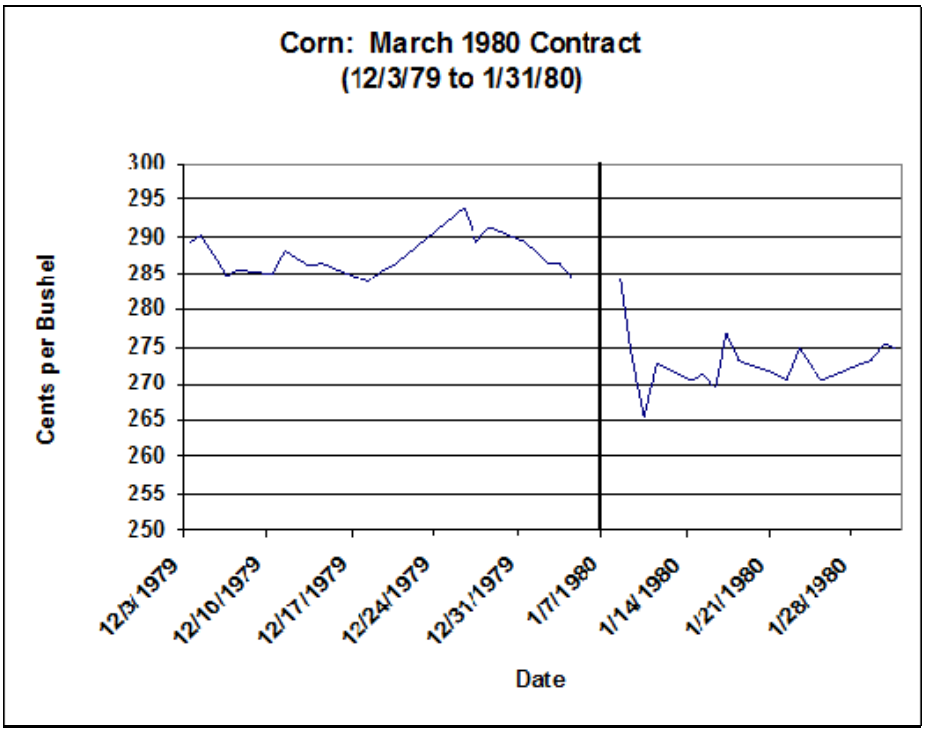
The suspension of grain futures trading in January 1980 is summarized in Figure 14. Such an action, while "well-intentioned [was] ... a direct restraint on [a] futures market['s] free operation and [was] ... intended to override the ability of buyers and sellers in the market to negotiate prices freely," wrote Johnson and Hazen (2004).

Figure 14
Government Intervention in the U.S. Futures Markets
1980

Date	Regulation	Action
January 1980		In an emergency action, the CFTC orders the *suspension of futures trading* for two days for wheat, corn, oats, soybean meal, and soybean oil on four exchanges after President Carter announces an embargo on the sale of certain agricultural goods to the Soviet Union that includes substantial amounts of grain. [Italics added.]
Source of Table: http://www/cftc.gov/About/HistoryoftheCFTC/history_1980s, accessed on October 21, 2014.		

Figure 15 shows trading suspension had only a minor effect on grain futures trading and did not damage these markets.

Figure 15



Source of Data: Bloomberg. *Note: The vertical line is at 1/6/80, when the CFTC announced the two-day suspension of futures trading.*

"Therefore, to the extent that the markets fall short of the economic theory of pure competition, contributing factors ... must also include acts of government and regulatory intervention," concluded Johnson and Hazen (2004).

Lothian (2009) explained why the grain markets were not materially disrupted by the temporary suspension of U.S. grain futures trading: "[W]hen President Carter's administration shut down trading for several days on the U.S. grain futures exchanges, traders … [responded] by trading contracts on the Winnipeg Commodity Exchange [in Canada.] Rather than waiting to offset their long positions at substantially lower prices when the U.S. exchanges reopened and beg[i]n trading after a limit down move in prices, some traders [immediately] shorted Winnipeg grain futures contracts to hedge their positions. In an example of the law of unintended consequences, price discovery moved from Chicago to Winnipeg for soybeans, corn and wheat through the surrogates of rape seed, feed wheat and other contracts."

Having an alternative exchange in Canada with which to manage risk meant the action taken by the Carter administration did not have a draconian impact on U.S. grain futures traders.

7. Conclusion

The history of futures contracts reveals their important economic role and impressive social benefits. The Crimean War of the 1850s and the U.S. Civil War gave rise to price uncertainties for growing inventories of grain made possible and necessary by population growth, new forms of transportation, and improvements in agricultural productivity. The Chicago Board of Trade was established to enable suppliers and consumers to manage such risks. The collapse of the Bretton Woods system of fixed currency prices similarly created the need for businesses to be able to hedge against sudden changes in currency exchange rates. Economic disruptions affecting oil and natural gas created similar demands for futures contracts.

The history of futures contracts reveals their important economic role and impressive social benefits.

History also shows how futures markets are largely self-regulating. Futures contracts fail when risks are not sufficiently material, when existing contracts or exchanges already serve to adequately manage risk, and when technology and government policies change in ways that reduce risk or make past ways of hedging no longer effective. Competition among exchanges is also intense, as illustrated by the loss of Bund futures contracts by the London International Financial Futures and Options Exchange to Eurex in 1998 and the mergers of the Chicago Mercantile Exchange, Chicago Board of Trade, and NYMEX in 2007 and 2008.

Speculators have played an essential role in the success of futures contracts, taking on the other side of commercial hedgers' positions. Professional speculators can achieve this by spreading the position taken on from the commercial hedger against a futures contract in another maturity of the futures curve or against a related commodity. Or speculators may take on an outright position from a commercial hedger and include this position in a portfolio of unrelated trades, relying on portfolio theory to manage risk. Chicago has thrived as a center for futures contracts due in large part to its large and sophisticated pool of speculators.

Lawmakers have tried repeatedly to "limit, obstruct, or prohibit futures trading" (Jacks, 2007) based on the public's misunderstanding of how futures contracts are self-regulating and their

essential role in helping businesses manage risks. Pressure for increased regulation often follows economic disruptions, such as the rapid inflation that followed the collapse of the Bretton Woods system in 1971 and the oil embargo of 1973–74, when speculators were blamed for price spikes.

Markets discipline government regulators as well as speculators and commercial hedgers. Exchanges compete furiously with one another, requiring national regulators to establish regulatory parity with other countries or risk losing the economic benefits of being the home of successful exchanges. The existence of competing exchanges and futures contracts means even draconian regulation, such as banning trading in a particular commodity, cannot prevent markets from finding alternative ways to manage risk, a fact illustrated by the market response to the Carter administration's suspension of U.S. grain futures trading for two days in 1980.

The existence of competing exchanges and futures contracts means even draconian regulation, such as banning trading in a particular commodity, cannot prevent markets from finding alternatives ways to manage risk.

In conclusion, futures contracts and exchanges succeed only if they respond to genuine commercial hedging needs and if speculators are capable of managing the risks associated with taking on the hedgers' positions. Unnecessary or inefficient futures contracts and exchanges don't last long, the result of competition and continuous innovation by a sophisticated global futures industry. The industry must educate the public and policymakers about the important role it plays in a global economy and the benefits it produces for the public, or else needless and counterproductive regulation will continue to be proposed and imposed.

# # #

About the Author

Hilary Till provides advice on risk-management and derivatives trading issues through Premia Risk Consultancy, Inc. In addition, she is a co-founder and principal of Premia Capital Management, LLC. She is also the co-editor of *Intelligent Commodity Investing*. She has held positions in expert-system development, derivatives risk-management system development, foreign-exchange derivatives research, over-the-counter (OTC) equity derivatives research and trading, OTC interest-rate derivatives trading, commodity futures trading, commodity-index portfolio management, and fixed-income risk-management policy development.

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Till has a B.A. with General Honors in statistics from the University of Chicago and an M.Sc. in statistics from the London School of Economics (LSE). She studied at the LSE under a private fellowship administered by the Fulbright Commission.

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