The Risks of Exchange-Traded Products

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Every major financial crisis has been foretold by timely but ultimately ignored warnings. At the end of mania, the rush to secure more fees, investment performance and status trumps common sense. In the last few months, the drumbeats of warnings from financial journals (*The Financial Times, Businsss Week* and *The Economist*) and regulators (The Financial Stability Board in the UK, the IMF and the SEC) about exchange-traded funds (ETFs) have been sounding.

Few seem to be listening.

Too many advisors and investors fail to acknowledge the risks in ETFs and exchange-traded notes (ETNs), which are part of a larger category I will refer to as exchange-traded products (ETPs).

Rapid expansion of any financial product should be taken by advisors and investors as a cautionary sign. The expansion of ETPs to new areas has increased the inherent risks of their structure and created new risks that will not be apparent until it is too late to correct them.

The residents of Hamlin begged the Pied Piper to play his sweet music to lure away the rats, but they never imagined that as he kept playing, the town's children — its future — would be lost as well.

Background

It is doubtful if a financial product has ever grown as fast as ETFs have. The chart below shows the growth of the assets and the worldwide distribution of the products.

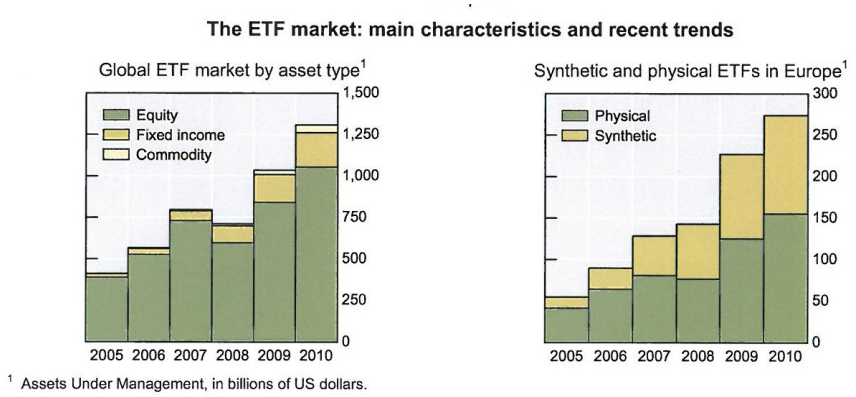


Chart 1

Starting with nothing in 1990, ETPs now control $1.2 trillion in assets, which is just shy of the total assets held by hedge funds. ETPs control about 5% of the total assets in the world. Assets are growing 40% per year! ETPs now represent 2% of global equity capitalization.

The product has grown to the point where there are in excess of 2,600 funds available worldwide. Since their introduction, ETPs have proliferated so that every investment sector, published or private index, almost every nation and all the actively traded currencies are represented by ETFs or ETNs. As the acceptance of ETPs has increased, the relatively simple structure of the first ETF has morphed into a huge collection of structures.

There is little doubt that the creation of ETPs has conferred a host of favorable advantages to investors and their advisors. Morningstar, which made its mark as the arbiter of all things concerning mutual funds, recently prophesied the death of the open-end fund.[i] The growth of ETPs is even challenging the hold that traditional open-end funds have enjoyed on investor assets, as highlighted in a recent *Business Week* article. Even the mighty PIMCO is offering to duplicate its heralded funds with ETFs. While the blessings of ETFs are many and in some cases great, at this point in the growth of the funds the blessings have to be viewed as alloyed with risk.

A cynical warning

No product produced by the financial services industry is ever created with the primary objective of benefitting the investor. The biggest beneficiaries of ETPs are the creators and managers of the funds, and the existence of ETPs makes it easier to invest the real benefits flow to the sponsors.

Cynical? Yes, but no less true. The creators of ETPs are asset management firms whose purpose is to increase their share of assets under management and the fees that go with

those assets. In a broader context, this desire to gain share, and therefore profit, has been the engine leading the nation into many a financial crisis.

Risks associated with ETPs

While ETPs have been a great success, their proliferation is creating new risks or masking existing risks. One of truths that I have learned during my time advising clients is that financial engineering does not remove risk — it merely disguises it and moves it to another location.

Let's review some of those risks.

Structural Risks

Investors and their advisors must understand how the ETPs they use work. Not all of them buy and hold securities, and their methods create unknown risks.

Commodity Funds

Futures prices have two pricing structures: contango and backwardation. Contango is when longer dated contracts sell at higher prices than nearer ones. Backwardation is the opposite.

In 2008, many people invested in US Oil (USO) and were disappointed that its performance did not match the meteoric rise of oil to $140 per barrel. After all, the fund invested in oil futures so it should have tracked the price of crude, right? Not necessarily. The chart below shows what happened.

The reason for the tracking error was the fund's structure. USO purchases the current month contract (called the front month) and rolls it to the next front month as its expiration approaches. When the markets are in contango, the next month contract will be at a higher price, and therefore the fund will purchase fewer contracts (assuming assets are constant) at a higher price. This is a prescription for losing money.

There are a couple of things to note in this chart. First is the consistent, large tracking error between the future and the ETF caused by contango. Second, in the parabolic movement in crude from May 2008 to mid-July 2008, the ETF fell behind due to the increasing losses from buying the front month at steeply higher prices. The steeper the move upward in futures, the greater the tracking error between futures and the ETF. Finally, during the plunge in crude from October to December the tracking error increased even further! This would not be surprising to anyone who read the prospectus, since while it was declining in price, the futures remained in contango. That is called being wrong every way possible.

The second structural risk is the increase in price of the underlying commodity as assets in the ETF increase. Funds such as Sprott Gold, IAU, GLD and a few others purchase and take physical delivery of gold. In doing so, they must be in the market each time assets increase. One of the blessings of ETPs is that they have made the ownership of some assets affordable. There is a vast difference between purchasing one troy ounce of gold at $1,600 and purchasing GLD at $160 per share. The demand for ETF shares transmits demand to the markets and exerts pressure on the underlying commodity price.

This price bias is being hotly debated in regulatory, academic and trading circles. Obviously if the ETF is affecting the prices of the commodity, then purchasers of the

commodity will be attracted to using ETFs to gain access to the markets. This in turn creates a self-fulfilling prophecy of increased prices leading to increased ETF assets and so on, until someone or something pulls the plug.

The sponsors of the ETPs argue that they execute their purchases in such a way that the effect on prices in minimal. You would expect them to say nothing less. One of the justifications for the movement of money from open-end funds to ETPs has been that actively managed funds' performance has been less than optimal. Even if those arguments are true, then aren't investors merely transferring the active-manager concern to the party purchasing the futures contracts or physical commodity? Financial engineering does not eliminate risk; it merely transfers it.

Country Funds

Many emerging nations have restrictions on the ownership of stocks by foreign investors. China, for example, prohibits the holding of A shares by foreign investors. Yet the Market Vectors China A shares ETF (PEK) owns A shares. Since the fund is not registered as a Chinese broker, it is prohibited from owning the asset it claims to hold. Instead, it owns swap contracts issued by brokers who are registered to hold those shares. A swap contract is merely a contract that promises PEK the performance of the portfolio. Swap contracts are only as good as the counterparty issuing them, so there is a risk that one or more counterparties might fail, leaving the ETF without delivery.

In return for the swap contract, PEK gives the broker (the counterparty) the cash investors' deposits with the fund. The broker is then free to do as it wishes with the cash until it is time to settle up the contract. So investors in this type of fund have no idea where their funds are invested.

A more arcane issue develops if an investor decides to sell PEK shares short. What exactly is being shorted — the swap, the shares underlying the swap or the shares of PEK? What redress does the investor have in the doomsday scenario of systemic failure of the fund? Again, the risks are being transferred and obscured from the investor.

The industry will argue that the swaps require the counterparty to deliver collateral. But are the nature and marketability of the collateral known to the average holder? In 2007 and 2008, we saw brokerage firms and banks such as Bear Stearns, Merrill and Lehman who were holding and valuing collateral in the form of AAA-rated mortgage-backed securities discover that it was really "junk" in a nice wrapper. What appears to be acceptable or even alleged superior quality collateral may suddenly become unsalable at any price.

Another concern about country funds, perhaps the most obvious, is related to the link between ETF assets and prices. Many of the emerging markets are very thinly capitalized. The sheer volume of funds being directed at the country from ETPs may be many times

the actual value of the markets. If lots of money flows into a fund whose mandate is to purchase the shares in one particular market, it will raise prices or the fund will quickly be effectively in control of the companies traded on the exchange.

When everyone decides to sell, there will not be sufficient liquidity. In today's markets the chance of coordinated selling of a particular market has increased, so this is a real condition.

Leveraged and inverse ETPs

Levered and inverse ETPs represent a natural progression from the plain-vanilla product. There are valid uses for inverse and leveraged ETPs, but there are risks that are not apparent. The following two charts, courtesy of Terry Smith of Fundsmith Equity Fund[ii], demonstrate the issue:

A 2x leverage Fund

	Day One	Day two	Day three	Day four
Index	**100**	**125**	**90**	**103**
Daily change		**25%**	**-28%**	**14%**
Cumulative change		**25%**	**-10%**	**3%**
Leverage ETF	**100**	**150**	**66**	**85**
Daily ETF Change		**50%**	**-56%**	**29%**
Cumulative ETF Change		**50%**	**-34%**	**-15%**

In volatile markets, the index ended up above par (on day four) and actually produced a 3% return, but the ETF suffered a 15% loss! It did not recover the loss, despite a 29% gain on day two, which in most situations would be a tremendous daily return. Once these things get behind they have a hard time recovering.

An Inverse ETF

	Day One	Day Two	Day Three	Day Four	Day Five
Index	**100**	**80**	**60**	**55**	**100**
% movement		**-20**	**-25**	**-9.3**	**81.8**
Short sale		**120**	**140**	**145**	**100**
Inverse ETF	**100**	**120**	**150**	**162.5**	**29.5**

In this case, the investor is short the index via an inverse ETF. The results are devastating. While the investor was very profitable on the fourth day, he was destroyed on

day five, while the index was soaring. Those shorting the actual stock would have been even, except for costs.

Investors would be better served by executing bear spreads using options, shorting the actual stock or purchasing put options. This statement is backed up in the literature of the funds themselves. Below is an actual (but anonymous) fund company's description of its ultra-short 20-Year US Treasury ETF (emphasis in the original).

> This ETF seeks a return of -200% of the return of an index (target) ***for a single day***. Due to the compounding of daily returns, the fund's returns over periods other than one day will likely differ in amount and possibly direction from the target return for the same period. Investors should monitor their fund's holdings consistent with their strategies, as frequently as daily. For more on correlation, leverage and other risks, please read the prospectus.

How many investors who own this fund have read the prospectus? How many of their advisors have? This lack of compounding is the reason that many of the brokerage houses dealing with retail clients are prohibiting their brokers from selling leveraged or inverse ETPs to clients.

Short sales and securities lending

ETFs augment their income and returns by lending securities to short sellers. While securities lending is a common practice, it can expose the lender to risk if the counterparty (the short seller, in this case) is unable to return the borrowed securities to the lender (the ETF). In the case of an individual stock, this is a low probability risk. Most funds are limited by law as to the percentage of their portfolios that can be lent. The short selling and lending process is very transparent, and since securities are fungible, a call for return of borrowed stock can be satisfied in a number of ways. Additionally, the short seller must deposit collateral to secure the short sale (usually the cash balance created by selling the shares). In the event of an unsatisfied return, the lender can liquidate the collateral.

In contrast to short selling, the risks from securities lending are many. Most financial firms, like banks, operate on the fractional reserve concept. They do not maintain assets dollar-for-dollar for each liability they incur. As long as not all liability holders demand their funds at the same time, all is well. However, should there be a run on assets similar to what occurred in 2008, when collateral was often unavailable or worthless, there may not be sufficient unencumbered assets to satisfy all the demands.

The failure of a significant counterparty was once considered unthinkable, but the events of the last few years have elevated this risk.

Another issue involves fees earned by securities lending. The return paid to the lender is ultimately based on the cost of money and demand from short sellers. The fee income

from lending can be a significant portion of the return earned by some of the plain vanilla ETFs. Since interest rates are currently at historic lows, the returns earned from lending is down. While the fees are lower, the demand for lending is up, as the number of arbitrage and hedging firms has increased. Should the number of short sellers decline (as could happen as a result of the Dodd-Frank regulations), ETF income from lending would fall, leading to lower overall returns. Lower returns would reduce the inflow of new assets, and thereby fees, earned by the fund company offering the ETF. Fund companies would seek new ways to increase returns, which could lead to increased risk.

As we saw in 2008, the quality of collateral can be overstated or overlooked in a generally ebullient market. As demand for short sales and hedging increases, so does the risk that the value of collateral posted for short sales and borrowing may be incorrect. In a severe downturn, issues could arise with the short seller's collateral. If the short seller posts highly liquid securities there is minimal risk. But should the short seller use less liquid assets, in the event of a major market stress the lender will have difficulty liquidating collateral, a situation no lender wants experience. As business standards declined, as they always do in bubbles, banks would compete for business and the quality of collateral would decline.

Short selling of ETF shares

ETFs, like open-end funds, can and do endlessly create new shares, and like individual equities, the shares of an ETF can be sold short. Unlike stocks, however, there is no limit to the number of shares in an ETF that can be shorted. Many of the funds tracking indices carry a short interest greater than their outstanding shares.

In May of 2010, during the "flash crash," market systems went haywire — the averages dropped over 1,000 points in a matter of seconds only to recover most of the drop by the market's close. While the exact mechanism of that collapse is still poorly understood, one fact was indisputable: The exchanges cancelled trades made at unusual prices. According to the *Economist*, between 60% and 70% of the cancelled trades were in ETFs, a proportion far in excess of their weighting in the markets.

At the end of 2010, the Boston-based firm, Bogan Associates, released a popular paper questioning what would happen to a heavily shorted ETF if there were massive redemptions of the fund's assets. In Bogan's estimation, a number of shareholders would find themselves with a share that represented no claim on any assets, and the fund would "blow up" with unpredictable consequences for the average investor.

As might be expected, the Bogan paper was met with criticism. It was followed by less strident warnings from The Financial Standards Board in England and International Bank for Settlements about liquidity risks in ETFs that did not discuss the dangers of shorting.

Finally, in 2011 there have been a series of warnings from the Financial Stability Board (FSB) and some fund operators, followed by a series of columns by Gillian Tett of *The Financial Time,* who wrote that some ETFs reminded her of CDOs, a turn of phrase designed to send chills up the spines of risk managers everywhere.

As expected, the industry — determined to protect its franchise and the tide of fees rolling in — wrapped itself in the flag of investor protection and attacked the warnings. All of the major fund companies published white papers demonstrating how the dire warnings were misplaced. In January of 2011, Credit Suisse issued a report by Victor Lin and Phillip Mackintosh called "ETF Mythbuster[iii]," explaining the arcane world of shorts and lending to bolster their claim that a net-short ETF cannot fail.

The Credit Suisse argument rested on the conclusion that in the event of large-share redemption in a net-short ETF, arbitrage traders would step in to address the differences in prices created by the recall of lent shares[iv].

The failure of shorts to deliver was a regular event before the passage of the Securities Acts of 1933 and 1934. Prior to those acts, speculators could engage in naked shorting — they did not borrow the stock they were shorting. The acts made this a felony and acted as a deterrent to predatory speculation for 75 years.

But now in some cases, those regulations are being ignored. Entities (such as a short seller, hedge fund or high frequency trader) can short and then delay delivery until they repurchase or find another way to deliver — for example, with an option exercise. In other cases the shorts are not technically considered naked, as they might be secured with comparable assets or swap contracts.

My point is not to condemn naked shorting — since its criminalization speaks for itself — but to point out that in the new world of financial engineering, the old rules about shorting may not hold up. Massive short positions may not be recorded in the official short-interest data. This heightens the possibility of a failure of shorts to deliver.

A net-short ETF can probably not collapse as long as the redemption only involves one ETF. If multiple ETFs are involved, there may be a greater threat than we know. A massive liquidation in, say, a Russell 1000-emulation fund could rebound to other funds with a similar mandate in a contagion effect.

With a single ETF, the possibility of collapse is uncertain because of the opacity of arbitrageur and hedge fund operations and the complexity and lax enforcement of regulations. For a heavily shorted ETF to collapse, it would require a number of sequential and consecutive failures, which is highly improbable. But then, so was the collapse of housing prices in 2008.

Synthetic ETFs

Synthetic ETFs (SETFs) do not have much presence in the US due to securities laws, but they have become increasingly popular in Europe and Asia. Most of the ETF assets there are institutional, so the demands on the fund companies are different than in the US, where ETFs are offered as an alternative to actively managed open-end funds.

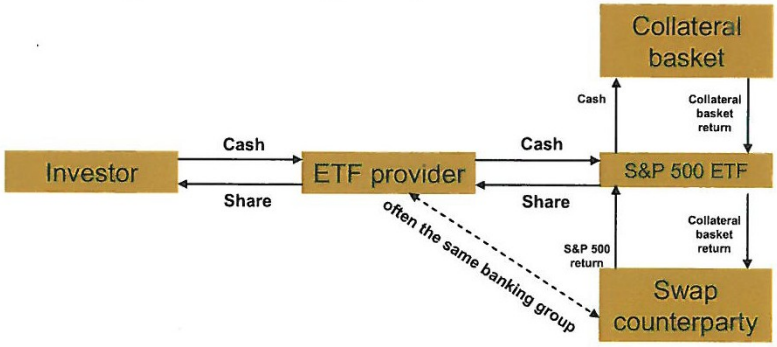
When Gillian Tett of the *Financial Times* warned of ETFs in her May 5, 2011, article, Why ETF's give me an uneasy sense of déjà vu, she was primarily addressing SETFs, as was the UK's Financial Stability Board's in its April 2011 paper. There are some frightening similarities between SETFs and the now-infamous CDO, CDO-squared and CDO-cubed structures that failed in the financial crisis.

SETFs may create the same risks as were posed by collateralized mortgage and debt obligations leading up to the 2008 financial crisis. The *Economist*[iv] laid out the issue:

> Perhaps the biggest concern, and the one with the clearest echoes of the subprime crisis, surrounds "synthetic" ETF's and linked products known as exchange traded note (ETNs), and exchange traded vehicles (ETVs). An ETN is a debt security issued by an index provider or a bank and traded on the market; an ETV is similar, but the debt issuer is a special purpose vehicle. …
>
> The rationale for concocting this alphabet soup is the desire to create funds linked to illiquid asset classes. It may be too costly or impractical to replicate the targeted index completely. To synthesize it the ETF provider usually enters into a transaction known as a total return swap with a bank. The bank agrees to pay the provider an amount equal to the return on the chosen benchmark, say an emerging markets index; the provider hands over cash in return. The bank now has to manage the risk of replicating the index; the provider faces the risk that the bank might go bust. So the ETF provider requires the bank to provide collateral (see diagram).

Diagram 1

Simplified functioning of a synthetic ETF on the S&P 500



Source: Financial Stability Board, April 14, 2011

All this is well and good except that the nature of the collateral and the strength of the swap counterparty could be doubtful.

The counterparty for the swap contract may be the same as the bank creating the ETF, raising huge conflicts of interest. It is unlikely that the bank creating the ETF will refuse collateral from the swap desks, since to do so would be injurious to the bank's profits and condemn the collateral to permanent pariah status.

The collateral may also have nothing to do with the index being replicated. This is the most eerie echo of 2008. There is the high probability that the SETF may be a funding mechanism for low-grade and unrelated collateral that the bank may not be able to offload to another customer. The funding of illiquid assets can be very costly, since the bank has to maintain reserves against them, which can reduce the bank's ability to engage in other business activities. If, however, the bank offloads those assets to a SETF, then the funding issue has been kicked down the road.

Swap contracts and collateral arrangements, which are the basis for creating SETFs, are tremendously complex and opaque, causing investors to take on additional risk. In the event of a bank failure, an investor does not want to be given a portfolio of illiquid "junk" that the bank could not value. No one ever goes into a financial transaction hoping to be in the position of liquidating collateral to get money back. Yet that is what SETFs are offering investors in the extreme case. The reason a bank would fill a swap with lower quality items is that it needs to get those items off their balance sheet since lower quality products increase funding costs. The collateral may not be high quality and in a crisis will be first to react negatively. If the bank can find a way to fund this and not take a loss it will do so and it will only sell it if forced to. The bank is not going to liquidate this collateral in anything other than the worst of times, so having the collateral does not guarantee the security of the assets it is intended to protect.

Tax implications of ETFs

Given the growth of the number and types of ETFs, it is inevitable that there would be a collision with the 7,000,000-word US tax code. In fact, the *Wall Street Journal* recently wrote an article about ETFs titled Extreme Tax Frustration.

For tax purposes, ETFs are considered mutual funds since investors mutually own a portfolio. This designation means that ETFs cannot directly own such things as commodities, so fund companies have used other structures to accomplish these purchases, creating tax problems.

Most ETFs pay capital gains and income, which are treated as any other investment income. It is when the holdings become more exotic that the problems begin. The *Journal* cited of one of the most popular ETFs, the SPDR Gold Shares (GLD). That ETF is structured as a grantor trust,[vi] which means that income flows through to the holder and is taxed at the holder's tax rates.

Normally, when an asset is sold it is taxed as a capital gain. But in the case of GLD, the bullion is considered a collectable and therefore taxed at 28%.

Some new ETFs, such as the Alerian MLP ETF, are corporations that own interest in partnerships that actually own the assets. This means that each of the partnerships will issue a K-1, which investors will have to include in their tax returns. K-1s can be very complex and difficult to interpret correctly, so there is a risk of an omission error on a tax return.

Other commodity-based ETFs, such as USO and USG, are partnership interests, so investors are limited partners and will receive K-1s at year-end. These partnerships may also have two other tax consequences. If the ETF owns only futures, it is taxed every year regardless of any sales due to the 60/40 rule in Section 1256 of the IRC[vii]. Second, many investors hold ETFs in their IRAs, 401ks or Roth IRAs, seeking shelter from taxable treatment. In some ETFs, partnership income is classified as unrelated business income (UBTI). When UBTI amounts to $1,500 or more, the investor has to file a separate form with the IRS, and the income is taxed at corporate rates, not personal rates, regardless of the designation of the account.

Leveraged and inverse ETFs have tax challenges all their own. These funds often hold options and swap contracts secured by pools of cash. Interest generated by this cash is taxed at ordinary income tax rates, but capital gains are taxed at short-term rates, regardless of holding period.

ETNs are simpler for tax purposes. ETNs are only taxed at time of sale, since they pay no interest during their lives. ETNs that are linked to a single currency, however, are treated

as debt, and any interest accrued is taxable even though it is not paid out. Any gains or losses will also be classified as ordinary income with no capital gains option.

The taxation of ETFs and ETNs is getting more complex as the structures and nature of ETFs change. ETF are not always created to be tax efficient.

Continued innovation

The latest innovations are the ETF-of-ETFs and hedge-fund replication ETFs. The ETF-of-ETFs — a fund created using several other ETFs — is designed to mirror or create certain investment characteristics. The real question is, why would an investor need to do this? Most ETF providers have allocation models on their web sites, so the investor could create a portfolio with ETFs that would accomplish the need.

Hedge-fund replication ETFs have been developed by Index IQ. The idea is to create an ETF that allows investors to share in the performance of hedge funds that heretofore had been reserved for the very wealthy without being restricted by liquidity rules. This would allow investors to diversify their assets across various alternative styles with lower expenses than those of hedge funds.

I have problems with these funds. First, it is not apparent that these funds own the hedge fund. What seems to be going on is a quantitative arrangement designed to mimic the hedge fund(s) in question. I am not convinced – and recent history bears this out – that sophisticated math is a substitute for investment prowess.

Hedge funds react to the market quickly, and it is impossible for anyone to match precisely the style or strategy of a fund over time. Second, hedge funds are managed by very smart people who will find ways to take advantage of this mimicry to the detriment of the ETFs and their investors.

Finally, hedge funds are no longer producing the returns they did during their golden age in the 1990s. Many of the best managers (Soros, Robertson, Druckenmiller) have retired, and regulators are increasing their scrutiny.

Final words

ETFs are a blessing to investors, but with any product dangers exist and increase over time. The huge proliferation of ETFs in the last five years brings risks from mis-selling, misunderstanding and mistaken opportunity. The ETF industry has yet to experience any significant shakeout of its funds or providers. Shakeouts are normal for any investment product and serve a good purpose in that the weak players are eliminated — the failure of a shakeout to occur is troubling. The lack of a shakeout is not because everyone in the ETF space is a genius.

The people of Hamlin lost their children because they refused to pay the piper. Investors could lose if they do not understand the risks that ETFs pose now and in the future.

Dennis Gibb is the principal shareholder of Sweetwater Investments, a Redmond, WA-based registered investment advisor. Sweetwater is dedicated to serving individual investors in planning their lives and managing their financial affairs to accomplish their goals.

[i] Morningstar Advisor, August/September 2011, Jerry Kerns, letter from the editor, page 7
[ii] Terry Smith, ETFs-Worse than I thought, annual letter to holders of Fundsmith Equity Fund, 1/11/2011
[iii] Credit Suisse, ETF Mythbuster, Can a Highly Shorted ETF Collapse?, Victor Lin, Phil Mackintosh, Jan, 5, 2011
[iv] ibid
[v] The Economist 6/29/2011 Exchange Traded Funds: Too much of a good thing www.economist.com/node/18864254
[vi] "Grantor trust" is an income tax classification for a trust that is, wholly or in part, disregarded for income tax purposes. In other words, the property transferred by the grantor to the trust is treated to some extent as still being owned by the grantor for income tax purposes. The portion of the trust property that is treated this way is determined by the grantor's interest in or control over the trust. For example, a grantor's interest in trust income may cause the trust to be a grantor trust as to ordinary income (interest and dividends), but the grantor may not have sufficient power over trust principal to cause the trust to be a grantor trust as to capital gains (which result from the sale of principal).
[vii] Morngingstar 8/12/09 Your EFT Tax Questions answered Paul Justice CFA
http://news.morningstar.com/articlenet/article.aspx?id=303615&part=2