

STOCK INDEXES

Comparing E-minis and ETFs

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CME Group E-mini stock index futures and Exchange Traded Funds (ETFs) were both introduced in the 1990s. Both of these product lines are based upon major or “benchmark” stock indexes representing broad equity market movements. Both of these product lines allow traders or investors to capitalize on the anticipated movement in these benchmark indexes. Finally, both product lines are available on major exchanges subject to regulatory oversight by U.S. government agencies and a full array of financial safeguards. Still, there are some important differences between the two trading or investment approaches.

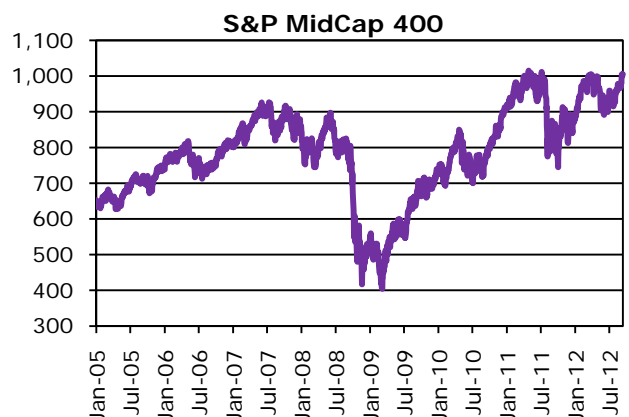
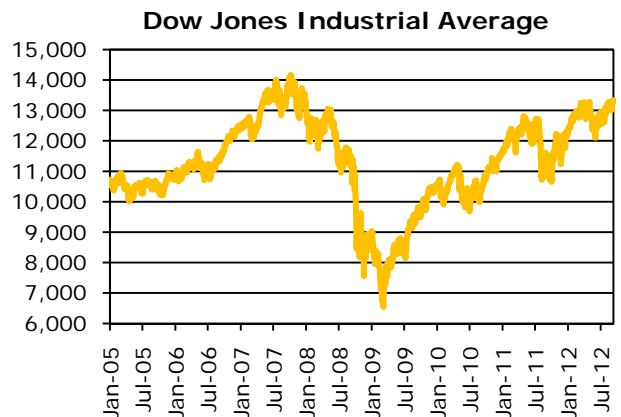
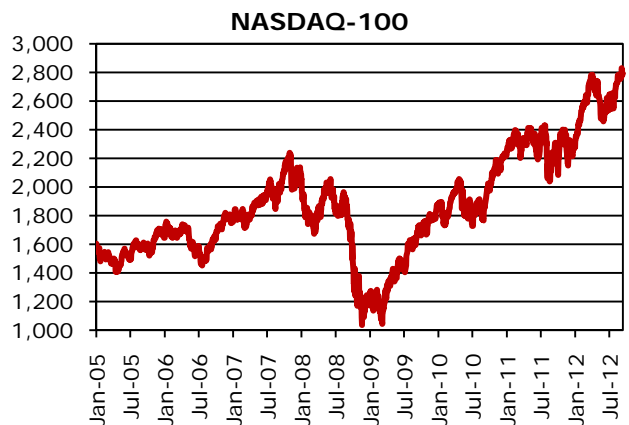
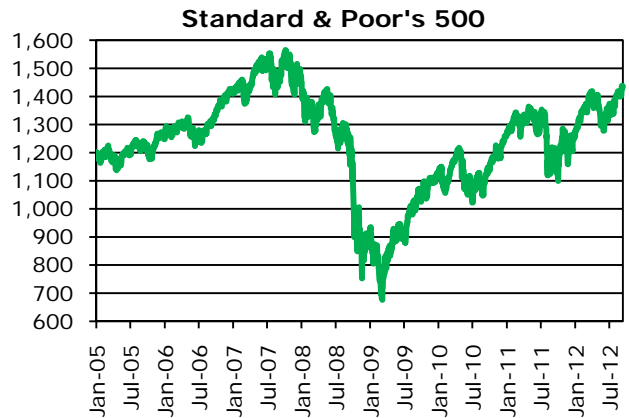
Our intent is to compare and contrast the advantages and disadvantages of these investment vehicles. Specifically, we focus on several of the most significant benchmark stock indexes along with the E-mini futures from CME Group and ETFs that are listed based upon these indexes.

This includes (1) the venerable Standard & Poor’s 500 (S&P 500) Index; (2) the high-tech NASDAQ-100 Index; (3) the blue-chip Dow Jones Industrial Average (DJIA); and (4) the S&P MidCap 400 representing smaller capitalized stocks.

Basic Concepts – Before we discuss those differences, let’s review a few basic concepts associated with E-mini stock index futures and Exchange Traded Funds.

E-mini stock index futures generally may be thought of as one-fifth-sized versions of the standard stock index futures offered at CME Group. Like other stock index futures at CME Group, they are settled in cash to the spot value of the index. E-mini contracts are offered exclusively on the CME Globex electronic trading platform.

While stock index futures date to 1982, E-minis were originally introduced in 1997 as a response to the fact that equity values had risen steadily over the prior 15 years and the notional dollar value of many stock index futures had risen to very high levels. Thus, the concept was to develop a futures contract that might be accessible to retail traders and traded exclusively via computer as opposed to the traditional pit or “open-outcry” venue.



As of September 12, 2012, the value represented by one E-mini S&P 500 futures contract was \$71,975, calculated as the contract multiplier of \$50x the futures settlement price of 1,439.50 on that date. On the same date, the value represented by one E-mini NASDAQ-100 contract was \$55,925, calculated as the contract multiplier of \$20 x futures price of 2,796.25. Likewise, the values represented by one E-mini Dow (\$5) and one E-mini S&P MidCap 400 futures contracts were \$66,805 and \$100,730, respectively.

Comparing S&P 500 E-Minis & ETFs

	E-mini S&P 500 Futures	SPDR Trust ("SPY")	iShares S&P 500 ("IVV")
Underlying Index	S&P 500		
Unit Size	\$50 x Index	~1/10 th of Index	
Unit Dollar Value⁽¹⁾	\$71,975 (1 futures = ~500 ETFs)	\$144.39	\$145.04
Value of ADV⁽²⁾	\$141.70 billion	\$18.47 billion	\$536.10 million
Open Trade Value⁽¹⁾	\$233.66 billion	\$105.93 billion	\$31.31 billion
Trading Venue	CME GLOBEX	National Market System	
Ticker Symbol	ES	SPY	IVV
Minimum Capital Requirements⁽¹⁾	Minimum initial spec margin of \$4,375 per contract or ~6.1%	50% Reg T margin requirements generally apply	
24-Hour Trading	Yes	No	
Operating Expenses	None	0.09% per annum	

(1) Data sampled on September 12, 2012

(2) Based on average daily volume (ADV) over 3 month period concluding on, and priced as of, 9/12/12

An ETF represents ownership in a unit investment trust patterned after an underlying index, and is a mutual fund that is traded much like any other fund. Unlike most mutual funds, ETFs can be bought or sold throughout the trading day, not just at the closing price of the day. ETFs generate dividends but are also subject to annual management fees, in addition to the commissions and other transaction costs associated with their purchase or sale. ETFs on the S&P 500, NASDAQ-100, Dow Jones Industrial Average (DJIA) and the S&P MidCap 400 indexes are

offered on various stock exchanges including the AMEX, NASDAQ and the NYSE.

Standard & Poor's 500 Depository Receipts or "SPDRs" are valued at approximately 1/10th the value of the Index. Thus, a single SPDR was quoted at \$144.39, or approximately 1/10th the value of the S&P 500 at 1,436.56, on September 12, 2012.

On the same day, the NASDAQ-100 Tracking Stock, commonly referred to by its ticker symbol "QQQ," traded at approximately 1/40th the value of the Index. Thus, a single QQQQ was quoted at \$68.63, approximately 1/40th the value of the NASDAQ-100 at 2,791.68.

Comparing NASDAQ-100 E-Minis & ETFs

	E-mini NASDAQ-100 Futures	PowerShares QQQ Trust
Underlying Index	NASDAQ-100	NASDAQ-100
Unit Size	\$20 x Index	~1/40 th of Index
Unit Dollar Value⁽¹⁾	\$55,925 (1 futures ~800 ETFs)	\$68.63
Value of ADV⁽²⁾	\$13.33 billion	\$2.48 billion
Open Trade Value⁽¹⁾	\$25.69 billion	\$32.76 billion
Trading Venue	CME GLOBEX	National Market System
Ticker Symbol	NQ	QQQ
Minimum Capital Requirements⁽¹⁾	Minimum initial spec margin = \$2,500 or ~4.5%	50% Reg T margin requirements generally apply
24-Hour Trading	Yes	No
Operating Expenses	None	0.20% per annum

(1) Data sampled on September 12, 2012

(2) Based on average daily volume (ADV) over 3 month period concluding on, and priced as of, 9/12/12

E-mini futures are settled in cash vs. the value of the underlying index on the final settlement day. ETFs represent ownership in unit trusts designed to parallel the underlying index. As such, both futures and ETFs closely parallel movement in the underlying stock index.

Rapid Growth – Both E-mini stock index futures from CME Group and ETFs have experienced remarkable growth in the relatively short periods that they have been available. The first ETFs were introduced in 1992. But it took until the mid- to late-90s to achieve a good deal of market

penetration. SPDRs now trade on average \$18.47 billion daily while QQQs post some \$2.48 billion.

E-mini stock index futures debuted in 1997 with the introduction of the E-mini S&P 500 futures contract and have become the fastest-growing futures products in history. The dollar value of average daily trading volume is a remarkable \$141.7 billion for E-mini S&P futures, while E-mini NASDAQ-100 futures post \$13.33 billion in daily volume.

Comparing DJIA E-Minis & ETFs

	E-mini DJIA Futures	Diamonds
Underlying Index	Dow Jones Industrial Average (DJIA)	Dow Jones Industrial Average (DJIA)
Unit Size	\$5 x Index	~ 1/100 th of Index
Unit Dollar Value⁽¹⁾	\$66,805 (1 futures ~ 500 ETFs)	\$133.37
Value of ADV⁽²⁾	\$8.45 billion	\$638.47 million
Open Trade Value⁽¹⁾	\$8.14 billion	\$11.32 billion
Trading Venue	CME GLOBEX	National Market System
Ticker Symbol	YM	DIA
Minimum Capital Requirements⁽¹⁾	Minimum initial spec margin = \$3,125 or ~4.7%	50% Reg T margin requirements generally apply
24-Hour Trading	Yes	No
Operating Expenses	None	0.18% per annum

(1) Data sampled on September 12, 2012

(2) Based on average daily volume (ADV) over 3 month period concluding on, and priced as of, 9/12/12

Thus, one might safely conclude that both product lines are quite attractive and actively traded by a wide variety of institutional, professional and individual market participants. Still, E-mini futures based on the most significant stock indexes tend to trade quite a bit more heavily than their ETF counterparts. Further, there are other distinctions that can be considered significant for the trading and investing public as discussed below.

Flexibility – ETFs may be attractive to the small individual investor in that they are sized in very small unit sizes. For example, a SPDR was recently quoted at \$144.39, while an E-mini S&P 500 futures contract had a much higher nominal (cash equivalent) value of \$71,975.

To illustrate this point, consider that it would require 500 SPDRs to equate with the value of one E-mini S&P 500 contract, and 800 QQQs to equate with the value of one E-mini NASDAQ-100 contract. Clearly, ETFs permit one to trade in smaller unit sizes with greater flexibility than do E-mini futures.

Comparing S&P MidCap 400 E-Minis & ETFs

	E-mini MidCap 400 Futures	MidCap SPDR Trust	iShares S&P MidCap 400
Underlying Index	S&P MidCap 400	S&P MidCap 400	S&P MidCap 400
Unit Size	\$100 x Index	~2/11 th of Index	~1/10 th of Index
Unit Dollar Value⁽¹⁾	\$100,730 (1 futures = ~550 MDYs or ~1,000 IJHs)	\$183.49	\$101.81
Value of ADV⁽²⁾	\$2.71 billion	\$358.24 million	\$91.13 million
Open Trade Value⁽¹⁾	\$13.08 billion	\$9.44 billion	\$10.80 billion
Trading Venue	CME GLOBEX	National Market System	
Ticker Symbol	EMD	MDY	IJH
Minimum Capital Requirements⁽¹⁾	Minimum initial spec margin = \$5,000 or ~5.0%	50% Reg T margin requirements generally apply	
24-Hour Trading	Yes	No	
Operating Expenses	None	0.25% per annum	0.20% per annum

(1) Data sampled on September 12, 2012

(2) Based on average daily volume (ADV) over 3 month period concluding on, and priced as of, 9/12/12

Still, like most individual equities, SPDRs tend to be transacted in 100-lot (or “round-lot”) increments, like most other equities. Thus, if a single unit of SPDRs was valued at \$144.39, it implies, of course, that a 100-lot unit of SPDRs was valued at \$14,439.

Leverage – The capital requirements or margin rules are applied very differently in the context of ETFs and E-mini futures. Like other equity securities, ETFs are generally subject to the Fed’s Regulation T margin requirements. This means that one must margin a security holding with an initial minimum deposit of 50% (leverage of 2:1) of the purchase price, the balance of which may be borrowed at interest from one’s broker. When a customer shorts an ETF, he must put up 50% of the

sale price and retain the short sale proceeds in his account.¹

By contrast, futures traders post a margin deposit or performance bond to secure the transaction, not the amount implied by the nominal value of the futures contract. The performance bond or margin requirements associated with E-mini futures are designed to reflect the maximum anticipated risk associated with the position from day-to-day, *i.e.*, one day's worth of price risk.

While the Exchange minimum initial speculative margin requirements are subject to adjustment, as of this writing, they were at \$4,375 or ~6.1% of the \$71,975 nominal contract value for an E-mini S&P 500 futures.

Similarly, E-mini NASDAQ-100 futures had an initial speculative performance bond requirement of \$2,500 or ~4.5% of the contract value of \$55,925. E-mini Dow (\$5) and S&P MidCap 400 contracts offered leverage of ~4.7% and ~5.0%, respectively.

Consider the implications of this leverage feature on the purchase of an E-mini S&P futures contract relative to the purchase of 500 SPDRs. Assume that an investor buys one futures contract at a price of 1,439.50, which equates to a value of \$71,975, on margin of \$4,375. Further assume that the market rallies by 40 index points to 1,479.50 and the investor sells the contract for a profit of \$2,000. This equates to a profit of 45.7% on the initial margin of \$4,375 (not counting fees and commissions).

Buy 1 E-mini @ 1,439.50	\$71,975 (= \$50 x 1,439.50)
Sell @ 1,479.50	<u>\$73,975 (= \$50 x 1,479.50)</u>
Profit (Loss)	\$2,000
÷ Initial Margin	÷ \$4,375
Percentage Profit	45.7%

Now, assume that the investor buys the rough equivalent of that E-mini contract by purchasing 500 SPDRs at a price of \$144.39, subsequently selling at \$148.39, for a profit of \$2,000. Per Reg T, the initial margin requirement is 50% of the \$72,195 purchase price, or \$36,097. A \$2,000 gain based upon a \$36,097 investment equates to a profit of 5.5% on the investment. And, of course, the investor still owes interest to his broker which accrues on the unpaid balance of 50% during the course of the transaction.

Buy 500 SPDRs @ \$144.39	\$72,195 (= 500 x \$144.39)
Sell @ \$148.39	<u>\$74,195 (= 500 x \$148.39)</u>
Profit (Loss)	\$2,000
÷ Initial Margin	÷ \$36,097
Percentage Profit	5.5%

Thus, E-mini futures provide the opportunity to leverage one's capital to a greater extent than ETFs. Of course, care must be taken when applying such leverage to control one's risk exposure and avoid overextending one's financial resources. Leverage cuts both ways. It can be used to enhance one's percentage returns when a trade becomes profitable, but likewise increases one's percentage losses in unfavorable market circumstances.

Trading Venue – As the “E” in E-mini implies, E-mini stock index futures have always been traded on an electronic trading platform, specifically, on the CME Globex system. The Globex system is open for business nearly 24 hours a day on weekdays. The system provides for fast, efficient order entry and reporting of resulting fills to the customer without favoritism or regard to the identity of the customer.

CME Group offers “open access” to the system. That means that any trader can participate directly in the trading process through a computer link-up provided the trader's transactions are intermediated by an Exchange clearing member who acts as broker. Access is often facilitated through the brokers' proprietary trading systems or through commercial available links or internet software vendors (ISVs) who offer links to the electronic trading environments of many exchanges through a single system.

¹ Some equity traders may qualify for “portfolio margining” treatment. While Standard Reg T margining permits leverage on a 2:1 basis, portfolio margining allows leverage on a basis of 6:1 or better. Portfolio margining is generally reserved for traders with offsetting equity and option positions. It is limited to customers who meet minimum account equity guidelines as set by the Financial Industry Regulatory Authority (FINRA). Specifically, \$100,000 for customers of firms that have real-time intra-day monitoring systems must maintain account equity of \$100,000; customers of firms without real-time intra-day monitoring systems must post \$150,000; and, Prime Brokerage customers or Introduced account customers where trades are executed away from the clearing firm must post \$500,000.

ETFs were pioneered on the floor of the American Stock Exchange (AMEX). But the popularity of the concept was such that other exchanges, including the New York Stock Exchange (NYSE) and most other major domestic and international stock exchanges took steps to offer a trading forum for ETFs. ETFs may further be traded on alternate equity trading venues including Alternative Trading Systems (ATs), dark pools of liquidity, etc.

Contract Structure – ETFs are distinguished from futures in that they entitle the holder to the periodic receipt of dividends accrued associated with all the stocks in the underlying index. Futures prices, however, will tend to trade to levels that reflect the value of the underlying stock index, plus finance charges, less anticipated dividends.

This is referred to as “cost of carry” or “fair value.” Often one sees major financial newscasts display the expected difference between the spot index value and the futures price as the day’s “fair value.” Because futures prices tend to be discounted to reflect the lack of dividend receipts, there is no reason to believe that ETFs are superior in this respect.

ETFs are charged ordinary expenses, or a management fee, by the firm that administers the underlying unit investment trust. SPDRs entail a management fee of 9 basis points (0.09%), and QQQs a fee of 20 basis points (0.20%).

While futures are not subject to annual fees as such, there is an implicit cost in maintaining a futures position for an extended period of time. Typically, futures are most actively traded in the lead or most current contract month, *e.g.*, in August 2012, most trading volume and open interest is in the September 2012 contract.

But traders will typically “roll” forward their positions by liquidating (for example) June futures in favor of establishing a position in December futures as the September expiration approaches. The costs associated with the roll are reflected in the spread between the nearby and deferred futures contract and in any additional commissions associated with the transaction.

Holding Period Considerations – Thus, a trader considering a long-term “buy and hold” strategy

must consider the perpetual nature of an ETF vs. the somewhat more transitory nature of a futures contract. Futures contracts are traded for cash settlement on a quarterly basis in the “March quarterly cycle” of March, June, September and December. And while one might trade futures for a deferred delivery month, the nearby futures contracts are typically the most liquid and, therefore, the trading vehicle of choice.

Because futures expire, they must be “rolled over” in order to maintain a “buy and hold” strategy. In other words, the expiring contract must be liquidated and the position reestablished in a deferred futures month, at least on a quarterly basis. This implies certain trading costs, such as commissions and bid/offer spreads. A position in ETFs, by contrast, can be held indefinitely with the management fees representing the only costs.

We note, however, that the average holding period in SPDRs is currently only 5.7 days. This can be estimated by comparing the dollar value of outstanding positions divided by the dollar value of average daily volume. Or, \$105.93 billion divided by \$18.47 billion.

By comparison, the average holding period for E-mini S&P 500 futures is even shorter at 1.6 days. The average holding period for NASDAQ-100 QQQs is 1.95 days; for DJIA DIA or “Diamonds” is 1.0 days.

Because turnover is typically quite high in both ETFs and E-mini futures, any supposed advantage that ETFs offer in this respect may be more theoretical than practical.

E-mini futures are generally easier to short than ETFs noting that it is just as easy to establish a short futures position by selling as it is to establish a long position by buying. By contrast, equity traders must secure securities to short, generally through their brokers, and accept the risk of a recall of a short security which could result in premature liquidation of the position.

E-mini futures are further more accommodating to short-term trading techniques to the extent that there are no account equity minimums applied to engage in day trading. By contrast, one must maintain a minimum account balance of \$25,000 to

engage in “pattern day trading” in the equity markets.

The market’s assessment of the respective advantages and disadvantages of trading E-mini futures and ETFs is generally reflected in trading activity. In particular, the value implied by average daily trading volume in E-mini futures tends to be some multiple of the value associated with ETFs. Specifically, \$141.70 billion in E-mini S&P 500 futures vs. \$18.47 billion in SPDRs. While both investment vehicles have unique merits, we suggest that this figure is most telling.

Tax Considerations – Securities such as ETFs are taxed on a very different basis than are E-mini stock index futures. This is not intended to be the final word on tax treatment and we advise that you consult your tax attorney or accountant for information that is applicable to your situation.

As a general rule, gains on ETFs are treated as capital gains. Unlike a mutual fund, which may generate capital gains or losses whenever assets in the fund are liquidated, capital gains or losses on ETFs are only realized when the ETF itself is liquidated by the investor.

The tax on capital gains and losses varies depending on the holding period. In 2012, capital gains tax on assets held for more than one year (long-term capital gains) is 15%. On the other hand, the ordinary income marginal tax brackets are at 10%, 15%, 25%, 28%, 33% and 35%. As of January 1, 2013, the two top brackets of 33% and 35% are increased to 36% and 39.6%, respectively; the long-term capital gains rate increases to 20%.

If one holds an ETF for less than a year (short-term capital gains), one is taxed at the less favorable personal income tax rate (which includes earned income plus capital gains) of up to 35% in 2012.

Of course, if one holds an investment in SPDRs for as little as the 5.7 days average holding period, that would generally qualify for short-term capital gains tax treatment.

In some cases, trading E-mini stock index futures may result in more favorable tax treatment than trading in ETFs. Like other futures contracts, stock index futures typically fall under Section 1256 of the tax code. This means that gains and losses on these contracts are marked-to-market at the conclusion of the tax year regardless of whether they are liquidated or remain open. 60% of the gain/loss is treated as long-term capital items while 40% of the gain/loss is treated as short-term capital items. This treatment does not depend on the holding period of the contracts at all.

Assume you had an equivalent gains on SPDRs and on E-mini S&P 500 futures after holding the positions for one week and you are in the highest marginal tax bracket of 35%. The capital gains on the SPDR position might be taxed as short-term capital gains or 35%. By contrast, the gain on E-mini futures might be taxed at 23%. (This is calculated as 60% of 15% + 40% of 35%.)

In other words, if you are trading these products over a horizon of less than one year, there may be a tax advantage associated with trading E-mini stock index futures over ETFs. Again, please consult with your tax attorney or accountant for tax advice specific for your situation.

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