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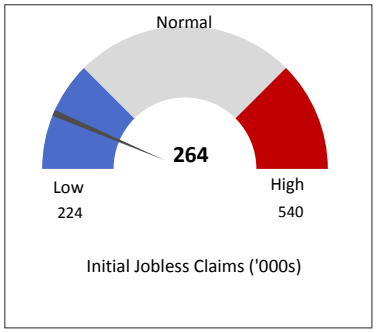
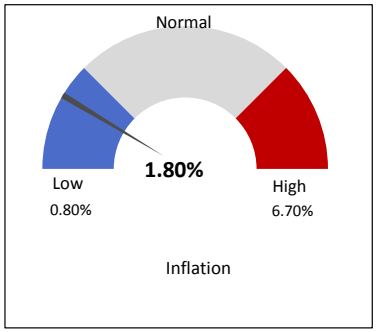
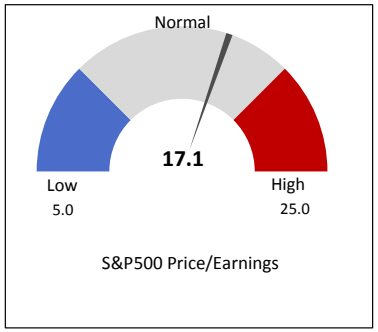
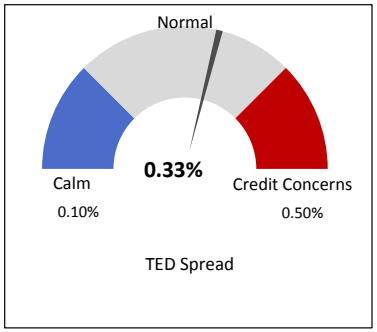
Market Digest

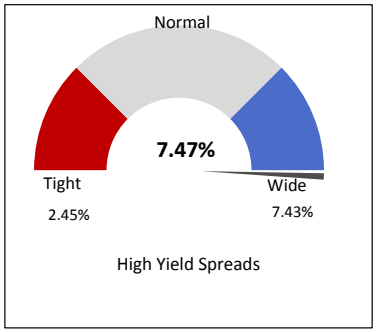
Third Quarter 2015











Evolution of the ETF Market

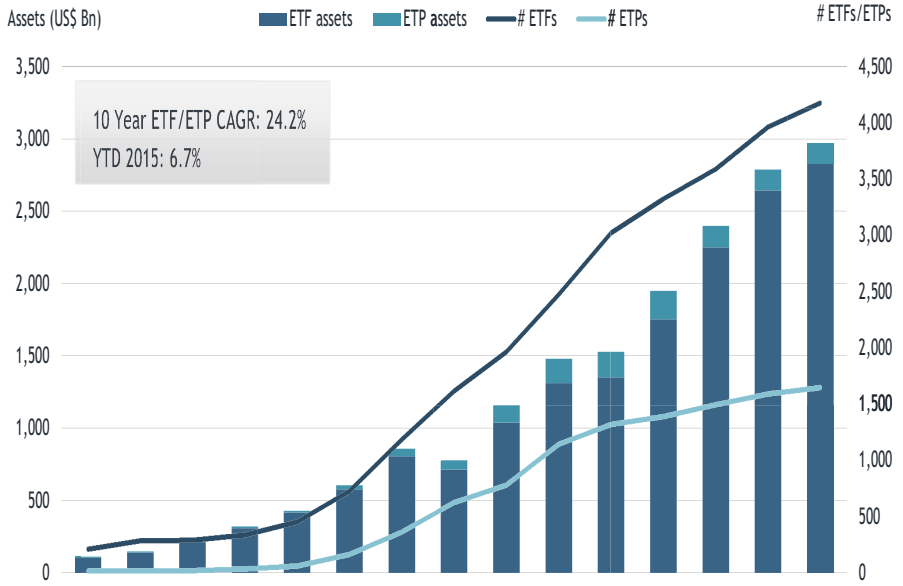
Source: HowTheMarketWorks.com, October 5, 2012

Exchange Traded Funds or ETFs combine the investment features of mutual funds with the trading characteristics of common stocks. They can be bought and sold continuously throughout the trading day, and they can also be margined, shorted, optioned and lent out to other market participants.

ETFs were developed to give institutional investors passive exposure to the equity market. The first ETF brought to market was the TIP 35 ETF, launched on the Toronto Stock Exchange in March 1990. The first US ETF was the SPY, based on the S&P 500 index, which came to market in 1993. Today, investors can choose from over 5,750 ETFs, available in multiple asset classes and traded in 51 countries, with global assets of $3.0 trillion (see Chart 1 on the right).

To appreciate the meteoric growth of the category, it took ETFs 25 years to get to $3 trillion in assets, where it took hedge funds 66 years and mutual funds 72 years to reach the same level. For this reason, the development of ETFs is viewed by the investment management industry as one of the most important financial innovations to date. (D. Fuhr, EFTFGI via ETF Supplement, Financial Times, February 2, 2015).

Chart 1. Growth of Exchange Traded Products



Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Jun-15
# ETFs	209	284	289	335	451	725	1,184	1,614	1,962	2,474	3,020	3,323	3,588	3,962	4,177
# ETFs/ETPs	221	296	304	365	507	888	1,544	2,238	2,741	3,617	4,337	4,711	5,082	5,552	5,823

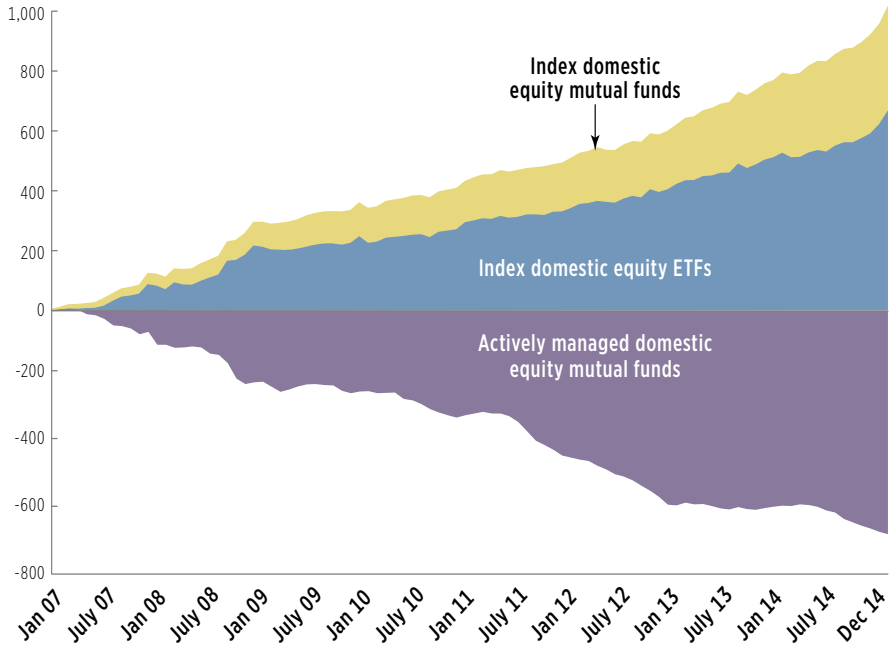
Source: ETFGI, June 2015

The US ETF market represents the largest share of global assets, with 1,781 funds and $2 trillion of assets as of September 30, 2015. The largest US sponsors, BlackRock, Vanguard and State Street, are also the largest global players, collectively accounting for 80% of US ETF assets and 69% of worldwide ETF assets. (Data from BlackRock Global ETP Landscape, September 30, 2015.) It is estimated that ETFs now account for 25% to 40% of daily trading volume on world exchanges.

Evolution of the ETF Market

ETFs offer significant benefits to investors, such as low cost, daily transparency and the ability to invest in categories that were hard to access before their advent, such as commodities, currencies, emerging markets debt and volatility strategies. In the process, ETFs have opened up large portions of the investment universe to smaller investors that were previously restricted to large institutions. ETFs have also facilitated a major shift among investors, both large and small, from a simple "bottoms-up" focus on individual stocks to a more strategic "top-down" focus on macro trends and thematic investing. This shift can be discerned in the chart below, which shows strong inflows into equity ETFs, mainly at the expense of mutual funds:

Chart 2. Cumulative Fund Flows



Source: 2015 Fact Book, Investment Company Institute

As with other very successful products in the financial industry, ETFs have expanded from equities to many other asset classes, and have morphed into more complex strategies, such as leveraged and inverse ETFS incorporating derivative or debt structures. As the use of ETFs has proliferated, their role in major market disruptions has become a controversial issue. Famously, in May 2014, BlackRock, itself the largest sponsor of ETFs globally, criticized leveraged ETFs for structural problems that could blow up the entire financial industry. In a nod to Warren Buffet's 2002 criticism of derivatives as financial weapons of mass destruction, ETFs have been branded the next generation of WMDs. In this report, we will trace the evolution of ETFs, examine their role in recent market disruptions and hopefully, draw some useful conclusions on their overall safety.

Definition & Nomenclature

The term ETFs is used loosely to describe a mix of exchange traded products that have very different characteristics based on the legal structure. Ninety seven percent of the assets in US ETFs are in so-called 1940 Act funds that, like mutual funds, are regulated by the US Securities & Exchange Commission under both the Securities Act of 1933 and the Investment Company Act of 1940. The remaining three percent of assets are invested in categories such as commodities, currencies and financial futures that fall outside the purview of the 1940 Act. Funds that invest solely in physical commodities or currencies are regulated by the SEC under the Securities Act of 1933, while those that invest in commodity or currency futures are regulated by both the SEC under the 1933 Act and the Commodity Futures Trading Commission.

For clarity, we will use the term ETP to refer to the broader class of exchange traded products and ETF to refer specifically to open-end 1940 Act funds. While ETFs represent the overwhelming share of assets in ETPs, it is important for investors to understand these nuances, as the choice of structure can have a huge impact on tax treatment, legal safeguards and potential investment returns. Chart 3 on the following page summarizes the different legal structures and some of their differentiating characteristics.

Evolution of the ETF Market

Chart 3. Comparison of ETF Legal Structures

ETF Legal Structures	Open End Fund	Unit Investment Trust	Grantor Trust	Exchange-Traded Notes	Partnerships
Products	iShares, Select Sector SPDRs, PowerShares, Vanguard, and Wisdom Tree	BLDRs, Diamonds, SPDRs, and PowerShares QQQ Trust	Currency Shares, streetTRACKS Gold Shares, iShares Silver Trust, and Merrill Lynch HOLDRs	iPath ETNs, ELEMENTS ETNs	U.S. Oil Fund
Reinvests Dividends	Yes	No	No	Varies	Varies
Replication of Index	May optimize index	Must fully replicate index	Custom weighted basket	Varies	N/A
Registered Under	Investment Company Act of 1940	Investment Company Act of 1940	Security Act of 1933	Security Act of 1933	Security Act of 1933
U.S. Tax Reporting Method	Form 1099	Form 1099	Grantor Trust Letter	Taxed at Sale	Form K-1

Source: The History of Exchange Traded Funds, etfguide.com

As mentioned, the vast majority of ETFs are set up as open-end registered investment companies under the 1940 Act, which is also the governing structure for US mutual funds. Some well-known older ETFs, such as SPY, DIA and QQQ are set up under the more restrictive unit investment trust structure, which does not allow reinvestment of dividends, requires full replication of the underlying index and does not permit securities lending. We will show how these factors affect the funds later in this report.

Although they also trade on an exchange, exchange traded notes or ETNs are legally classified as unsecured debt obligations of the issuer bank, with a payout at maturity based on the performance of a stated market index. As unsecured debt, ETNs are subject to the highest counterparty risk of all exchange traded products. If the issuer goes into default, the investor is liable to loss of his entire investment. Despite the higher risk, ETNs are widely used to provide exposure to markets or strategies where it would be difficult to transact or settle the underlying securities daily. Under current IRS rules, ETNs are classified as prepaid forward contracts. Investors do not have to treat interest or dividends as taxable income, nor do they recognize any capital gains/losses until they sell their holding. Thus, ETNs may offer more favorable tax than other exchange traded products.

Grantor trusts are the usual structure for commodity-based funds where the fund takes physical delivery of the commodity and holds a fixed portfolio of assets that cannot be altered. As with open-end ETFs, shares are created and redeemed through authorized participants. GLD and SLV are examples of grantor trusts. Because they hold physical gold and silver, investor gains are taxed at the flat 28% rate for collectibles. Tax reporting is provided by a letter from the fund, instead of the usual 1099 or K-1.

Conversely, commodity pools are funds that use the financial futures market to obtain exposure to commodities. They are organized as limited partnerships under the 1933 Act, but are regulated by the CFTC since they employ futures. As an example, USO is designed to track the price movement of WTI crude using oil futures; hence, it is set up as a commodity pool. Similarly, the ProShares VIX

volatility strategies are also commodity pools, as they obtain exposure to the VIX index through the futures market. As limited partnerships, investors receive a K-1; however, all gains are taxed at a 27.84% blended rate (60% long term/40% short term capital gains), irrespective of the holding period.

Thus, we see that the specific structure used by the fund will have a bearing on how the fund is invested and how it is treated for tax purposes. Depending on the structure, investors may finds that ETFs offer advantages over mutual funds, where investors often find themselves paying taxes on capital gains distributed by the fund company, even when the overall fund performance is negative for the year. Here is how the structural differences could play out:

SPY, IVV and VOO are ETFs tracking the S&P 500 index from Standard & Poor's, iShares and Vanguard, respectively. SPY is structured as an investment trust, while IVV and VOO are open-end fund structures. Thus, SPY is required to fully replicate the index and is prohibited from lending out the underlying shares to other firms. It also cannot reinvest dividends, but must pay them out to holders periodically. Conversely, IVV and VOO are allowed to use derivatives, reinvest dividends, use sampling to replicate the index and engage in securities lending.

In the emerging markets category, GMM, EEM and VWO are the ETF offerings from Standard & Poor's, iShares and Vanguard, respectively. GMM views South Korea as a developed market, so it adjusts the weightings to exclude South Korea and give the portfolio higher exposure to the BRIC countries. Investors with other BRICs exposure elsewhere should take this into account. GMM provides lower liquidity and wider spreads than EEM or VWO as it is a considerably smaller fund. Of the other two, EEM utilizes sampling, while VWO employs full index replication. EEM also offers a more liquid options market that makes it the favored choice for traders, even though its 0.67% expense ratio makes it more expensive than VWO, which has a 0.2% expense ratio.

(Acknowledgement: J Hill, D Nadig, M Hougan, A Comprehensive Guide to Exchange Traded Funds, CFA Institute Research Foundation, April 2015).

Evolution of ETFs

As we mentioned earlier, ETFs were first developed as a wholly passive, low-cost option for large institutional investors to replicate exposure to desired equity benchmarks such as the S&P 500 (SPY) or NASDAQ (QQQ) index. Since then, the category has expanded to provide exposure to bonds, currencies, commodities, volatility and other asset categories. As the category has grown, more recent developments such as "smart beta" strategies have moved ETFs closer to the realm of active investing, blurring many of the traditional distinctions between categories and providers.

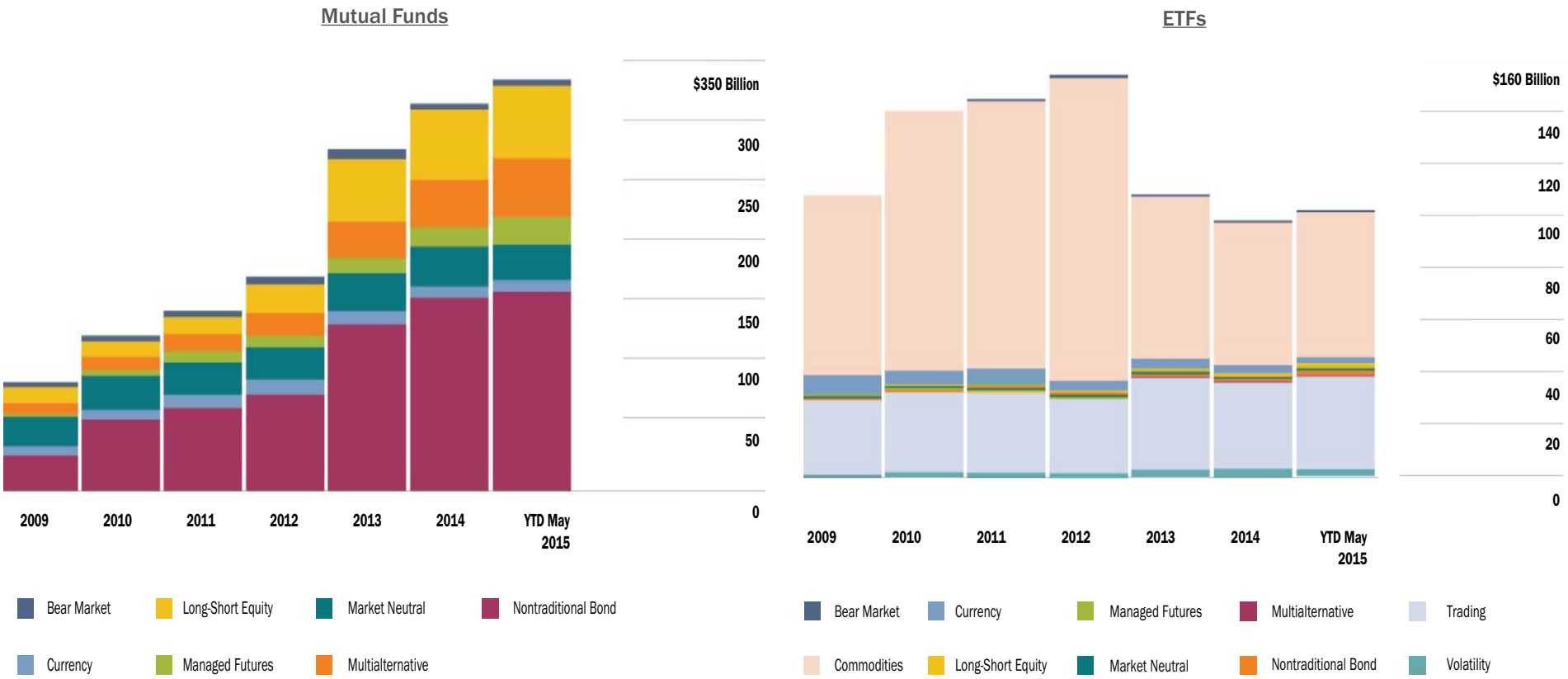
Today, an investor can obtain exposure to many strategies via ETFs and mutual funds that were previously available only to qualified investors through limited partnerships at high investment minimums. In most categories, ETFs have enjoyed broader acceptance, and have outperformed mutual funds in availability and asset growth. As shown below, the one area where ETFs have struggled to keep pace with mutual funds is in the alternative investments arena. The majority of alternative assets in ETFs are in commodity and trading strategies, while mutual funds offer exposure to a broader range of strategies.

We believe the main reason ETFs have been less popular with investment managers is the requirement that ETFs disclose their holdings on a daily basis, whereas mutual funds are required to do so only on a quarterly basis with a 60-day lag. Managers are understandably reluctant to publicize details of their trades daily and give other investors the opportunity to replicate their proprietary strategies for free. Hence, the growth of alternative mutual funds has outpaced the growth of alternative ETFs (see Chart 4 on the following page).

Chart 5 on page 7 highlights the sheer breadth and diversity of ETF choices now available to investors, from the simplicity of passive, index replication strategies to more complex structures that can allow investors to express specific thematic or market views.

Evolution of the ETF Market

Chart 4. Total Assets in Alternative Strategies



Source: "2014-2015 Alternative Investment Survey of U.S. Institutions and Financial Advisors," Morningstar and Barron's, July 2015

Evolution of the ETF Market

Chart 5. US ETF Market Structure

Daily Performance – October 9, 2014

Source: Financial Visualization, finviz.com, October 11, 2015

Evolution of the ETF Market

Characteristics of ETFs

In a mutual fund, incoming cash is used to buy additional securities and the investor receives a number of shares or units that represent his pro-rata share of the fund assets. Redemptions are funded by pro-rata sale of fund assets. Transaction costs and tax costs are borne by the remaining fund holders when the fund distributes income and capital gains pro-rate to investors at the end of the year. Mutual funds are "forward priced"—all orders placed throughout the day are executed at that day's net asset value, which is calculated after the market close at 4:00 pm Eastern. All purchase and redemption transactions are handled directly by the fund company.

ETFs differ from mutual funds in several crucial respects:

1. They can be bought and sold throughout the trading day.

2. There is a both primary market, where shares are created or redeemed, and a secondary market where shares are traded on market exchanges, "dark pools" or private exchanges, and other trading platforms. The primary market is limited to market makers and very large institutional investors. Ninety percent of the total daily activity in ETFs occurs on the secondary market.

3. As explained in Chart 6 on the right, the creation/redemption process is assumed by the authorized participant, or market maker. Unlike mutual funds, the ETF sponsor is not directly responsible for creating shares or liquidating securities to meet redemptions.

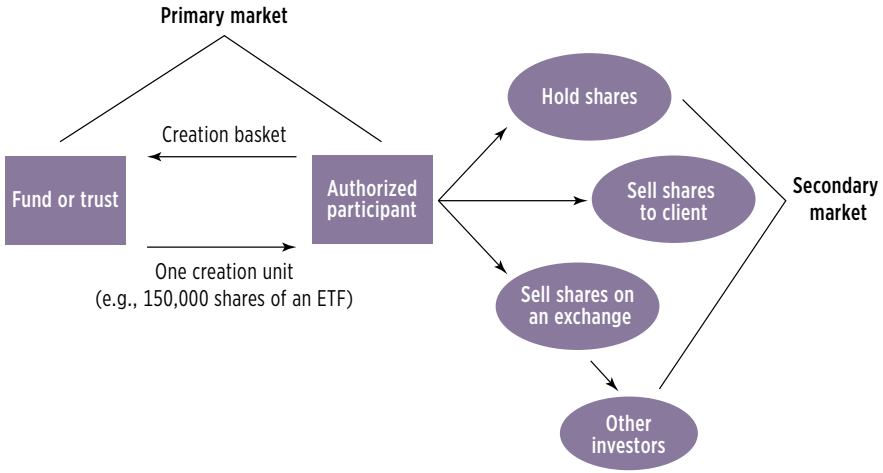
4. Transaction costs are borne by the transactor, not by the fund or the remaining unit holders.

5. ETFs do not distribute capital gains/losses annually. Any gain or loss can be deferred until the units are sold by the investor.

6. The ETF market is dominated by institutions. As the market has developed, it has evolved from purely passive indexing strategies for pension plans and endowments to use by hedge funds for tactical trading and hedging programs.

As illustrated below, ETFs have a unique mechanism for how shares are created, redeemed and traded. ETF shares are created when the designated authorized participant, or market maker, submits an order for one or more so-called creation units that represent a specified block of ETF shares, generally 25,000 to 250,000 shares. The ETF shares are delivered to the authorized participant when the so-called creation basket of underlying securities is transferred to the ETF. The value of the creation basket equals the value of the creation unit based on the official net asset value of the fund on the day when the transaction occurred.

Chart 6. EFT Creation/Redemption/Trading Mechanism



Source: 2015 Fact Book, Investment Company Institute

When shares are redeemed, the authorized participant acquires the number of ETF shares specified for the creation unit and returns the creation unit to the ETF in return for the daily redemption basket. The value of the redemption basket is equivalent to the value of the creation unit based on the official net asset value of the fund on the transaction date.

Because ETFs are required to post holdings daily and provide interim portfolio values at regular intervals throughout the trading day, investors can trade on discrepancies between the posted share price and the underlying portfolio value until the next net asset value is posted at the end of the trading day. Together, the primary market creation/redemption process and secondary market trading help ensure that the market price of the ETF and the value of the underlying securities contained in the ETF remain in close alignment. For the most part, this process has worked well, but there have been some notable breakdowns in the relationship in recent years. We will touch on a couple of the most serious ones below.

August 24, 2015 Market Disruption

On August 24, 2015, trading in US markets was severely disrupted by a breakdown in the pricing of equities and exchange traded funds early in the trading day. After steep falls in overseas markets overnight on fears of a growing slowdown in China, US futures indicated a 700-point drop in the Dow Jones Industrial Average at the market open. To avert panic selling when the market opened, the New York Stock Exchange invoked Rule 48, a rarely-used tool to speed up the market opening in extremely uncertain or volatile conditions by relieving market makers of the obligation to disseminate indication prices before the opening bell. In response to the lack of firm pricing and invocation of Rule 48, nervous market makers widened their bid-ask spreads on many stocks and ETFs.

As market sell orders began to be executed at unusually low bids, the lack of firm pricing feedback caused by the invocation of Rule 48 inhibited market makers from undertaking their normal hedging activities that help keep market prices in line with underlying asset values. As the market continued to fall, circuit breakers (rules that are intended to provide a 5-minute time-out during periods of extreme stress) kicked in. All told, trading was halted 1,279 times across 471 securities, with 80% of the trading halts involving ETFs.

Other exchanges continued to trade after NYSE Arca imposed its circuit breakers. SInce NYSE Arca is the primary exchange for the affected stocks and ETFs, the lack of definitive pricing data set off a chain reaction of widening bid-ask spreads, falling prices and successive trading halts that led to a widespread breakdown in the market's pricing mechanism, with price fluctuating as much as 40%. The chart below shows the impact of the trading disruptions on some of the larger ETF sponsors:

Chart 7. EFT Trading Halt Data
August 24, 2015

EFT Sponsor	#EFT with Trading Halted	#EFTs Total	% Halted
First Trust	32	95	34%
Guggenheim	21	76	28%
iShares	61	314	19%
PowerShares	44	136	32%
ProShares	15	146	10%
State Street	30	146	21%
Vanguard	17	67	25%
Wisdom Tree	12	79	15%

Source: ETF Market Performance in the Highly Volatile Equity Market of August 24, 2015, BlackRock

The disruption was confined to US equities and the ETFs that held those stocks. For whatever reason, trading in ETFs was disrupted far more than trading in the

Evolution of the ETF Market

Chart 8. Stock and ETF Trading Disruptions
August 24, 2015

	Ticker	Mkt Cap	Intraday Low	Close vs. Open
Equities				
Apple Inc.	AAPPL	$619.4B	-13.0%	-2.5%
Ford Motor Co.	F	$53.7B	-24.7%	-4.8%
General Electric Co.	GE	$244.9B	-21.2%	-2.9%
HCA Holdings	HCA	$35.3B	-49.1%	-2.2%
JP Morgan Chase & Co.	JPM	$231.5B	-21.3%	-5.3%
Kraft Heinz Co.	KHC	$87.4B	-15.0%	-1.9%
PepsiCo Inc.	PEP	$136.2B	-20.5%	-4.6%
Exchange Traded Funds (ETFs)				
Guggenheim S&P 500 Equal Weight	RSP	$9.9B	-42.7%	-4.0%
iShares Select Dividend	DVY	$12.8B	-35.5%	-3.5%
PowerShares S&P 500 Low Volatility	SPLV	$4.7B	-45.8%	-5.3%
SPDR S&P Dividend	SDY	$12.2B	-38.3%	-4.0%
Vanguard Dividend Appreciation	VIG	$18.6B	-37.4%	-4.3%

Source: The Flash Crash of 2015, Wall St. Daily, August 26, 2015

same stocks held by these ETFs. For example, it was reported that DVY, the iShares Select Dividend ETF, dropped 35.3% when none of the component stocks fell more than 11%. Chart 8 above shows how much intraday prices of some of the largest and most liquid stocks and ETFs dropped at their worst point, and the recovery by the market close.

Although normal trading resumed later in the session, the disruption has led to questions about the true liquidity of ETFs, as well as the reliability of US financial markets, during periods of market stress. In particular, the ETF sponsors have struggled to explain why the funds performed so much worse than the underlying stocks in fund portfolios. Much of the turmoil was caused by market orders that were executed at irrational prices, and market makers have been accused of stepping away from their role as conditions worsened, allowing stock and ETF prices to go into free fall.

To further complicate matters, August 24 also saw a breakdown of SunGard's InvestOne pricing system, which is used by BNY Mellon to provide pricing and fund accounting for many ETFs and mutual funds. It took BNY Mellon a full week to recreate the correct net asset values for the 679 funds affected by the breakdown. While the SunGard failure was completely unrelated to that morning's disruption in the stock market, it greatly added to investors' fears of a complete market meltdown.

The day's events also underscored that existing market safeguards and infrastructure may no longer be adequate to protect investors, particularly in light of the pace of trading and product innovations in the ETF arena. It will be some time before regulators release their official report into day's activity, but it will make for an interesting read. In the meantime, investors are being advised to use limit orders when placing ETF trades, to protect against trades being filled at prices far below underlying net asset values. Limit orders allow buyers/sellers to set out the maximum/minimum price at which a security should be bought/sold. If the limit price is not reached, the order is not executed. As we will see below, in turbulent markets, limit orders can offer better protection than stop loss orders, as the latter automatically convert to market orders and execute at the prevailing market price once the stop order is triggered.

May 6, 2010 Flash Crash

The August 2015 incident was eerily reminiscent of the May 2010 Flash Crash, when US equity markets experienced a breakdown that caused the Dow Jones index to plummet 1,000 points in 28 minutes and wiped $862 billion off US equity prices. Here again, ETFs were caught up in the disruption, and blamed by some for the market breakdown. A follow-up analysis by BlackRock identified the convergence of four separate but interconnected factors as the cause of the Flash Crash:

1. The sudden decline in US equity prices made it difficult for market makers to price ETFs holding the affected stocks.

2. As the markets loss approached 10%, liquidity providers pulled back from bidding for ETF shares, fearing that potential trade cancellations at this reference threshold would leave them dangerously unhedged.

3. As the primary listing platform for 90% of US ETFs, NYSE Arca experienced the greatest disruption in trading. Other exchanges ceased routing orders to NYSE Arca due to delays in reporting trade executions.

4. Additional selling pressure occurred when stop-loss orders were triggered. As prices continued to fall and market making activity dried up, ETF orders were executed at prices far below those for the corresponding baskets of underlying securities.

Following the crash, the exchanges decreed that any trades executed more than 60% away from security prices at 2:40 pm on May 6 would be cancelled. Thus, the overall impact on investors was limited. Since two-thirds of the cancelled trades affected ETFs, it was commonly assumed that ETFs were somehow responsible for the incident. And although a subsequent report by the SEC and CFTC essentially exonerated ETFs, many people continue to believe ETFs were to blame for the incident.

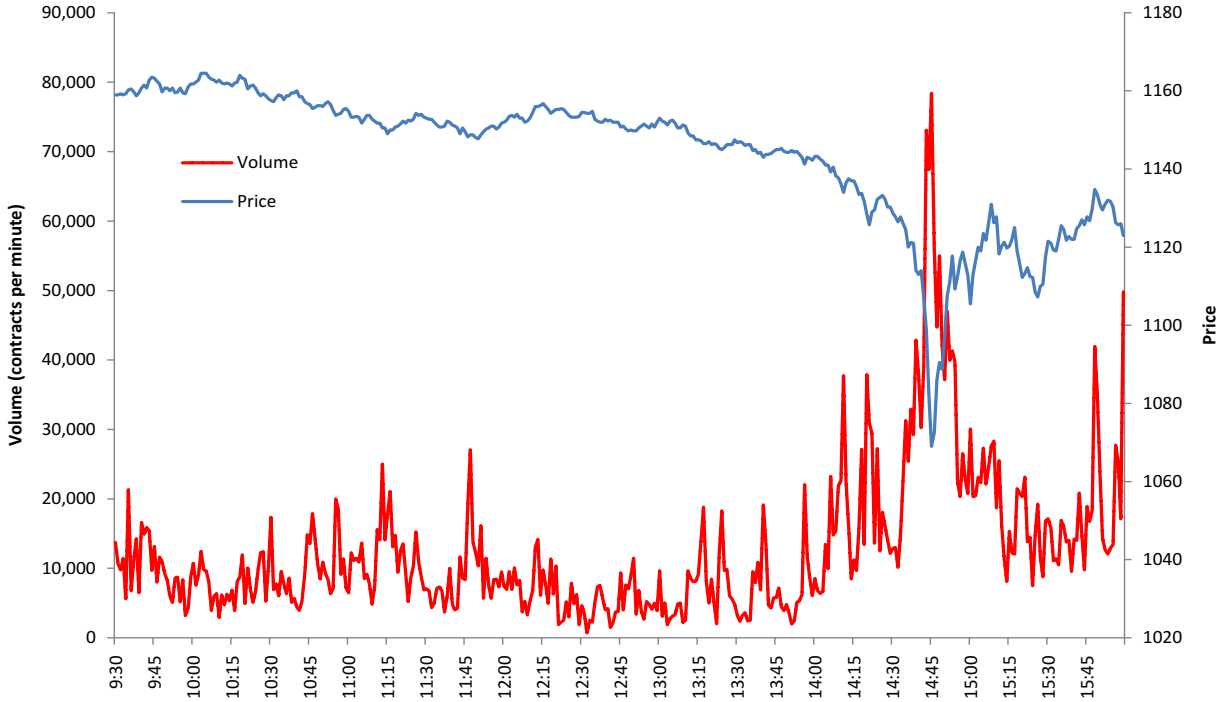
According to the SEC/CFTC report on the Flash Crash, the proximate cause of the crash was an automated execution program by mutual fund manager Waddell & Reed, which initiated a wave of selling into a market that already faced diminishing liquidity and heightened volatility due to growing nervousness of an impending Greek default. At 2:30 pm just before the program was executed, the VIX index rose 22.5% and the Dow Jones index fell 2.5% from their opening levels, as investors sold stocks indiscriminately and piled into the relative safety of US Treasurys.

Beginning at 2:32 pm, the sell algorithm used by the Waddell & Reed trader was programmed to sell 75,000 of the E-mini S&P 500 futures contract, with a face value of $4.1 billion. The algorithm only focused on trading volume without regard to price or time and it caused the program to execute in 20 short minutes. Ordinarily a selling program of this magnitude would have been executed over a number of hours, and the executing traders would have kept a very close watch on the impact of the sell orders on prices.

Initially the contracts sold by Waddell & Reed were absorbed by high frequency traders, arbitragers and other buyers, but as more sell orders came in, these buyers began to offload their excess holdings of the contract to each other in an attempt to reduce their exposure, thereby setting off a chain reaction of

Evolution of the ETF Market

Chart 9. S&P 500 E-Mini Contract–Intraday Volume/Price
May 6, 2010



Source: Findings Regarding the Market Events of May 6, 2010, CFTC/SEC, September 30, 2010

simultaneous buying and selling. As prices continued to fall, the CME halted trading in the E-mini contract at 2:45 pm to alleviate the selling pressure and help stabilize prices. Eventually, traders realized that the volatility was due to operational, rather than systematic issues, and the panic selling subsided. And as we see in Chart 9 above, the market recovered considerably by the 4:00 pm end of trading.

In analyzing trading data for the day, regulators found that 98% of trades were executed at prices within 10% of their 2:40 pm values, but the remaining 2% occurred at highly irrational prices, ranging from one penny to as high as $100,000 per share. They concluded that while Waddell & Reed's clumsy execution of the automated selling program into an already shaky market was the initial trigger, the combined interaction of Waddell's program and the algorithmic trading programs used by high frequency trading firms quickly eroded liquidity and caused widespread disruption across markets, highlighting the inter-connectedness between the securities and derivatives markets.

The report noted that many market participants employed their own version of a trading pause while they took stock of events. While these actions could be beneficial in isolation, collectively, they could lead to a liquidity crisis and a complete breakdown in pricing, as we saw here. In response, the SEC extended the existing circuit breaker rules for stocks to ETFs, and it proposed that going forward, any trades at prices more than 3% to 10% away from the circuit breaker trigger price would be cancelled. Unfortunately, none of these measures proved effective during the August 2015 market breakdown. Although the jury is still out on the causes of the 2015 incident, preliminary evidence suggests that the blame lies less with ETFs and more with structural issues such as the unforeseen interactions among trading systems executing simultaneous buy and sell programs; insufficient communication among exchanges, and inadequate trading platforms systems and infrastructure.

Other Issues to Watch

As we discussed earlier, the legal structure used by the ETF will govern how the fund approaches issues such as dividend reinvestment, taxation of income/capital gains and the fund's ability to engage in securities lending, all of which will have a direct bearing on the fund's return and risk profile. Investors should also be aware of other issues affecting ETFs that could have a material impact on their experience with these instruments.

Synthetic ETFs

Traditional or physical ETFs invest directly in the underlying components of an index, whereas synthetic ETFs seek to replicate the return of the underlying index using futures, options or total return swaps. The synthetic structure is common in Europe but not as common is the US, as the majority of US ETFs are 1940 Act funds that are restricted from undertaking affiliated transactions, such as between the issuing bank and the derivatives trading desk that executes the trade. Also in the US, a swap-based ETF may be at a disadvantage tax-wise, as swap income could be subject to a higher and more accelerated tax liability than the income from a physical ETF eligible for capital gains treatment. The one category of synthetic ETFs that has gained popularity in the US is that of leveraged and inverse US ETFs offering 2x or 3x the return of a specified index.

Synthetic ETFs have a couple of advantages over physical ETFs. For one, synthetic funds generally have lower expense ratios as they don't bear the costs of physical delivery; however, the expense ratio will not reflect any costs associated with the swap facility, and these could be substantial. For another, the tracking error, or deviation from the designated benchmark, on synthetic ETFs will be lower as it is easier to replicate the benchmark using swaps.

Among the disadvantages, synthetic ETFs are exposed to counterparty risk and collateral risk. As we saw with the collapse of Lehman Brothers, the consequences of a counterparty default can be very severe if investors are unable to trade during particularly volatile markets. In the event of a default, the available collateral may not cover 100% of the credit exposure, leaving the investor open to some level of loss. And there may be questions of a conflict of interest when the ETF sponsor and the derivatives desk executing the swap are part of the same organization.

Financial regulators around the world have indicated concern that synthetic ETFs are contributing to market instability, due to the combined effect of their complexity; counterparty and collateral risk, and the potential for creating systemic pressures in highly stressed markets by allowing, or encouraging, investors to trade in and out of markets very quickly. We have mentioned the concerns surrounding leveraged ETFs. Similar concerns have been voiced about the potential inability of ETFs that invest in illiquid high yield bonds to meet redemptions in times of market distress.

Regulator scrutiny is having an effect on the leveraged fund business. US regulators have been slow to provide exemptive relief for leveraged ETFs since the 2010 Flash Crash. The Direxion Shares ETF Trust announced that effective

October 2015, it is closing and liquidating three US leveraged ETF funds as they been unable to raise sufficient assets. Nomura Asset Management has also announced that it is suspending new subscriptions for three ETFs that promise leveraged returns on the Nikkei 225 index, effective October 2015. These funds have grown so large they are having a disproportionate impact on the Japanese stock market, and Nomura is no longer able to secure the needed liquidity in the futures market to allow it to hedge risk effectively.

Securities Lending

Another area of concern to regulators is that of securities lending, which mainly affects the traditional ETFs. In normal times, securities lending can be a convenient source of additional income for the funds and it can help defray other fund expenses. At issue is the questionable ability of ETFs to meet redemption requests if they are unable to reclaim loaned securities promptly from borrowers during period of extreme turmoil. A related concern is that of collateral transformation, whereby borrowers such as hedge funds pledge illiquid securities to borrow more liquid securities from ETFs or mutual funds, which are then used to back derivatives trades. It is not uncommon to find a mismatch between the posted collateral and the lending fund's stated investment objectives, and even though the collateral is nominally valued at 110% of the amount borrowed, it is likely to be more difficult to trade than the securities it replaced and potentially worth much less when markets are stressed.

Transparency

As mentioned, ETFs are currently required to provide daily transparency on their holdings. A growing number of active managers are seeking to offer ETFs without compromising the confidentiality of their trading strategy. Eaton Vance has received SEC approval to introduce a hybrid investment structure, termed an Exchange Traded Managed Fund, which provides the tradability of ETFs but only requires the quarterly holdings disclosure of mutual funds. While actively managed ETFs only account for $10 billion of the entire ETF market, we expect this number will rise as BlackRock, Precidian and other providers are seeking regulatory approval for their own non-transparent offerings.

Smart Beta

Investors buying into index-based funds whose holdings are market capitalization weighted are liable to be buying in at high valuations for the most popular holdings. To counteract the "buy high" effect, many funds employ alternative methods for weighting holdings, such as equally weighting the portfolio holdings, or assigning weights based on factors such as dividend yield, volatility or momentum. Both alternatives are considered "smart beta" approaches, and reflect the shift of ETFs towards strategies that generally fall within the domain of active management.

Valuations

There is strong evidence of valuation premiums for stocks that are included in an index fund versus their peers that are not part of the index. The valuation gap is especially noticeable for the Russell 2000 index. According to SP Capital IQ, the premium for stocks contained in the index relative to non-index peers has risen from 12% in 2006 to 62% in 2015. S&P Capital IQ observed highly correlated stock price movements among index stocks in stressed markets and pointed out that the combined impact of these factors could make investing in the index riskier than understood by investors.

Conclusion

It is no exaggeration that ETFs have changed the face of investing. They have established a dominant market role faster than any other notable financial innovation of recent times. As they have gained in popularity and market share, ETFs have expanded into many new categories and it was widely predicted that the proliferation of ETFs in many different asset classes would make them a

Evolution of the ETF Market

one-stop solution to investors and hasten the decline of mutual funds and hedge funds as competitors.

ETFs now represent a significant portion of the daily trading volume on global exchanges and trading platforms. Consequently, when market disruptions have occurred, ETFs have been involved in and often blamed for the disruptions. Regulators in various jurisdictions have reviewed the allegations concerning ETFs and have concluded that they are largely unfounded. Nonetheless, many market participants remain convinced that ETFs are a growing problem.

We reviewed two incidents where ETFs were blamed for disrupting markets. In the case of the May 2010 Flash Crash, regulators concluded that the disruption was largely due to human error and inadequate systems infrastructure. And while we have not seen the definitive verdict on the August 2015 market crash, early evidence suggests that the inability of existing systems to cope with high volumes of simultaneous buy and sell orders, along with a lack of coordination among the various exchanges and trading platforms may have had a big role in the breakdown. Just as they instituted circuit breakers following the 2010 crash, we expect regulators will come up with new rules for greater coordination across exchanges and trading platforms in response to the 2015 crash.

Given the rapid pace of innovation, ETFs will continue to evolve and expand into new areas. Therefore, it is critical for investors to understand the added benefits and the risks associated with new innovations coming to market. We have provided several examples of issues that investors should consider before buying or trading ETFs. Some are straightforward, such as using limit orders when placing trades, or understanding how a given fund's methods for replicating exposure to the desired index or benchmark will influence portfolio returns and the risk profile of the fund. Others will require additional work to understand, such as a fund's policies towards securities lending and collateral optimization. In all cases, investors will find that the extra effort will be amply rewarded, by achieving their desired outcomes, or more importantly, avoiding the potential pitfalls that could stop them from realizing their desired goals.

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Third Quarter Performance Summary

Asset Class	Benchmark	3Q15 Return	YTD Return	Performance Summary
Cash	Citi 3-month T-bill	0.01	0.02	Cash yields remain at near-zero levels.
Domestic Tax-Exempt	BC Municipal Bond 5-Year	1.16	1.76	Although many municipalities face fiscal challenges, state revenues continue to improve, due to positive growth in wages and property tax revenues. Municipal bonds rallied 1.16% in Q3, benefiting from lower interest rates, demand for safer assets, and expectations of better tax-equivalent returns than comparable Treasuries around Fed tightening cycles.
TIPS	BC TIPS	-1.15	-0.80	TIPS fell 1.15% in Q3 as inflation stayed well below the Federal Reserve's 2% long-term target. This marked the biggest quarterly loss for the asset class in a year. The breakeven inflation rate fell to a 2015 low of 1.39%. Low energy prices and falling import prices due to the strong dollar were the main drivers for the fall in inflation expectations.
Investment-Grade Debt	BC Inv. Grade Intermediate	0.71	1.50	The sector was buoyed by a combination of falling interest rates, rising spreads and demand for higher quality and longer duration corporate and government/agency bonds. Yields on the benchmark 10-yr Treasury fell from 2.4% to 2.0%, reflecting their safe haven status during a particularly turbulent quarter.
High-Yield Debt	BC High-Yield Intermediate	-4.86	-2.50	High yield bond returns were hurt by overall risk aversion and expectations of rising default rates in the energy and commodity sectors due to slumping prices. Spreads have widened significantly and are now back above their historical average. The market appears to have priced in elevated default rates, despite the improving economy, healthy corporate balance sheets and low debt servicing costs.
Global Bonds	Citi World Gov't Bond Index (Hedged)	1.92	1.22	Global bonds were the best performing asset class in Q3 as global bond yields rallied sharply following the Federal Reserve announcement that it would delay raising rates after the September FOMC meeting. Continued quantitative easing programs in Japan and Europe, coupled with weak conditions for resource-based economies such Australia, Canada and Norway, suggest that global bonds will remain unpromising for USD investors for the foreseeable future.
Emerging-Markets Debt	Morningstar EM Composite Bond Index	-1.71	-0.07	Valuations in emerging market debt remain compelling, as they were even before the most recent quarterly rout, which saw the asset class drop 1.71%. Despite attractive yields and debt/GDP ratios well below those in the developed markets, investors appear leery of trusting the sovereign debt of emerging nations.
Large-Cap Equity	S&P 500	-6.44	-5.29	The S&P 500 index suffered its worst quarterly drop since 2011, with nearly all sectors posting negative returns. Energy and materials were the worst performing sectors, while defensive sectors, such as utilities and consumer staples, benefited from investors seeking safer assets amidst a volatile environment across global markets.

Third Quarter Performance Summary (Continued)

Asset Class	Benchmark	3Q15 Return	YTD Return	Performance Summary
Small/Mid-Cap Equity	Russell 2000	-11.92	-7.73	US small cap equities briefly touched record highs at the start of Q3 based on growing investor enthusiasm for riskier assets in an improving economy, but quickly lost ground as global equity markets deteriorated as the quarter unfolded. Mid cap equities outperformed small cap stocks.
International Equity	MSCI EAFE	-10.23	-5.28	Developed market equities experienced multiple compression in Q3 due to continued weak economic growth in Europe, Japan and the resource-based economies of Australia, Canada and Norway. DM valuations remain appreciably lower than US multiples and well below their long-term averages.
Emerging-Markets Equity	MSCI EM	-17.90	-15.48	Global weakness emanating from China took a toll on the sector as a whole, especially Asian economies tied to China. With the notable exception of Russia, resource-dependent economies such as Brazil, Indonesia and South Africa saw the steepest declines in equity markets, while more diversified economies such as India, Korea, Taiwan and Mexico fared better.
Real Estate	DJ Composite REIT Index	-0.39	-7.85	REITs outperformed broad equities in Q3, benefiting from a fall in global interest rates. Underlying conditions remain favorable, with solid rental growth, muted supply and robust demand. Strong returns from self storage, apartments and manufactured housing helped offset weak returns from lodging and infrastructure REITs.
Commodities	DJ UBS Commodity Index	-14.47	-15.80	Commodity prices fell further in Q3, led by steep drops in energy as OPEC maintained production at record levels in the face of weak demand and a looming oversupply. Prices for other commodities were hurt by slower growth in China, the biggest importer of energy, metals and agricultural commodities. The strong U.S. dollar was a contributing factor as it raised effective prices for importers whose currencies weakened against the dollar.
Private Equity	S&P Listed Private Equity	-9.50	0.25	The Q3 downturn in equity markets affected equity values for the publicly traded PE sponsors; however, overall PE activity remained strong, particularly in Asia. Q3 was the best quarter for fund-raising in 2015. The total amount of committed capital rose slightly to a record $1.32 trillion at quarter-end.
Hedge Funds	HFRX Global Hedge Fund Index	-4.27	-3.05	Hedge funds posted the worst quarterly returns since Q3 2011, driven largely by global equity weakness, macroeconomic trends and market volatility. Losses on equity and event-driven strategies were partly offset by positive returns from managed futures and relative value strategies.

Source: FactSet; Data as of 9/30/2015

Third Quarter Market Summary

								Annualized			
		2014	4Q14	1Q15	2Q15	3Q15	YTD	1-Year	3-Year	5-Year	10-Year
US Equity Benchmarks	**Price**										
Dow Jones Industrial	16,284.70	10.04	5.20	0.33	(0.29)	(6.98)	(6.95)	(2.11)	9.26	11.38	7.17
Nasdaq Index Composite	4,620.16	14.75	5.70	3.79	2.03	(7.09)	(1.61)	4.00	15.48	15.66	9.02
S&P 500	1,920.03	13.69	4.93	0.95	0.28	(6.44)	(5.29)	(0.61)	12.40	13.34	6.80
Russell 1000 (Large Cap)	1,068.46	13.24	4.88	1.59	0.11	(6.83)	(5.24)	(0.61)	12.66	13.42	6.95
Russell 1000 Growth	935.69	13.05	4.78	3.84	0.12	(5.29)	(1.54)	3.17	13.61	14.47	8.09
Russell 1000 Value	919.19	13.45	4.98	(0.72)	0.11	(8.39)	(8.96)	(4.42)	11.59	12.29	5.71
Russell Mid Cap	1,547.29	13.22	5.94	3.95	(1.54)	(8.01)	(5.84)	(0.25)	13.91	13.40	7.87
Russell Mid Cap Growth	711.22	11.90	5.84	5.38	(1.14)	(7.99)	(4.15)	1.45	13.98	13.58	8.09
Russell Mid Cap Value	1,542.30	14.75	6.05	2.42	(1.97)	(8.04)	(7.66)	(2.07)	13.69	13.15	7.42
Russell 2000 (Small Cap)	1,100.69	4.89	9.73	4.32	0.42	(11.92)	(7.73)	1.25	11.02	11.73	6.55
Russell 2000 Growth	679.37	5.60	10.06	6.63	1.98	(13.06)	(5.47)	4.04	12.85	13.26	7.67
Russell 2000 Value	1,349.75	4.22	9.40	1.98	(1.20)	(10.73)	(10.06)	(1.60)	9.18	10.17	5.35
S&P GICS Sectors	**Weight**										
Consumer Discretionary	12.6%	9.68	8.74	4.80	1.92	(2.56)	4.08	13.18	18.59	19.33	10.38
Consumer Staples	9.7%	15.98	8.15	0.99	(1.74)	(0.20)	(0.97)	7.10	12.49	14.18	10.28
Energy Sector	8.0%	(7.78)	(10.68)	(2.85)	(1.88)	(17.41)	(21.28)	(29.68)	(4.06)	3.86	3.23
Financials	16.2%	15.20	7.25	(2.05)	1.72	(6.72)	(7.06)	(0.33)	15.43	11.60	(0.44)
Health Care	14.9%	25.34	7.48	6.53	2.84	(10.67)	(2.13)	5.19	20.20	19.04	9.87
Industrials	10.4%	9.83	6.76	(0.86)	(2.23)	(6.90)	(9.75)	(3.65)	13.08	12.32	6.97
Information Technology	19.7%	20.12	5.24	0.57	0.19	(3.70)	(2.97)	2.12	12.17	14.18	8.56
Materials	3.2%	6.91	(1.80)	0.99	(0.48)	(16.90)	(16.48)	(17.98)	4.82	6.73	6.38
Telecommunication Services	2.3%	2.99	(4.16)	1.54	1.59	(6.85)	(3.91)	(7.91)	1.21	8.28	6.69
Utilities	3.0%	28.98	13.19	(5.17)	(5.80)	5.40	(5.85)	6.57	10.12	11.04	6.69
Global Equity Benchmarks	**Price**										
MSCI World Index	1,581.92	4.94	1.01	2.31	0.31	(8.45)	(6.04)	(5.09)	8.58	8.29	4.73
MSCI AC World x-USA	235.57	(3.87)	(3.87)	3.49	0.53	(12.17)	(8.63)	(12.16)	2.34	1.82	3.03
MSCI EAFE	1,644.40	(4.90)	(3.57)	4.88	0.62	(10.23)	(5.28)	(8.66)	5.63	3.98	2.97
MSCI EAFE Growth	1,307.06	(4.43)	(2.29)	5.85	1.01	(8.73)	(2.41)	(4.65)	6.53	4.83	3.80
MSCI EAFE Value	2,527.62	(5.39)	(4.85)	3.89	0.22	(11.77)	(8.15)	(12.60)	4.69	3.06	2.07
MSCI Emerging Markets	792.05	(2.19)	(4.50)	2.24	0.69	(17.90)	(15.48)	(19.28)	(5.27)	(3.58)	4.27
MSCI BRIC	218.75	(2.85)	(4.09)	3.55	4.57	(21.11)	(14.57)	(18.06)	(5.12)	(5.99)	4.50
MSCI Japan	2,572.35	(4.02)	(2.42)	10.21	3.09	(11.80)	0.21	(2.22)	8.96	4.91	1.14

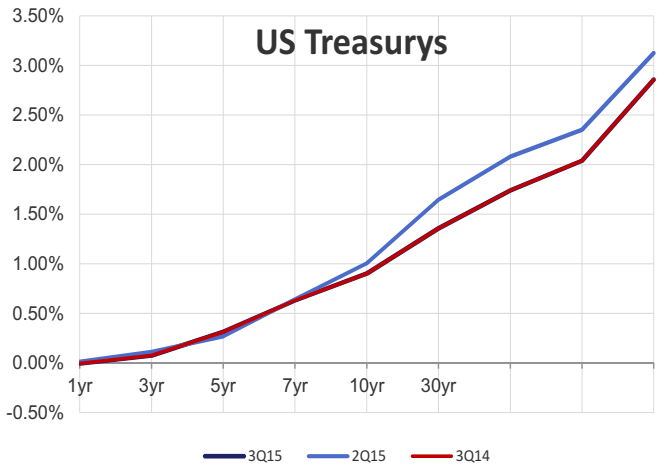
Global Equity Valuation Summary	2Q15	3Q15	QoQ
S&P 500			
Price	2,063.11	1,920.03	(143.08)
Trailing P/E	17.95	17.06	(0.89)
Est P/E	16.36	15.08	(1.28)
Trailing 12m Earnings	114.96	112.55	(2.41)
Est Forward 12m Earnings	126.52	127.57	1.05
Implied 1yr Earnings Growth	10.05%	13.34%	3.3%
Russell Mid Cap			
Price	1,689.26	1,547.29	(141.97)
Trailing P/E	21.83	20.04	(1.79)
Est P/E	18.36	16.58	(1.78)
Trailing 12m Earnings	198.67	198.22	(0.45)
Est Forward 12m Earnings	237.10	239.98	2.88
Implied 1yr Earnings Growth	19.35%	21.07%	1.7%
Russell 2000			
Price	1,253.95	1,100.69	(153.26)
Trailing P/E	34.40	32.01	(2.38)
Est P/E	22.76	20.41	(2.35)
Trailing 12m Earnings	90.60	85.45	(5.15)
Est Forward 12m Earnings	138.12	135.26	(2.86)
Implied 1yr Earnings Growth	52.45%	58.30%	5.8%
MSCI EAFE			
Price	1,842.46	1,644.40	(198.05)
Trailing P/E	16.82	15.19	(1.63)
Est P/E	15.16	13.70	(1.46)
Trailing 12m Earnings	109.51	108.23	(1.28)
Est Forward 12m Earnings	121.89	120.20	(1.70)
Implied 1yr Earnings Growth	11.30%	11.06%	-0.2%
MSCI EM			
Price	972.25	792.05	(180.21)
Trailing P/E	13.32	11.02	(2.29)
Est P/E	11.83	10.66	(1.17)
Trailing 12m Earnings	73.00	71.84	(1.15)
Est Forward 12m Earnings	82.52	74.42	(8.10)
Implied 1yr Earnings Growth	13.05%	3.59%	-9.5%

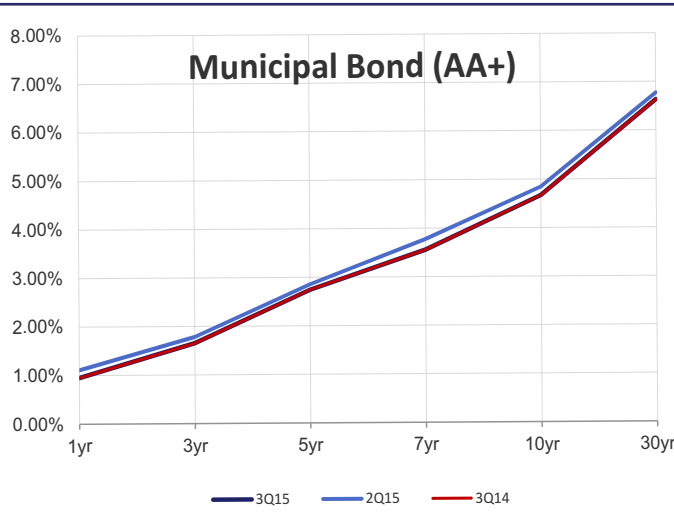
Source: FactSet; Data as of 9/30/2015

Third Quarter Market Summary (Continued)

								Annualized			
		2014	4Q14	1Q15	2Q15	3Q15	YTD	1-Year	3-Year	5-Year	10-Year
Interest Rates	**Yield**										
Prime Rate	3.25	3.25	0.81	0.79	0.80	0.81	2.42	3.25	3.25	3.25	4.46
3m Treasury Bill	-0.01	0.03	0.00	0.00	0.00	0.01	0.02	0.02	0.04	0.05	1.20
US LIBOR 3m	0.33	0.23	0.06	0.06	0.07	0.08	0.21	0.27	0.26	0.31	1.68
US Treasury 3m	0.90	0.88	0.24	0.24	0.24	0.25	0.73	0.97	0.75	0.69	1.88
US Treasury 10yr	2.04	2.53	0.57	0.48	0.53	0.55	1.58	2.15	2.29	2.34	3.16
US Treasury 30yr	2.86	3.34	0.74	0.62	0.71	0.74	2.09	2.84	3.20	3.35	3.92
Fixed Income	**Price**										
Citi 3-month T-bill	622.67	0.03	0.00	0.01	0.00	0.01	0.02	0.02	0.04	0.06	1.26
BC U.S. Gov't & Related 5-7	104.54	5.36	1.02	1.91	(0.74)	0.45	1.61	2.65	1.57	3.19	5.41
BC Municipal Bond 5-Year	113.05	3.19	0.09	0.76	(0.17)	1.16	1.76	1.85	1.85	2.79	4.08
BC TIPS	102.59	3.64	(0.03)	1.42	(1.06)	(1.15)	(0.80)	(0.83)	(1.83)	2.55	4.01
BC Investment Grade Intermediate	102.99	4.35	0.85	1.89	(1.09)	0.71	1.50	2.36	2.32	3.78	5.07
BC High Yield Intermediate	92.50	1.85	(1.12)	2.36	0.11	(4.86)	(2.50)	(3.60)	3.28	5.90	6.98
Citi World Gov't Bond Index	788.42	8.35	2.68	2.04	(2.66)	1.92	1.22	3.93	3.49	3.45	4.26
JP Morgan EMBI Global Diversified	698.10	7.43	(0.55)	2.01	(0.34)	(1.71)	(0.07)	(0.62)	1.50	4.73	6.89
Real Estate	**Price**										
Dow Jones Composite REIT Index	225.27	22.02	11.10	2.96	(10.15)	(0.39)	(7.85)	2.37	3.45	6.30	0.80
FTSE EPRA/NAREIT Europe	1,798.75	9.47	3.63	6.01	(3.48)	3.48	5.88	9.72	13.72	9.21	3.83
Commodities											
Bloomberg Commodity Index	87.82	(17.01)	(12.10)	(5.94)	4.66	(14.47)	(15.80)	(25.99)	(16.02)	(8.89)	(5.67)
Energy	44.79	(39.34)	(36.57)	(8.20)	10.92	(22.34)	(20.92)	(49.84)	(21.81)	(16.04)	(20.60)
Agriculturals	54.18	(9.22)	5.60	(8.82)	8.29	(12.63)	(13.73)	(8.90)	(15.54)	(5.54)	0.42
Livestock	31.91	11.56	(5.33)	(9.78)	(1.52)	(5.38)	(15.93)	(20.41)	(1.80)	(2.78)	(6.94)
Softs	39.53	(10.10)	(11.96)	(13.70)	1.61	(7.53)	(18.92)	(28.62)	(17.38)	(11.05)	(4.33)
Industrial Metals	98.60	(6.87)	(6.21)	(5.32)	(5.31)	(11.11)	(20.31)	(25.25)	(14.84)	(11.27)	0.11
Precious Metals	152.84	(6.71)	(3.89)	1.30	(2.55)	(5.55)	(6.77)	(10.40)	(17.68)	(4.73)	7.82
Private Equity / Hedge Funds	**Price**										
S&P Listed Private Equity Index		(3.61)	1.32	4.78	5.73	(9.50)	0.25	1.58	12.71	9.08	
HFRX Global Hedge Fund Index		(0.58)	(1.74)	2.06	(0.78)	(4.27)	(3.05)	(4.74)	1.22	0.03	0.24
Currencies	**Price**										
ICE Dollar Index	96.28	12.80	5.06	8.98	(2.90)	0.79	6.65	12.05	6.40	4.11	0.73
Euro / US Dollar	1.12	(12.18)	(4.21)	(11.24)	3.74	0.18	(7.75)	(11.64)	(4.62)	(3.95)	(0.77)
Pound / US Dollar	1.51	(5.86)	(3.82)	(4.79)	5.94	(3.68)	(2.85)	(6.56)	(2.11)	(0.79)	(1.54)
US Dollar / Yen	119.77	14.07	9.30	0.03	2.03	(2.12)	(0.11)	9.18	15.46	7.47	0.55

Source: FactSet; Data as of 9/30/2015





Source: FactSet, HPM Partners. Reflects 5-year tenor, broad composite and generic returns.

Municipal bond yields are shown on a comparable, adjusted basis using a 35% tax rate.

Important Disclosures

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