ETFs and the Present Danger to Capital Formation

Prepared Testimony by Harold Bradley and Robert E. Litan Before the United States Senate Committee on Banking, Housing, and Urban Affairs Subcommittee on Securities, Insurance, and Investments

(WASHINGTON – Oct. 19, 2011) – Mr. Chairman and members of the Subcommittee, thank you for giving me the opportunity to testify today about ETFs and the public policy challenges they pose. I have prepared this written testimony with my colleague at the Kauffman Foundation, Robert Litan, who is Vice President for Research and Policy. I am Chief Investment Officer of the Foundation. Both of us draw in this testimony on prior studies we have done on the growing ETF market,[1] by ourselves and with experts in securities settlements. But we offer here supplemental information, which we hope will be of use to this Committee. I will be delivering an oral summary of this testimony at the hearing. Our bottom line is this: While ETFs began as a constructive financial innovation over eighteen years ago, they have grown so fast in number and in variety that they now account for roughly half of all the trading in U.S. equities markets today.

[1] See Harold Bradley and Robert E. Litan, "Choking the Recovery: Why New Growth Companies Aren't Going Public and Unrecognized Risks of Future Market Disruptions," http://www.kauffman.org/research-and-policy/Choking-the-Recovery.aspx; and Harold Bradley and Robert E. Litan, See "Canaries in the Coal Mine: How the Rise in Settlement 'Fails' Creates Systemic Risk for Financial Firms and Investors," http://www.kauffman.org/research-and-policy/Canaries-in-the-Coal-Mine.aspx.

In the process, in our view, ETFs have increasingly distorted the role of equities markets in capital formation, while posing systemic risks from potential settlement failures.

We outline below the basis for these admittedly controversial conclusions, as well as some regulatory fixes to the problems we identify.

ETFs and the Problems in U.S. Equities Markets Today

Investors increasingly realize U.S. equity markets are broken. And it isn't just amateur investors burned by the financial crisis of 2008 who think so. A recent *New York Times* article says professional U.S. investors believe new derivative instruments "have turned the market into a casino on steroids."[2]

What has gone wrong, and what are the consequences? It helps to first remind ourselves why stock markets exist. They were established to provide a place for companies to access public investment capital—money invested to make more products, to hire more workers, to build distribution networks around the world. That market no longer exists. As is well known, modern stock markets are geared instead to day traders, hedge funds, and other short-term investors. Add

[2] "Volatility, Thy Name is ETF." *New York Times*. October 10, 2011.

to that list a modern “innovation:” Exchange Traded Funds (ETFs), which may be more dangerous than all the preceding factors combined.

Here is why. The past 12 years reveal that fewer and fewer U.S. companies elect to trade on primary U.S. stock markets. The number of exchange-traded stocks dropped almost 30 percent—from about 6,200 to 4,300 today. During that same time, the Securities and Exchange Commission (SEC) gave ETF sponsors a free pass from certain U.S. securities regulations. The predictable response? The number of ETFs grew exponentially—11 times—from 95 to more than 1,100 (Chart 1).

We have enough history with financial innovations to at least raise questions when we see an innovation growing at very rapid rates. ETFs are no exception. We believe that these instruments may now be undermining the fundamental role of equities markets in pricing securities to ensure that capital is efficiently allocated to growing businesses. When individual common stocks increasingly behave as if they are derivatives of frequently traded and interlinked ETF baskets, then it is trading in the ETFs that is driving the prices of the underlying stocks rather than the other way around. This tendency is especially pronounced for ETFs that are comprised of small cap stocks or stocks of newly listed companies, which generally are thinly traded. The stocks of these companies are

the proverbial tiny boats being tossed around on the ETF ocean. As we outlined in our earlier Kauffman Foundation report, "Choking the Recovery: Why New Growth Companies Aren't Going Public and Unrecognized Risks of Future Market Disruptions,"[3] the reluctance to become such a little boat is an important reason why growing private companies may be avoiding the public markets.

To understand why we reach this conclusion, it is useful to understand the essential structure of an ETF. In the early days of the industry, ETF sponsors now owned by Blackrock and State Street created baskets of securities designed to track broad market indexes, such as the S&P 500. In contrast, today's widely diverse ETF products cater to every hedge fund's unique tastes. Product design allows hedge funds and day traders to make bets on global uranium production companies, on market volatility, on emerging market sovereign debt, and everything in between. Embedded in some of these ETFs are even more derivative instruments.

Unlike mutual funds that price the basket of securities once daily and allow for purchases and redemptions at that price, ETFs provide continuous trading throughout the day. As electronic trading has supplanted human specialists on the trading floor, the specialists and market-makers adapted and assumed the

[3] http://www.kauffman.org/research-and-policy/Choking-the-Recovery.aspx.

role as “Authorized Participants” (APs) in manufacturing ETFs. When a customer buys shares of an ETF, the AP serves as the middleman between all buyers and sellers. If at any time during the trading session (and especially at the end of the day) there are far more buyers than sellers, the AP balances its books and buys shares in the underlying stocks of the ETF basket—say lithium stocks—to create ETF units and offset its risk. When there are more sellers than buyers, the AP must destroy these same units by selling stocks or offset its risk by selling similar instruments, like futures and options. On most days, buyers and sellers nearly match—and the AP can go home and sleep well, hedged against adverse price moves.

When buyers stampede into ETFs, the AP (now short the ETF to the buyer) must quickly purchase related instruments or stocks to balance his risk. An old adage of the trading business says that APs are in the moving business and not the storage business—they are traders and facilitators, never intending to be the beneficial owner of a stock. This act creates extremely tight linkages between the movement of ETFs and common stock prices. And the effect can be much larger on some stocks than others, with some stocks being the largest holdings in many different ETFs. For example, Apple Computer is reported to be one of the top 10

holdings in more than 57 ETFs, IBM in 52 ETFs, and WalMart in 30 ETFs.[4] These same stocks are held in varying weights in dozens of other ETFs.

With the preceding mechanics in mind, it will come as no surprise that there can be enormous one-way moves in ETF-driven stocks in very short periods of time. This happened *en masse* in May 2010 during the so-called Flash Crash (Chart 2), and again in October 2011 when stocks experienced a "Flash Up" as the Russell IWM (Russell 2000 small cap ETF) rallied almost 7 percent in the 20 minutes prior to the close (Chart 3). This happens as buyers of futures and ETFs, generally triggered by news or technical price patterns, all jump in the water at the same time. The APs, who by regulatory requirements must provide constant bid-and-ask prices for each ETF, then scramble to purchase other closely related packages of the same securities or the underlying stocks themselves.

High co-movement of securities is not new, often occurring when markets reflect crowd panic or euphoria. What is new, however, is how ETFs decrease diversification benefits, with stocks and sectors worldwide moving together, *even when there is no panic*. Stocks move together today more than at any time in modern market history with recent data indicating that individual common stock prices that make up the S&P 500 index now move with the index 86 percent of

[4] www.etfdb.com.

the time (Chart 5 and Chart 6). As has been described, there are now so many products consisting of the same common stocks that it would be surprising only if this tight linkage were not evident.

ETFs only work if market-makers can purchase component equities in the index they intend to track. We think ETFs, like the small-capitalization IWM, have outgrown a market-maker's ability to buy component securities. Indeed, this particular ETF is reported to be one of the top five stockholders in almost 900 small-capitalization stocks held in the IWM (Chart 7). As the one of us who is a former trader and portfolio manager of small-capitalization companies (Bradley) can safely assert, most of these companies trade with poor liquidity and will move significantly in price when immediate demands for liquidity are made (Chart 8). Consequently, market-makers often can only match their positions against futures, options or other ETFs, or they must employ derivatives and synthetic securities. Perceived easy-to-trade ETFs cannot ever make hard-to-trade stocks easier to buy or sell. Absent easily accessible and liquid hedges for APs, investors must anticipate that extreme stock price volatility will persist.

When financial assets move in highly correlated ways, regulators should worry that capital markets are not doing their principal job—that is, properly allocating capital between different assets or financial instruments in such a way as to

properly discipline risk-and-reward success. J.P. Morgan's Delta One derivatives team published a chart late in 2010 that displays the historically unprecedented correlations found in today's stock trading which they term a "correlation bubble," in which stocks move together 60 percent of the time even when the Volatility Index (VIX), a measure of panic, remains at relatively subdued levels (Chart 8).

These are deep changes, with implications that go far beyond whether IBM and, say, HP trade together. Richard Bookstaber, current adviser to the Securities and Exchange Commission staff and author of the seminal 2007 book, *A Demon of Our Own Design***,** observes that "(t)he complexity at the heart of many recent market failures might have been surmountable if it were not combined with another characteristic we have built into markets, one that is described by the engineering term *tight coupling*. Tight coupling means that components of a process are critically interdependent; they are linked with little room for error or time for recalibration or adjustment."

The increasing co-movement of individual stocks reflects the intensity of trading in instruments whose total value and daily trading volumes eclipse the value of the instruments they are designed to "track" (Chart 9). There is no time for an AP to call time-out to calmly hedge one-sided trading markets. There is also no ability to create liquidity where there isn't any, with liquid ETFs trading around

baskets of illiquid stocks. As assets balloon in ETFs, investors should all worry about the disconnect between the size of these funds, liquidity, and possible market price disruptions in small-company stocks, commodities, bonds, and pretty much everything else.

Given all these risks and given investor nervousness, why do these instruments grow in popularity? Follow the money. Financial advisers earn brokerage commissions every time they tactically allocate assets in a client's portfolio by mixing and matching industry, sector, and country ETFs. The same advisers often promise clients an immediate trading response to unexpected news or world events. Operating expenses of some ETFs are lower than those of similarly invested mutual funds. But far more important is that investors have learned to love ETFs largely for tax reasons because they are taxed like stocks: Investors only pay capital gains taxes if they sell the ETF for a higher price than the one at which it was bought. In contrast, mutual fund investors have no control over whether or not they pay capital gains taxes or recognize losses, since these decisions are made by the manager of the mutual fund. This explains why many mutual fund investors were shocked to find out that they owed money on realized capital gains in 2008 even though the net asset value of these funds dropped significantly that year during the financial crisis (the managers held on to their losers, but sold their winners). The pass-through nature of taxes to mutual fund

shareholders may be the biggest driver of the rapid expansion of assets under management in ETFs.

ETF Risks

Innovations in nascent markets with small trading volumes often attract moths to the flame with promises that often cannot be delivered in times of market stress, or when the innovation becomes over-large. Markets grow rapidly. They become more complex. Regulators have been slow to react to this very profitable and fast-growing niche of the financial markets, one that may endanger capital formation by its very design.

The proliferation in the number and trading volumes of ETFs raises larger concerns beyond just their potential impact on initial public offerings. With ETFs making it so easy to effectively trade hundreds or even thousands of stocks in fractions of a second, it is no surprise that they account for about half of all trading in equities markets. ETFs make it so easy and inexpensive to translate investor highs and lows into the *entire market or large portions of it* virtually instantaneously. Thus it comes as no surprise, at least to us, that the markets themselves have become so volatile, not only day to day, but within each day. Price volatility is scaring individual investors. It is not an accident that mutual funds have seen such large net redemptions. These investors are either going

into ETFs, and thus perhaps unknowingly contributing to market volatility in the process, or out of the markets altogether in cash. In either case, the net result is not helpful for long run economic growth.

ETFs have other more prosaic risks. They can be used easily in the service of fraud, as was demonstrated recently when a single UBS "rogue trader" lost more than $2 billion on bad ETF trades that were not properly hedged in the markets. Shortly before this event, we and two experts in securities settlement warned of potentially even greater potential dangers if regulators remain lax about the industry's policing of timely trade settlement. Increasingly, terms like "create to lend" find their way into the lexicon of the ETF industry. Market-makers enjoy significant and historically arcane exemptions from rules applying to trading and settlement that extend to all other market participants—we worry these special privileges may lead to high levels of trading "fails" and greater systemic risks to the overall market.[5] Such trading "fails" in ETFs during times of market stress could domino into a greater systemic risk issue for our markets (Chart 11).

Time has proven that shorter settlement periods and high levels of compliance are the best antidotes for systemic risks that might involve the failure of a very

[5] See "Canaries in the Coal Mine: How the Rise in Settlement 'Fails' Creates Systemic Risk for Financial Firms and Investors," March 2011, http://www.kauffman.org/research-and-policy/Canaries-in-the-Coal-Mine.aspx.

large trading party. Congress specifies that buyers of equities deliver cash and sellers of equities deliver securities three days after a trade. When money arrives from buyers, but the securities do not, a failure to deliver occurs. This happened frequently in government securities before large fines were imposed on those failing to either receive or deliver a trade. Congress and the SEC invested much time analyzing similar problems in naked short selling of small-capitalization stocks. So why then, in 2010, did two of the biggest ETFs, the SPY (the SPDR S&P 500 TR ETF) and the IWM (iShares Russell 2000 index ETF) constitute 21 percent of the failures in the entire stock market (Chart 12)? Why would such broad indexes with supposedly instant arbitrage characteristics fail to deliver in such a significant manner? We fear that hedge funds and commercial banks may be relying on lax enforcement of settlement rules to create a cheap funding source for their trades—as has previously occurred in other parts of the capital markets.

The industry argues that fails in ETFs don't really matter—that an AP need only buy more physical securities to create necessary units and relieve the failed trade settlement. We believe that to be a false narrative. A cursory analysis of trading volumes in IWM component securities indicates it would take more than 180 trading days, or more than six months, trading at 10 percent of each stock's volume every day, to offset reported short interest in that ETF. Attempts to

purchase these mostly hard-to-trade common stocks, held in very large concentrations already by ETFs, will create sharp price movements up and down. The math, given the current size of short positions, the history of high settlement failure rates in ETFs, and the illiquidity of many component stocks in the IWM, just doesn't work.

What Should Be Done?

We believe that, as Richard Bookstaber has warned, it is time to recalibrate the regulation of our capital markets. That starts with an emphasis on what's good for companies in our public markets rather than what's good for trading volumes in the nation's futures markets, options markets, and stock exchanges.

First, it is important for the SEC to begin to recognize some fundamental differences in the risks posed to the market by price volatility in stocks and ETFs. Take, for example, the circuit breakers pioneered by the NYSE Euronext before the Flash Crash that created a brief five-minute trading halt for individual stocks that moved more than 10 percent in price during the preceding five minutes. While this was a surprise to competing exchanges that ignored the exchange's trading halt and were forced to cancel large numbers of "bad trades," the NYSE Euronext canceled no trades as a result of this market anomaly.

Believing that ETFs and stocks are equivalent, the SEC recently applied the same circuit breaker logic to ETFs. While this approach may seem logical, it ignores the *volatility-creating effect of ETFs themselves,* which to us, demands even *tighter constraints on ETF price movement* than on common stocks. The essential characteristic of portfolio construction is to achieve a diversification benefit; that is, a single stock exhibits much higher volatility than does a portfolio of stocks.

Said another way, a 10 percent movement of a broad-based index would necessarily imply far higher volatility in components of that index. Consequently, we think the SEC should ask Self-Regulatory Organizations (SROs) to require a circuit breaker time-out whenever an ETF moves more than 5 percent in the preceding five minutes. During more than 17 years of trading history, 5 percent moves over an entire trading session were rare; so a 5 percent constraint on short-term price changes should not interfere with day trading interests too much and will keep ETFs in certain indexes or industries from overly affecting the price behavior of component stocks on days like May 6, 2010 (Chart 10).

Second, we are concerned that, after years of indifference to the increasing co-movement between indexes and common stocks, regulators will now put still worse “fixes” in place. Comment is being solicited on the SEC’s desire to restrict

trading beyond fixed, arbitrary highs and lows each trading session—what are called limit up, limit down constraints on price movement for stocks and for indexes. These types of trading constraints have been in place for some time at the nation's commodity exchanges, where contracts trade on margin and such hard limits have been used to collect additional margin on outstanding bargains.

At worst, while infrequent, these limits historically "trapped" traders on the wrong side of a move when markets move quickly and remain frozen (for example, consider traders who sold short hard winter wheat just prior to reports that the Chernobyl nuclear reactor melted down). At best, such limit up, limit down rules serve as enormous magnets to day traders. As markets approach daily price limits that may suspend trading for either a brief time or for the day, customers quickly cancel resting orders that stand in the way of the big waves, awaiting a more opportune time to take the opposite side of the trade. Often commodities that close "locked limit up" will "gap" open to higher levels on the ensuing market opening before enticing sellers back into the market.

Third, the SEC should reconsider its past policy of granting blanket exemptions to ETFs from its rules governing mutual funds. We are not advocating that ETFs be treated *identically* to mutual funds, because clearly the two instruments are different. But a new regulatory regime is called for, one that takes account of and

ideally attempts to mitigate the adverse impacts and risks of ETFs we have identified. At the very least, the SEC should begin a broad inquiry into the nature and magnitude of these impacts and risks with a view toward improving its own and the public's understanding of the market-wide impacts of these financial instruments.

In particular, we question whether market-making exemptions are really necessary in an age of high-frequency trading and instantaneous access to market liquidity. Questions should be asked about ETF creation and destruction practices, about securities lending operations, and the new ownership of ETF sponsors by custody banks engaged in large lending operations. And regulators should investigate the theoretical "reason" that explains away large outstanding short ETF positions as easily "covered" in the cash markets, which appears impossible from a cursory examination of the small-capitalization IWM ETF and a simple mathematical analysis of stock holdings and liquidity.

Fourth, in the interim, we suggest significant improvements into the transparency of ETF construction and trading, including consideration of the following prescriptions:

- Require ETF sponsors to explicitly describe unit creation and destruction processes in their prospectuses and summary information, including provisions to align short interest in an ETF with the liquidity of ETF constituents.
- Require custodian banks to report each week fails-to-receive and fails-to-deliver of equity and ETF securities in an analogous fashion to the requirements imposed by the Federal Reserve on primary dealers of U.S. debt securities.
- Eliminate market-maker exemptions and impose significant penalties or fees for all transaction fails.
- Establish broader fails reporting, including all transaction activity for systemically important financial institutions, especially primary custody banks, including:
    - Aggregate dollar value of securities lending pools by asset class on a monthly basis so that investors and regulators might anticipate shifts of the security supply and its implications for market stability (as customers often cease lending at the beginning of a serious liquidity crisis);
    - Fails-to-deliver (receive) securities and stratify by customer segment;

- Fails data according to custody bank business lines, e.g., trading, securities lending, financing (repo services), etc.

Thank you, Mr. Chairman, and members of the committee, for allowing me to present our views. I look forward to your questions.

Harold Bradley delivered their testimony to the Securities, Insurance, and Investments Subcommittee of the Senate Committee on Banking, Housing and Urban Affairs at 9:30 a.m. Wednesday, October 19, 2011, in the Dirksen Senate Office Building, Room 538.

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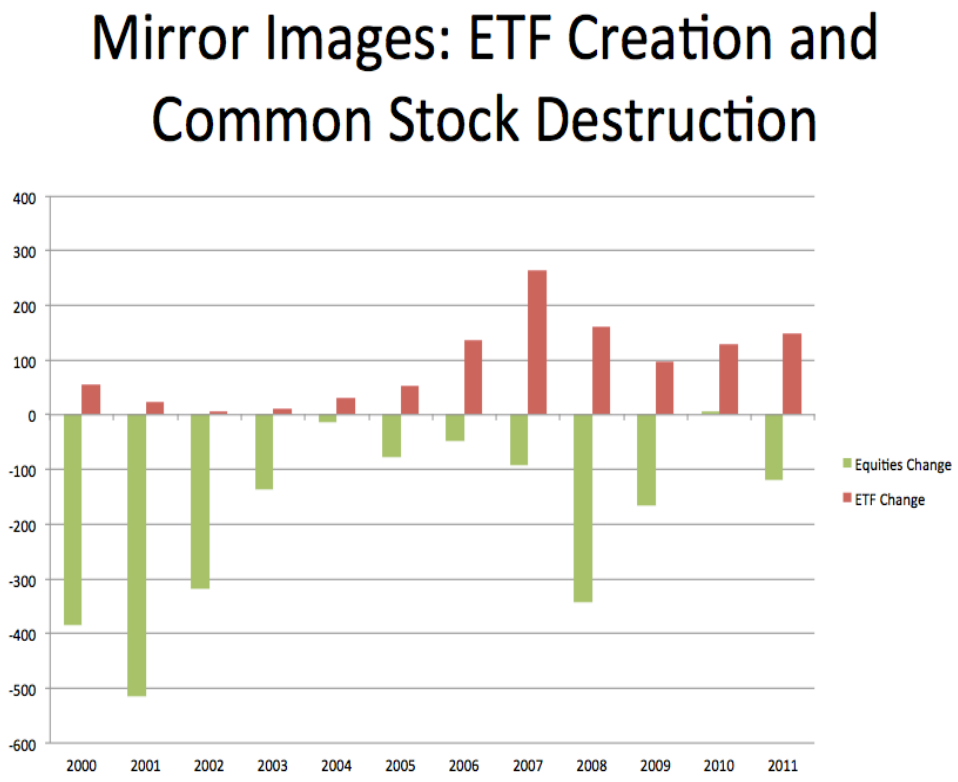
Appendix

Chart 1: U.S. Exchange Listed Companies and U.S. Exchange Listed ETF Growth



Raw Number of Publicly Listed Stocks and ETFs
(Thomson-Reuters Database)

Chart 2: The Flash Crash—How Illiquid Small Cap Stocks Led the Market Down

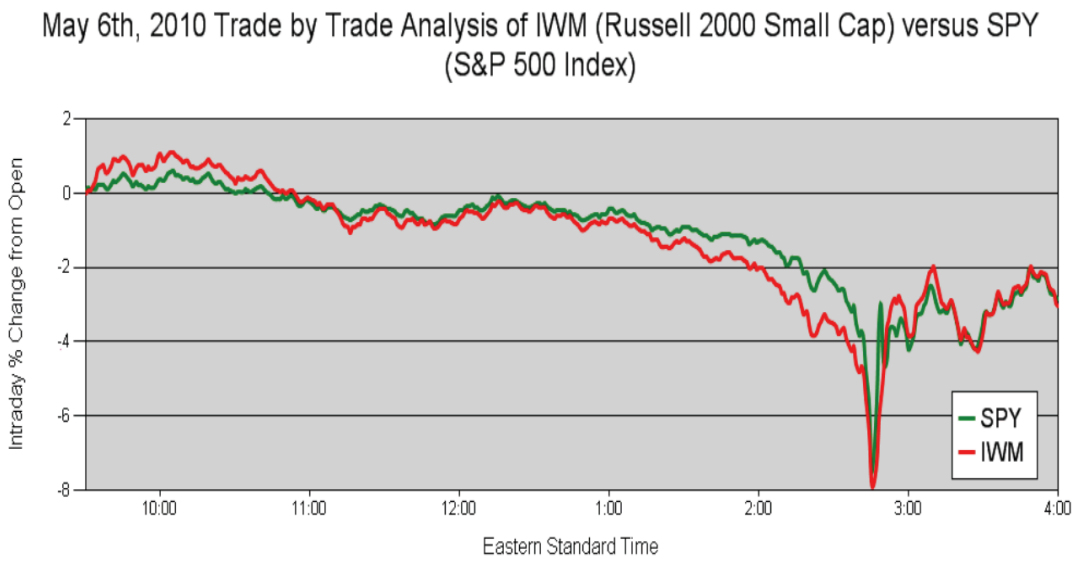


Chart 3: The Flash Up—Russell 2000 Index Moves Up ~7 Percent in 20 Minutes

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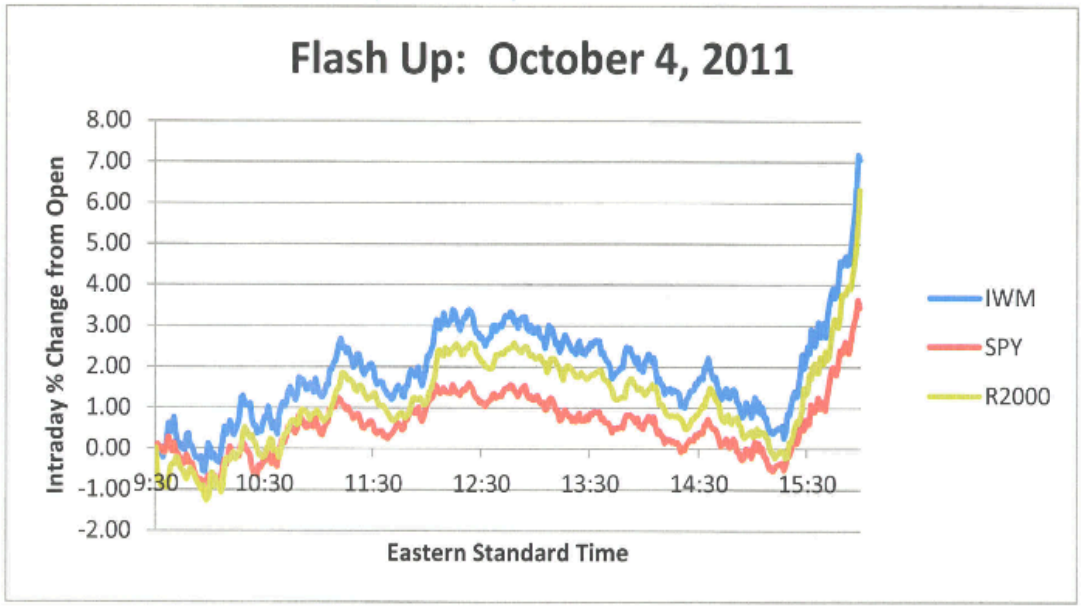

Chart 4: Ned Davis Research—S&P 500 Stocks Move in Lockstep to S&P 500 Index

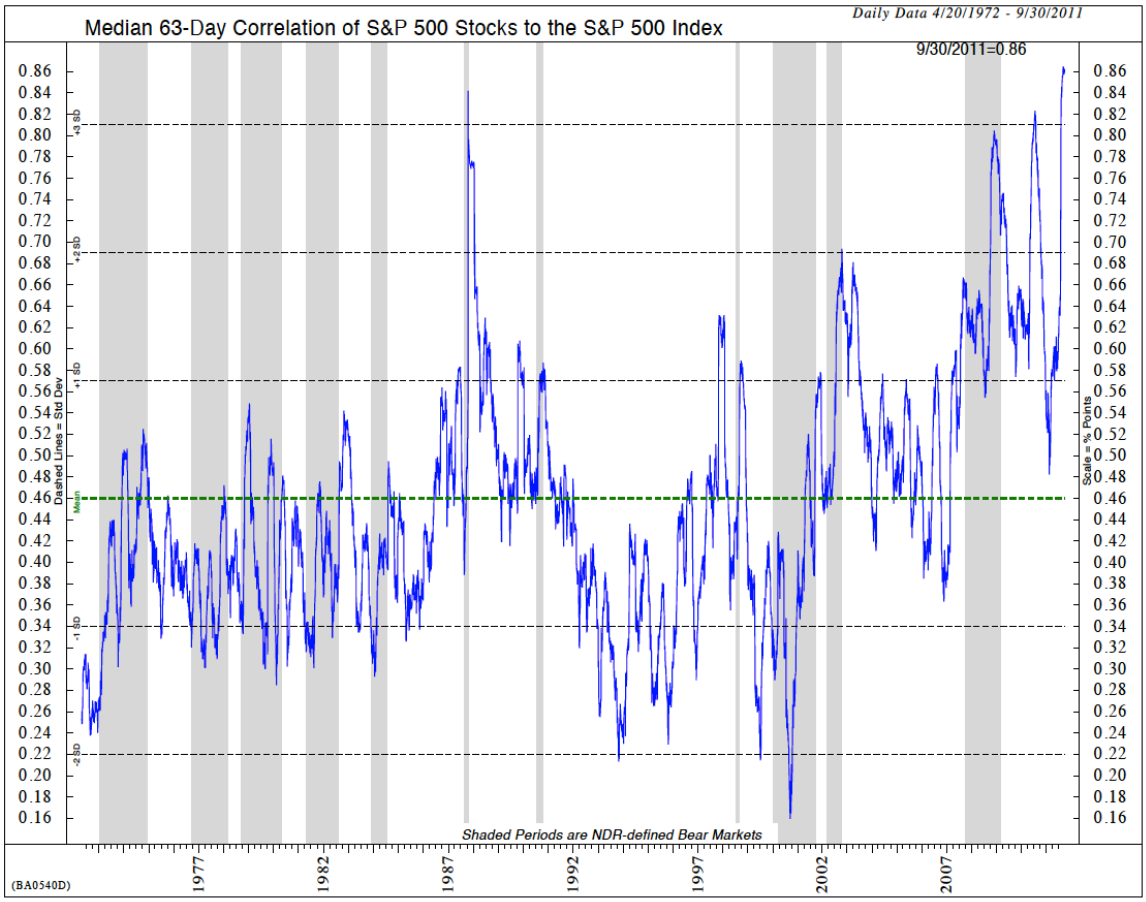

Chart 5: Empirical Research—Co-movement of Large Capitalization Stocks Unprecedented in Modern Markets

- ...And the extraordinary correlations are telling us to bet:

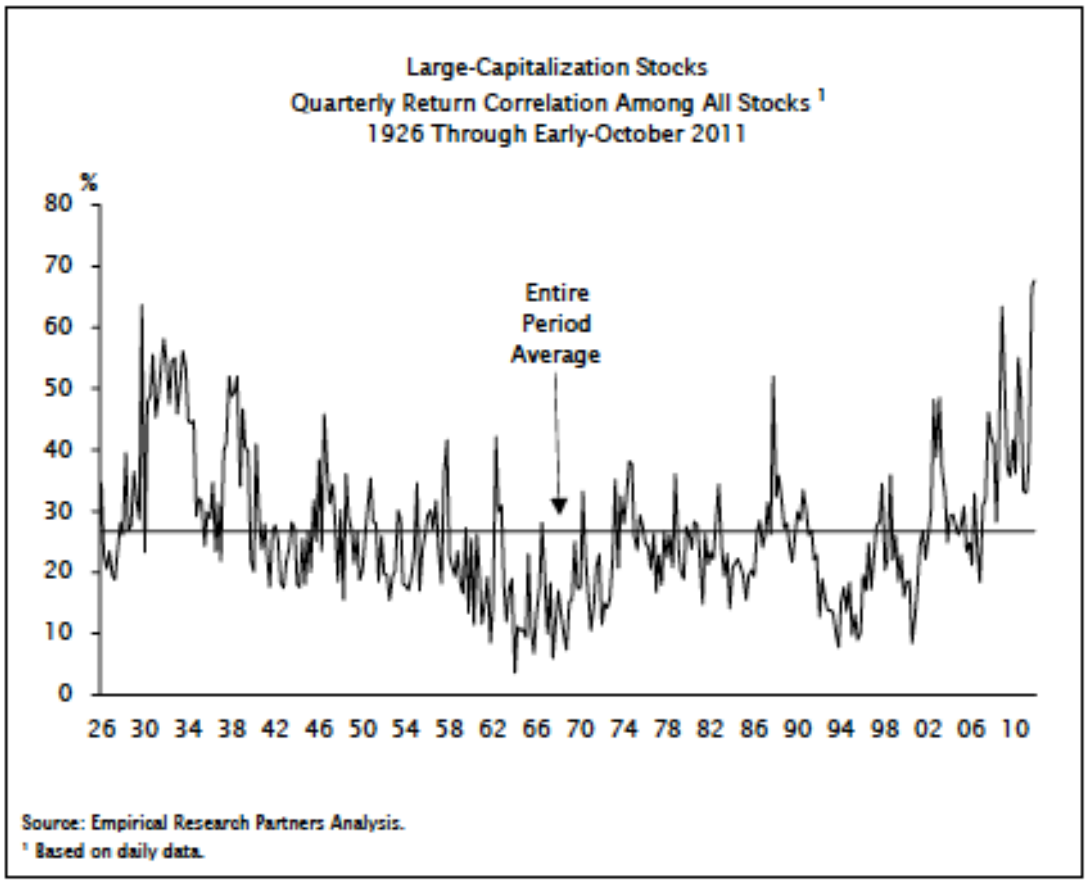

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Chart 6: Concentration of Small-Capitalization Company Holdings in IWM (ETF)

	Largest Holder	Top 5 Holders	Top 10 Holders	All IWM Holdings
# Securities	99	867	1737	1953
% of IWM holdings (unweighted)	5.1%	44.4%	88.9%	--
% of IWM holdings (weighted)	2.0%	35.1%	88.9%	--
Mean Days to Buy Stocks for Unit Creation	41	30	28	27
Median Days to Buy Stocks for Unit Creation	34	25	23	23
Total Days Needed to Create Units at 10% of Daily Trading Volume	170	188	188	188

Source: Yahoo! Finance

Chart 7: IWM Holdings Liquidity Compared to Market

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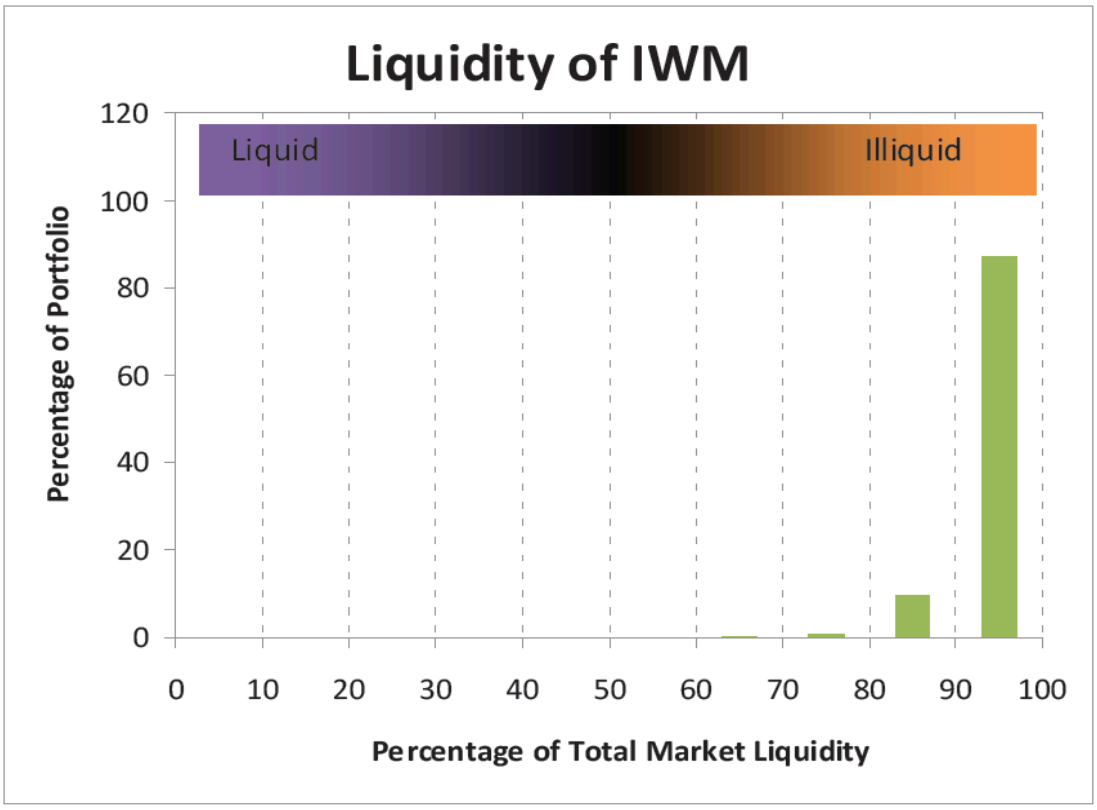
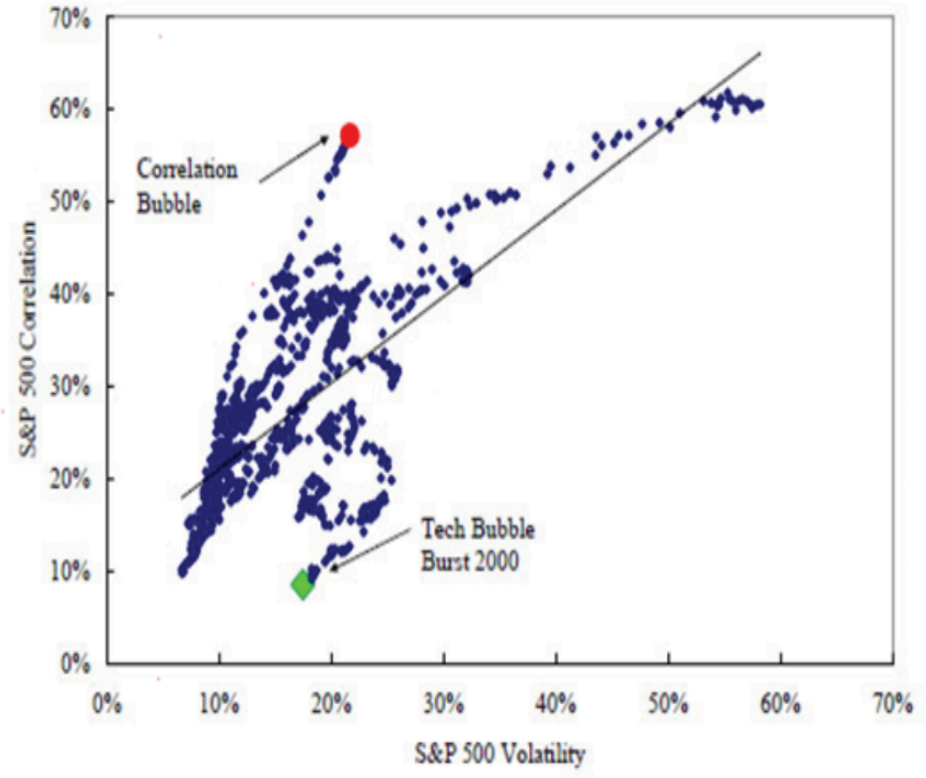


Chart 8: J.P. Morgan Delta One Desk and the Correlation Bubble

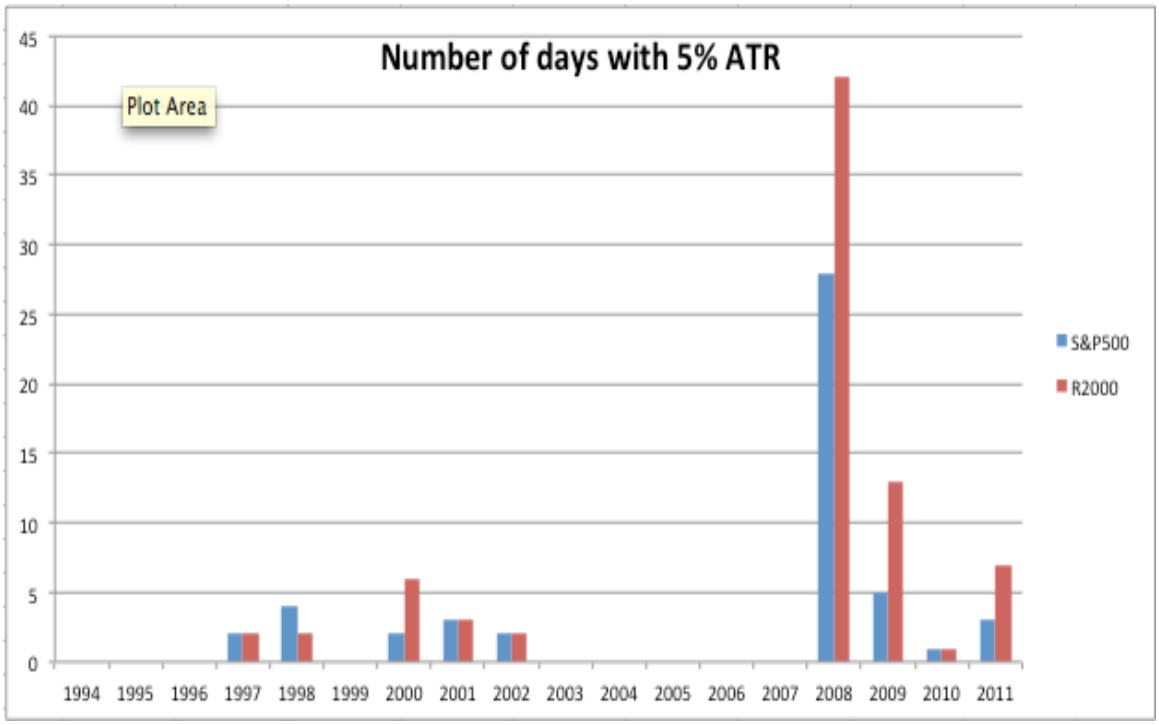


Source: J.P. Morgan Equity Derivatives Strategy.

Chart 9: Futures and ETF Dollars Traded Swamping Value of Common Stocks Traded

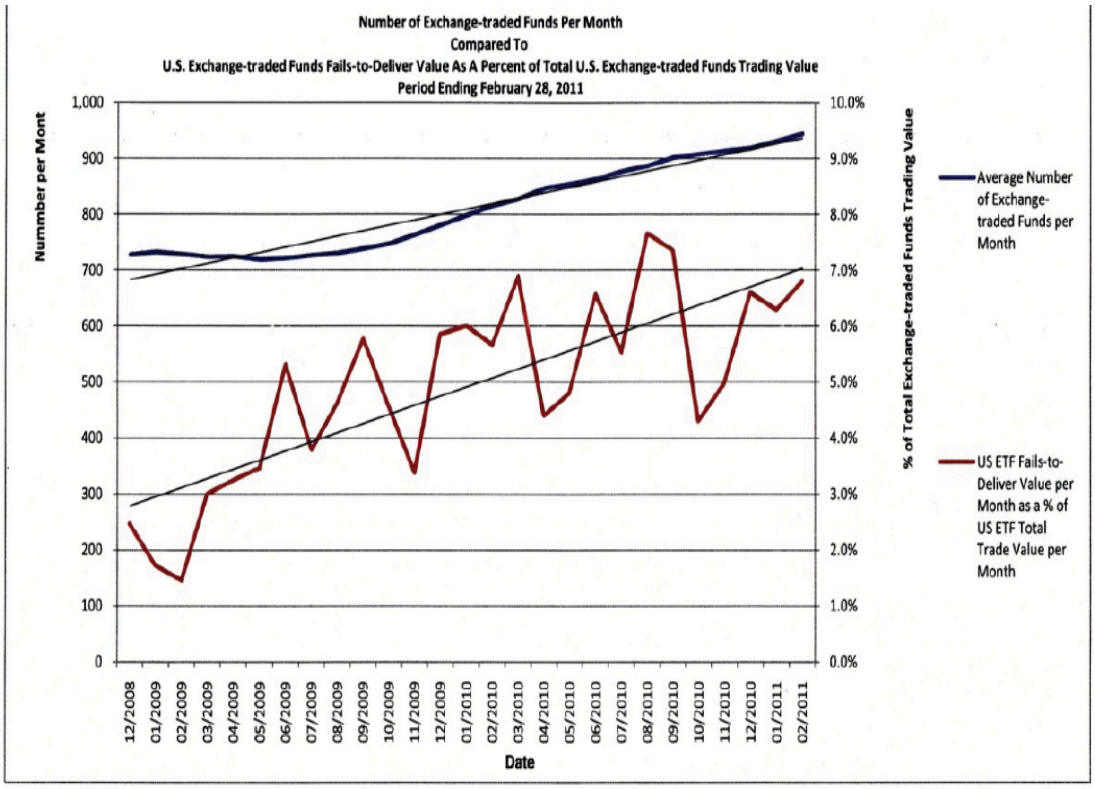
Source: J.P. Morgan Equity Derivatives Strategy.

Chart 10: ETF Circuit Breakers Meaningless at 10 Percent Given Market History



Trading Days Exceeding 5% Range

Chart 11: Persistent and Climbing ETF Fails to Deliver as Percent of ETF Dollars Traded



Sources:
U.S. Securities Exchange Commission, New York Stock Exchange, Depository Trust and Clearing Corporation, Investment Company Institute, World Federation of Exchanges

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Chart 12: U.S. Exchange Traded Funds—Top 10 ETF Fails (Full Year 2010)

Symbol	Description	Value of Fails Reported	# of Days Failing	% Value of ETF Fails	% Value of All Fails
SPY	SPDR S&P 500 ETF Tr	$74,770,649,095	248	27.4%	15.3%
IWM	iShares Russell 2000 Index	$27,542,976,085	249	10.1%	5.6%
QQQQ	Powershares QQQ	$9,726,205,729	247	3.6%	2.0%
FAZ	Direxion Daily Financial Bear	$8,917,534,272	245	3.3%	1.8%
FAS	Direxion Daily Financial Bull	$8,615,461,265	245	3.2%	1.8%
XLF	Financial SPDR	$6,316,149,807	240	2.3%	1.3%
XRT	SPDR S&P Retail	$5,645,840,903	240	2.1%	1.2%
XLE	Energy Sector SPDR	$4,491,801,629	241	1.4%	.8%
IYR	iShares DJ US Real Estate	$3,805,037,250	240	1.4%	.8%
XLI	Industrial Sector SPDR	$3,762,812,985	233	1.4%	.8%
	Top 10 ETFs Fails Value	$153,594,469,019			31.4%
	All ETF Fails Value	$272,767,713,480			55.8%
	All Securities Fails Value	$488,297,395,379			

Average Year = 250 Trading Days
Source: Fred Sommers Basis Point Group

About the Kauffman Foundation

The Ewing Marion Kauffman Foundation is a private nonpartisan foundation that works to harness the power of entrepreneurship and innovation to grow

economies and improve human welfare. Through its research and other initiatives, the Kauffman Foundation aims to open young people's eyes to the possibility of entrepreneurship, promote entrepreneurship education, raise awareness of entrepreneurship-friendly policies, and find alternative pathways for the commercialization of new knowledge and technologies. In addition, the Foundation focuses on initiatives in the Kansas City region to advance students' math and science skills, and improve the educational achievement of urban students, including the Ewing Marion Kauffman School, a college preparatory charter school for middle and high school students set to open in 2011. Founded by late entrepreneur and philanthropist Ewing Marion Kauffman, the Foundation is based in Kansas City, Mo. and has approximately $2 billion in assets. For more information, visit www.kauffman.org, and follow the Foundation on www.twitter.com/kauffmanfdn and www.facebook.com/kauffmanfdn.

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