

Chapter 5 - Exchange Traded Funds (ETFs)

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This article, prepared for students in Economics 104, is meant to be a supplement to another reading assignment. Before reading this, first find the link to read **Chapter Three - Exchange Traded Funds**, pages 39-51, of *2010 Investment Company Fact Book, 50th ed.*, published by the **Investment Company Institute**. The material below assumes that you have read that article and are familiar with its contents.¹

1. Exchange Traded Funds (ETF) Classifications²

ETFs can be classified by (a) asset category and (b) tracking objective. Any one of the four asset categories shown below can be associated with any one of the three tracking objective. Here is a summary:

Category	Tracking Objective
Equity	Direct (Long)
Bond (Fixed Income)	Inverse (Short)
Sector	Leveraged
Commodity	

Most but not all ETFs are tied to an *index*. In some cases the index is a traditional and recognizable index that existed long before ETFs were created. More typically now the index is one specifically created to give the ETF something to track. In all cases, the index will consist of a *market basket* of securities and the index itself will be a weighted sum of the prices of all of the securities in the market basket. ETFs that are not designed to replicate an index typically tracks either a market basket of securities or commodities or a single security or commodity. Multiple examples will be given below.

A *direct (long) equity index* ETF is designed to track an index like the S&P 500 directly and proportionately. For example, if on any given day the S&P 500 rises by 1.24%, then the popular **SPDR S&P 500 (SPY)** ETF, which is an example of this kind of ETF, should rise by nearly the same percentage, with very little error. Just like an index mutual fund, as goes the index, so goes the ETF.

A *inverse (short) equity index* ETF is designed to go proportionately in the opposite direction (the inverse) of an index like the S&P 500 by the same percentage. The **ProShares Short S&P 500 (SH)** ETF tracks the S&P 500 inversely in this way. Ideally, if on any given day the S&P 500 rises by 1.24%, the **SH** ETF is supposed to fall by 1.24%.

A *leveraged* ETF, which can be long or short, is designed to replicate either directly or inversely the index, sector, or commodity that it tracks by some multiple, typically 2X or 3X. For example, the **Rydex Inverse 2X S&P 500 (RSW)** ETF is a *leveraged inverse index* designed to move opposite of the S&P 500 by a factor of 2 – if the S&P 500 rises by 1.24%, the **RSW** ETF is supposed to decline by 2.48%.

Figure 1 below shows these three ETFs and how they tracked over a 6-month period in 2010. The S&P 500 Index, which rose over this period by more than 10%, is not shown because **SPY** (in blue) tracks it nearly perfectly and would sit right on top of the index. The inverse **SH** ETF, shown in red, is a mirror image of **SPY**. Finally, **RSW**, shown in green, magnifies **SH** by, in this case, doubling its loss.

¹ The factbook can be found at <http://www.icifactbook.org>

² There is a similar financial asset **Exchange Traded Notes** that are not discussed here. They are similar to the E TFs discussed here but are legally collateralized in a different way than that discussed below.

Figure 1 – Price performance of the S&P 500 ETFs SPY, SH, and RSW



The index ETFs include a huge number of *global index funds* that track, typically long, an index for stocks specific to a country or a region. Examples of these include **iShares MSCI Japan Index (EWJ)** and **iShares MSCI Australia Index (EWA)**, which track the **MCSI Indexes** for Japan and Australia, respectively, and the **Vanguard European ETF, VGK..**

A *bond* ETF, also called a *fixed income* ETF, tracks the price of a specific bond index. For example **TLT**, the **iShares Barclays 20+ Year Treasury Bond** tracks the weighted sum of the prices of a market basket of U.S. Treasury bonds that have maturities of more than 20 years remaining. **TLT** is an example of an ETF that does not track an index. It tracks a market basket of bonds.

High yield junk bonds, as they are called, are represented by **PHB**, the **PowerShares Fundamental High Yield Corporate Bond** ETF. Unlike **TLT**, this ETF tracks an index, the **RAFI High Yield Bond Index**.

Bond ETFs generally track bond prices rather than their yields, so when interest rates are falling these funds tend to realize capital gains.³

Most *sector* ETFs are long and most track an index that is specific to a sector. For example, there are currently more than 25 ETFs in the financial services sector. Examples include **XLF**, the **Financial Services SPDR** and **VHF**, the **Vanguard Financial Index** ETF, and **FAS**, the **Direxion 3X Financial Bull**, which is a *long leveraged (3X) sector equity* ETF. In the technology sector you can find ETFs as diverse as an ETF for Nanotech (**PXN**), for business-to-business internet companies (**BHH**), and software (**IGV**).

Commodity ETFs are relatively new and, as the name implies, they track either the prices of single commodities or indexes of commodity groups. Typically there will be ETFs that allow you to go long or short. For example, if you think that the price of gold is going to rise, then you can buy the immensely popular (in 2011) **SPDR Gold Shares (GLD)**, which directly tracks the price of gold. If instead you think that the price of gold will fall, you might instead buy a *commodity inverse leveraged (2X)* ETF, the **ProShares UltraShort (2X) Gold (GLL)**, which will rise twice as fast as the price of gold falls.

³ Bond prices and their yields move inversely. This is explained in a later document about yield-bearing financial assets.

USO is designed to track the price of oil in the United States, UNG, the price of natural gas. These ETFs are examples of ETFs that do not track indexes but instead a single commodity.

Figure 2, taken from a lecture slide, shows an assortment of ETFs in various asset categories and sectors (the term "specialty" is used for sector in that slide).

Figure 2

A REPRESENTATIVE SELECTION OF EXCHANGE TRADED FUNDS			
Domestic Index		Commodities and Metals	
DJIA	DIA	GOLD	GLD
S&P500	SPY	SILVER	SLV
RUSSELL 2000	IWM	U.S. OIL	USO
NASDAQ 100	QQQQ	Financial Assets	
RUSSELL MIDCAP	IWR	UST 20-YR BOND	TLT
Global Index		UST 7-10 YR NOTE	IEF
AUSTRALIA	EWA	UST 1-3 YR NOTE	SHY
BELGIUM	EWK	UST TIPS	TIP
BRAZIL	EWZ	US CORP BOND	IQD
CANADA	EWC	Technology Specialty	
DOW JONES EURO	FEZ	BROADBAND	BDH
FRANCE	EWQ	INTERNET	BHH
GERMANY	EWG	NANOTECH	PXN
HONG KONG	EWH	NASDAQ 100 TECH	QTEC
ITALY	EWI	SEMICONDUCTOR	IGW
JAPAN	EWJ	SOFTWARE	IGV
MEXICO	EWV	Other Specialty	
SINGAPORE	EWS	ENERGY	XLE
SOUTH AFRICA	EZA	HEALTHCARE	XLV
SOUTH KOREA	EWI	US OIL & GAS	IEO
SPAIN	EWP	FINANCIAL	XLF
TAIWAN	EWT	US REAL ESTATE	IYR
UNITED KINGDOM	EWU	UTILITIES	IDU
Funds that track indexes			
Funds that track the actual prices of commodities (not companies)			
Funds that track the prices of these financial assets (not companies)			
Market baskets of stock in these industries (typically with an index)			

It should be noted that all *inverse* (*short*) and even some *long* ETFs attempt to track only the *daily change*, called the *delta*, in the price of whatever they track, rather than try to match the value day by day of the price of their target, like an index fund does.

One might ask, "well wouldn't two such funds achieve the same result, because if one fund succeeds at matching the daily delta, over the long run won't it track its target perfectly?"

The answer will be "no" for some *delta-tracking* funds for two reasons:

(1) there is always some error in tracking and for some delta-tracking funds the error is large. If the error is also biased (consistently large or small) then the cumulative effect over time will prevent the ETF from tracking a price accurately over a long time horizon.

(2) We will see below that delta-tracking funds are collateralized with assets that don't perform well enough to track the ETF's target

reliably. This is especially true for leveraged delta funds. There will be some examples below.

2. The NAV and how ETFs are Secured or Collateralized

The *Net Asset Value (NAV)* of an ETF is equal to the value of the assets owned by the ETF divided by the number of shares outstanding of the ETF (examples will be shown below). Unlike mutual funds, where the NAV is only calculated at the end of the day, ETF managers will calculate the NAV throughout market hours and list the result, called the *Intraday Net Asset Value (INAV)*. The INAV of some ETFs can easily be found at *Google Finance* by typing in the ETF followed coupled with ".IV."⁴

Because the moment-to-moment market value of an ETF is determined by supply and demand there is no guarantee that the actual market price of the ETF matches the INAV, although for most ETFs it will be within one or two percent. For

⁴ For example, at <http://google.finance.com>, the INAV for the GLD ETF described below can be found by typing *GLD.IV* into the quote box.

some ETFs, though, the market price has a bias above the **INAV** and is said to be trading at a *premium*. If the market price is consistently or frequently below the **INAV**, then the ETF is trading at a *discount*. The integrity of the ETF secured portfolio will obviously have a large impact upon the ETF's **NAV**.

As was pointed out in the introductory article about ETFs written by the *Investment Company Institute*, ETFs are funded by "Authorized Participants," typically brokers or market makers, who either give the ETF either cash or the contents of the market basket in which the ETF is licensed to trade, in exchange for ETF shares, which are then resold to the general public.⁵ This secures or provides collateral for the ETF's investment objective.

How ETFs are secured is no small matter. Some ETFs track very reliably, but some don't. In some cases this is because they are secured with securities that can only loosely meet the ETF's stated investment objective. Also the long-term safety of ETFs has not been challenged very much. Generally, if there are problems with ETFs in the future it would likely arise in those ETFs that hold assets that are risky, volatile, or illiquid.

When researching ETFs to search for investment candidates, a full understanding of what assets are owned by the ETF is essential.

Generally, ETFs hold their assets in one of three forms, depending upon the type of ETF:

1. a market basket consisting of the asset or assets being tracked, directly;
2. a market basket made up of the components of an index with weights equal to the weighting used in the index, either proportionate to or a fraction of whatever index is being tracked (example below);
3. a portfolio of futures contracts.⁶

Figure 3 – The SPDR Gold Share physical gold inventory



One of the best examples of option 1 above, a market basket consisting of the assets being tracked, is offered by the famous and popular gold tracking stock, **SPDR Gold Shares (GLD)**. This ETF physically holds gold in inventory in an amount equal to the Net Asset Value of **GLD** stock shares in circulation.⁷ **Figure 3** shows a photo of that inventory, which on October 4, 2010 at 3:09 PST equaled 1,301.91 tonnes with a value of \$54,977,368,547.01!⁸ Given that there are 424 million shares in circulation, the **GLD NAV** at that moment was \$129.66 and the market price was within a few cents of that.

It should be obvious why such ETFs are generally regarded as safe - your paper is backed by a stored commodity proportionate in value to value of the stock in circulation.

⁵ See Figure 3.3 in the ICI article referred to at the beginning of this text.

⁶ To completely understand this the reader needs to know what a futures contract is. Since that comes later in the course we will just have to let the explanation in the text suffice for the time being.

⁷ It is probably more accurate to say that market arbitrage in this very liquid ETF keeps the market cap of **GLD** in circulation almost exactly equal to the dollar value of the fund's gold inventory.

⁸ This ETF recalculates and reports its value every minute at <http://www.spdrgoldshares.com/USA> A tonne is 1,000 kilograms.

It should also be understood that not all commodity ETFs are secured this way! Many are secured by futures contracts, (option 3 above). For example, as will be seen below, the **United States Oil (USO)** ETF is secured mostly by near-term oil futures contracts rather than stored oil.

Of course for many physical commodities it makes no sense to store physical inventory. The cost of storage can be quite high, but more important, for critical commodities like oil and natural gas, it makes no sense to perpetually hoard huge inventories just to provide backing for a tracking stock.

Figure 4
TLT: Barclays 20+ Year Treasury Bond Fund
Portfolio Composition on July 26, 2010

NAV: Shares Out:

Maturity	Years	Market Value	%	Coupon	YTM	Price
5/15/2040	29.8192	301,777,050	9.29	4.38	4.02	106.12
2/15/2040	29.5726	452,534,221	13.93	4.62	4.02	110.32
11/15/2039	29.3205	434,559,565	13.37	4.38	4.03	105.94
8/15/2039	29.0685	400,065,097	12.31	4.50	4.03	108.08
5/15/2039	28.8164	338,720,719	10.42	4.25	4.03	103.78
2/15/2039	28.5726	214,460,541	6.60	3.50	4.03	91.08
5/15/2038	27.8164	209,106,294	6.44	4.50	4.00	108.31
2/15/2038	27.5726	152,827,039	4.70	4.38	4.00	106.20
5/15/2037	26.8164	159,483,448	4.91	5.00	3.95	117.23
2/15/2037	26.5726	150,726,807	4.64	4.75	3.96	112.87
2/15/2036	25.5699	252,502,391	7.77	4.50	3.96	108.66
2/15/2031	20.5671	166,270,731	5.12	5.38	3.84	121.66
Total Bonds		3,233,033,903	99.50			
Blackrock fund		2,155,037	0.0663	0.09	0.09	1.00
Other*		14,053,060	0.4325			
Total Assets		3,249,242,000	100.00			
Weighted AV**	28.0941			4.47	4.00	107.69

* Other is mostly dividends receivable from bond holdings.
**Weighted average of bonds only.
Source: iShares online prospectus for iShares 20+ Year Treasury Bond Fund, this date.

TLT, the popular **iShares Barclays 20+ Year Treasury Bond** ETF is a good example of a fund that satisfies option one above (holding a market basket of multiple assets) by keeping a portfolio of U.S. Treasury bonds that fit their investment criteria.

Figure 4 (created for another document used in Economics 136 that explains how to speculate with this ETF) shows what that inventory was on July 26, 2010. This fund does not track an index, but the portfolio value will reflect the market value of the bonds that are shown in **Figure 4**, which at that moment was \$3,249,242,000, and given that there were 32,700,000 shares outstanding on that day, the NAV for **TLT** would have been equal to 3,249,242/32,700, or \$99.37.

When considering the collateral for a traditional index ETF, such as the famous **SPDR S&P 500 (SPY)** ETF, which controls more than \$72 billion in assets, one would expect to see a

portfolio consisting of the stocks that make up the index weighted with the same weights that they have in the index. Typically a quick visit to the fund-family website will confirm this relationship.⁹

Such funds, if large and popular, will track their target index nearly perfectly and in most cases reliable substitutes for the equivalent mutual funds.¹⁰

Commodity Delta funds which promise to track only the daily performance of its commodity target will typically, by necessity, secure its assets through futures contracts. A good example is provided by the popular **United States Oil Fund (USO)** ETF offered by **United States Commodity Funds**. **USO** defines their investment objective to be¹¹

The investment objective of **USO** is for the **changes in percentage terms** of its units' net asset value ("NAV") to reflect the **changes in percentage terms** of the spot price of light, sweet crude oil delivered to Cushing, Oklahoma, as measured by the changes in the price of the futures contract for light, sweet crude oil traded on the New York Mercantile Exchange (the "NYMEX"), less **USO's** expenses.

Then under the listing of **USO's Portfolio**,¹²

⁹ To confirm this, the reader might want to stop here and go to **SPDR** fund family website at <http://www.spdrs.com>, find **SPY** and review **HOLDINGS**.
¹⁰ If there is a slight discrepancy in tracking, it is because as the fund liquidates or adds shares it may have a slight market impact.
¹¹ Stated "Fund Objective and Key Features" of the **United States Oil Fund** of the funds featured at <http://www.unitedstatescommodityfunds.com>, as of October 8, 2010. Bold and italics are my emphasis.
¹² *Ibid.*

The portfolio will consist of listed crude **oil futures contracts and other oil related futures, forwards, and swap contracts**. USO will also invest in obligations of the United States government with remaining maturities of two years or less and hold cash and cash equivalents to be used to meet its current or potential margin or collateral requirements with respect to its investments in crude oil futures contracts and other oil interests.

Figure 5 shows the actual asset holdings of **USO** on October 7, 2010. As can be seen, the market-sensitive component of the holdings consist mostly of near-term futures contracts set to expire in November and December (which will require them to be rolled over as those expiration dates approach).

Figure 5 – Portfolio Holdings of the USO ETF on 10/7/2010

Daily Holdings			
as of 10/07/2010, subject to change			
Security	Quantity	Price	Market Value
Oil Futures and Other Oil Interests			
NYM Crude Oil Future CL DEC10	2,045	\$82.38	\$168,467,100.00
NYM Crude Oil Future CL NOV10	6,275	\$81.67	\$512,479,250.00
ICE WTI Crude Future NOV10	7,500	\$81.67	\$612,525,000.00
NYM Crd.Oil Fincl.Futr. WS NOV10	1,500	\$81.67	\$122,505,000.00
NYM Crd.Oil Fincl.Futr. WS DEC10	500	\$82.38	\$41,190,000.00
ICE WTI Crude Future DEC10	2,500	\$82.38	\$205,950,000.00
Cash			
US DOLLARS	1,758,191,352	\$1.00	\$1,758,191,351.90

Source: <http://www.unitedstatesoilfund.com/uso-holdings.php> for the date shown.

determine whether the market price tracks the **NAV** or trades at a premium or discount to the **NAV**. But the **NAV** will have no connection to any other number, such as the price of oil on that day, so it is much harder to determine if the **NAV** day after day, is meeting its tracking objective.

These complexities should give rise to caution. Although such ETFs such as these may be perfect for shorter-term hedging and speculation, they are really not suitable as substitutes for mutual funds in long-term conservative investment portfolios.

3. Prospectuses, Online Information, ETF Fees, and Taxes

Just like mutual funds, the sponsoring families of ETFs are required to (and would normally want to) post substantial current information about objectives, performance, asset holdings, and fees and expenses for ETFs. Investors should not invest in ETFs unless they are completely satisfied with the disclosure found on the sponsoring web site.

It is easy to find the sponsoring web site for an ETF. In a search engine type in the ETF symbol followed by "etf."

ETFs charge annual management fees that are similar to those charged by mutual funds. They will have an **annual expense ratio** (or a similar name) that will equal the percentage annually of total fund assets that will be withdrawn from the fund to pay management and other expenses. This information is readily available by finding the website of the sponsoring fund family, then finding the ETF. All fees, including the **annual expense ratio** will be indicated, typically directly on the web page in a location that is easy to find, and always in the fund **prospectus**, the legal document required

¹³ One must understand futures contracts and how they work to understand this. Because cash is being used to secure the futures margin account, the cash is not included in the Total Net Assets owned by the ETF.

Most interesting, though, is the size of the cash holdings, which are equal to more than 50% of the assets listed. This because futures contracts are implicitly leveraged and the cash is in a margin account ready to be drawn upon if there is a margin call. This is not by itself a matter of concern - any ETF hedged with futures will hold a lot of cash for margin calls (they are required to). But for any fund that is long in futures, like this one, an unexpected severe drop in the price of the commodity might trigger such margin calls¹³

Because the **NAV** for such a fund is easy to calculate and is published daily on the website (the **NAV** for **USO** on October 10, 2010 was \$35.62 at market close) it is easy to

by the **Securities and Exchange Commission**¹⁴ The prospectus and the general site information will include information about:

1. The ETF's investment objective, very specifically stated (for example, as provided above for **USO**);
2. The asset holdings of the ETF, in many cases right down to the last asset;
3. The performance of the ETF over time, as measured by capital gains, losses, and dividends if they apply;
4. The annual expense ratio and all fees (except commissions charged by brokers for selling ETFs);
5. Data that shows the correlation between the **NAV** and the market price and whether the ETF has been trading at a **premium** or a **discount** relative to **NAV**;
6. (Prospectus only) The portfolio turnover rate.

In the current competitive era, ETF expense ratios tend to be very low, typically well below 1% per year. This is especially true for the large and popular index ETFs. A visit to the huge **iShares** equity ETF family for example lists hundreds of equity ETFs with most of them below 0.5% and none above 1%. Their flagship **S&P 500 Index Fund (IVV)** has a **Total Annual Fund Operating Expense** of 0.09%!¹⁵

The expenses are deducted from ETF collateral assets throughout the year and the cash is passed on to the management company. Because expense fees are withdrawn from assets, such fees will reduce the **NAV** slightly, although if the fees are low, only very slightly.

Because ETFs are bought and sold like stocks, brokerage **trading commissions**, which are typically the same as the commissions for buying and selling stocks, will reduce the return on ETFs somewhat, especially considering that you don't have to pay commissions when you buy mutual funds. In 2010, however, many competitive brokerage houses announced the suspension of commissions on select ETFs, triggering what *The Wall Street Journal* referred to as "ETF Wars."¹⁶ In October, 2010, **TD Ameritrade** for example listed more than 100 ETFs for which no trading commissions were charged.

ETFs have a huge advantage over mutual funds on tax matters.

When a simple stock is bought there is no tax on any profits made until the stock is sold. Then the applicable tax rate depends upon how long the stock was held, If held for less than one year, any gain is taxed at the higher **personal income tax rate** (given whatever tax bracket the investor is in), but if held for more than one year, any gain is taxed at the much lower **capital gains tax rate**.

But unlike stocks, holders of mutual funds are taxed on the internal turnover of the mutual fund rather than when the fund is sold.¹⁷ This means that if the fund manager makes many short-term sales while one holds the fund, such sales may, invisibly to the investor, be generating taxable capital gains that are taxed at the personal income tax rate, *even if the fund is not sold by the investor*. The investor may first learn of this when receiving **IRS Form 1099-DIV** (which is also used to report dividend distributions to the fund) at the end of the tax year. Therefore mutual funds with a high **turnover rate** or **churn rate** as it is sometimes called can generate substantial interim tax liabilities taxed at the personal income tax rate even for an investor who is holding mutual funds for a long period.

In comparison, ETFs are typically taxed like stocks (with some exceptions). Once an ETF is purchased, no tax is incurred until the ETF is sold. If it is held for less than one year, the capital gain will be treated as ordinary taxable income and will be taxed at the higher **personal income tax rate**. If held for more than one year, the gain will be taxed at the much more favorable **capital gains tax rate**.

There are two very significant exceptions:

¹⁴ The SEC also allows the option of explaining fees and other pertinent information in a document called a **Product Description**. To see the SEC description of the use of the prospectus and this option, see <http://www.sec.gov/answers/etf.htm>.

¹⁵ As of October 10, 2010. See <http://us.ishares.com> for a representative site for a good fund family. The funds referred to above are found in the **equity** section.

¹⁶ Jason Zweig, **ETF Wars: The Deflation Scenario Investors Should Cheer**, *The Wall Street Journal*, October 9, 2010.

¹⁷ Or more correctly, whatever capital gains have not already been taxed because of turnover are then taxed when the fund is sold.

- (1) ETFs that use futures to secure their investment objective are required at the end of the year to calculate capital gains for that year and report them. Those gains are reported and taxable at the capital gains tax rate (but are *not* deferred until after the investor sells the ETF).
- (2) ETFs in precious metals like gold (including our **GLD** example) have been judged by the IRS to be investing in "collectibles," which strangely requires the ETF managers to report gains at the end of the year, and those gains are *not* eligible for the capital gains tax rate exemption.¹⁸

Finally, none of these tax considerations matter if the investor is holding the ETF for a tax-free or tax-deferred retirement account, like a **Roth IRA, Traditional IRA, Spousal IRA, or 401-K** account.

4. Researching an ETF

You should never invest a large amount of money in an ETF unless you do some background research into the fund. This is especially true if you plan to use ETFs instead of mutual funds for longer term investments like retirement accounts. Fortunately all ETF fund families have web sites dedicated to their individual ETFs and they are required by law to offer certain types of information and to keep it current. Also each ETF will offer a *prospectus*,¹⁹ as is required of a mutual fund, and for large investments it should be reviewed.

At a minimum, you should obtain and understand the following information:

1. What is the stated investment objective? You should read this carefully and clearly understand it. What is the fund claiming to track? Is it an index or is it a daily **delta** of some price? Keep in mind that the latter implies that there might be a compounding error over time.
2. How is the fund collateralized? What assets have they accumulated to back the fund? Do they have a direct and proportionate market basket of an asset or assets, like the **GLD** tracking stock, or do they hold futures or other derivatives that must be rolled over frequently, like **USO**? If the latter, the ETF might be more risky as a long-term investment and might not track the investment objective very well.
3. Is the market price of the fund (which unlike a mutual fund is determined by supply and demand) tracking the **NAV**, or is it trading at a **premium** or **discount**? The sponsoring fund family site must provide this information for at least the most recent quarter. A 2% (200 basis points) deviation is usually acceptable (and many good index funds will track at less than 1%) but a number that starts to drift higher, especially above 5%, could identify a problem. This problem could be more acute for a **leveraged delta** fund secured with futures contracts than for a popular and liquid index fund. The failure to properly track the investment objective could also be due to low trading volume, which could indicate a fund destined for withdrawal from the market. Generally, funds that do not track their investment objective well *should not be used for large-scale or long-term investment accounts!*
4. Is the fund **NAV** and the fund market value actually reliably tracking the stated investment objective? For index and commodity funds, this is easy to determine. You can run historical prices of the fund through a comparison tracker as was done in **Figure 1**. Also the fund's site should provide information about how well the fund is tracking the investment objective (and you have to wonder why a fund wouldn't provide this information). This is not the same issue as whether the fund is tracking the NAV. In effect criteria three and four state that (a) the market price should track the NAV, and (b) the NAV should track the fund's investment objective. Again, **delta** funds that are using **futures** are less likely to meet this criteria.
5. Is the fund traded at sufficient volume, especially when compared to funds with the same or similar investment objectives offered by a competing fund family? To evaluate this you won't use the prospectus or information on the fund's web site. Instead you will find this information on a broker site or a financial site like *finance.google* or *finance.yahoo*. These sites make it easy to see who is competing with the fund that you are considering. If one fund is trading at one-tenth the volume of another (often the case when a fund family is trying to crack the market

¹⁸ This strange ruling is being challenged in 2010 and may be different in the future. Obviously all of these tax considerations discussed above are subject to change.

¹⁹ Some fund families describe multiple related ETFs in a single prospectus.

of an established fund with a newcomer and using advertising to do it), why trade the new fund and worry about liquidity problems? The general rule is this: low volume (low liquidity) can lead to tracking problems and may result in the fund being withdrawn from the market. Such funds should be avoided or used with extreme caution.

- If you are buying the ETF to hold for a long period of time, like you would a mutual fund, then you must review at least *management fees* and *total annual operating expenses* or *annual expense ratio* (different funds label this differently but it is obvious from context) as you would for a mutual fund and hold yourself to more or less the same standards. Generally there must be very compelling reasons for *total annual operating expenses* to be above 1% and for many funds these are less than 0.5 %. If you are instead trading an ETF over short durations, then the expense ratios are not so important.

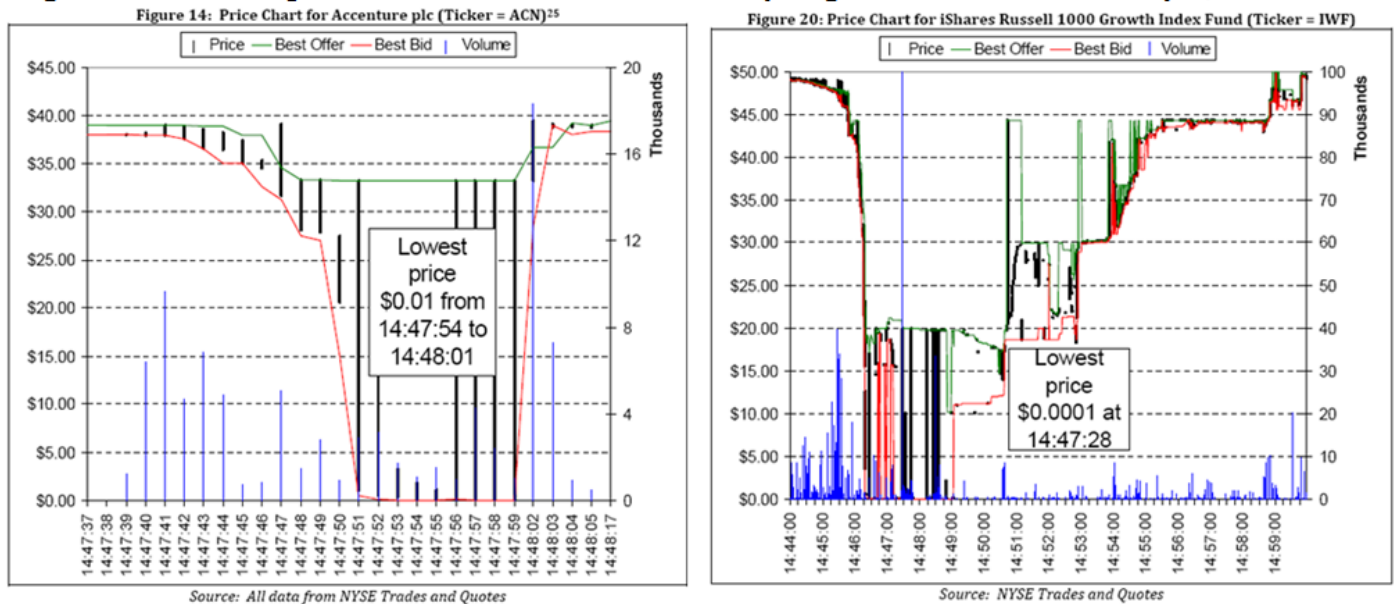
Appendix - Performance of Select ETFs During the Flash Crash of May 6, 2010²⁰

The horrific collapse of major stock indexes and their equaling startling recovery in less than one trading hour, the so-called **flash crash**, showed a possible vulnerability of ETFs to such market events that are not shared by mutual funds. Because mutual funds cannot be traded during the day, even in a panic or in a program run by a computer, mutual fund shares are not vulnerable to program-generated stock market pyrotechnics of the variety represented by the **flash crash**.

The same can't be said for ETFs.

Look at **Figure 5**, which shows two figures taken from the SEC preliminary investigation into the **flash crash**.

Figure 6 – Two Graphs from the SEC Document Analyzing the Flash Crash of May 6, 2010



During the **Flash Crash**, because Bid queues collapsed for a few minutes, many stocks saw their prices collapse to the so-called **stub quotes**, which are one-cent (or less) limit-order place-markers placed by market makers. The news media gave a lot of attention to **Accenture (ACN)**, which is shown on the left. But the SEC report demonstrates that quite a number of ETFs, including the reputable **iShares Russell 1000 Growth Index Fund (IWF)** shown on the right followed the same pattern.

²⁰ This discussion requires that the reader be somewhat familiar with the Flash Crash of May 6, 2010, as it was called. For students in Economics 104 this will be discussed in class. Otherwise use a search engine to find something of the history or refer to the SEC document that analyzes the crash, **Securities and Exchange Commission, Report of the Staffs of the CFTC and SEC to the Joint Advisory Committee on Emerging Regulatory Issues, Preliminary Finds Regarding the Market Events of May 6, 2010**. The charts shown in the **Appendix** are from this document.

Even though only for a brief period of time, the share values fell to one percent of one cent!

Now it is very clear that the fund recovered quickly, in minutes. But a panicked investor isn't necessarily going to know that and there might be a temptation to liquidate the fund before recovery.

Far more important, many investors protect their downside risk by putting **stop-loss** orders on their investments to protect them if some catastrophe strikes while they are not monitoring the market. The **flash-crash** plunged right through the stops, forcing many unintentional sales.

In the words of the authors of the SEC report:

ETFs: As previously discussed, the data suggests that ETFs as a class were affected more than any other category of securities. Trades in securities issued by ETFs appear to have accounted for nearly 70% of the securities in which trades were broken on May 6.²¹

This unnerving performance urges caution when considering large purchases of ETFs to hold instead of mutual funds for retirement accounts and the like. It additionally cautions against such traditional hedging strategies as using stops to prevent large losses because in this example they produced large losses.

²¹ *Ibid*, p. 35. "Broken trades" refers to the total breakdowns shown in **Figure 6**.