

Diversification

There's not much new in the world of asset allocation despite the drubbing portfolios sustained last year. Many of the best and the brightest minds, and the most researched and supported techniques, failed to save Humpty Dumpty from shattering on impact.

To be sure, diversification never seems to work when fear and flight take control of a market. But this understanding does little to regain the confidence of clients staring at double-digit losses.

Academics can debate whether the efficient market hypothesis is dead or whether Modern Portfolio Theory needs modernization, but investors want practical answers now. And the first question that must be answered is: Do the pants fit?

Asset allocation is the strategy investors follow to divide their money between different assets like stocks, bonds and cash. The underlying principle is that prices of different assets move in different (uncorrelated) ways, leading to the idea that diversification protects against risk, which is defined as volatility. But asset allocation says little about the investor's objectives (or pant size).

Psychologist Abraham Maslow is credited with saying "if your only tool is a hammer, every problem looks like a nail." The phrase applies well to the investment business because advisors too often believe maximizing return is every investor's goal, all of the time. While it can be argued that conservative, moderate or aggressive risk profiles determine the kinds of investments chosen, these solutions are likely constructed only on perceived risk tolerance not on investor's needs.

Maslow is best known for his "hierarchy of needs," and in that context an investor should think of his or her pool of investment capital as a "hierarchy of goals." These include:

- Goal 1—covers basic needs such as food, clothing and shelter;
- Goal 2—covers lifestyle enhancements such as a cottage, vacations, and French rather than Chilean wine; and
- Goal 3—allows a client to leave a legacy such as paying for the grandchildren's educations, or philanthropy.

In this context, a typical split may be basic (60%), enhanced lifestyle (25%), and legacy (15%). One can then assign risks to each goal.

THE BELT APPROACH

Goal 1 is important; the advisor can't take much risk here. So go with about 80% bonds and 20% equities.

Goal 2 offers more flexibility, perhaps 60% equities and 40% bonds.

Goal 3 has a longer time horizon goal, so go with around 80% equities and 20% bonds.

By weighting each goal based on the investor's preferences, the final asset mix will better reflect his or her needs. And, regardless of investing methodology, this approach helps investors understand the relationship of their asset mix to needs.

A more sophisticated methodology is to use value-at-risk (VaR).

Ioulia Tretiakova, our director of quantitative strategies, notes that this approach creates a return floor for the portfolio. So, if the investor's risk number (or VaR) is eight, then an investing time horizon of about eight years is suggested. And, the minimum expected return at the end of that eight-year period will be the return of all capital plus inflation with a 95% historical probability. While this isn't 100%, it suggests a high confidence level with a return floor. This is possible because risk is persistent.

VaR has gotten a bit of a black eye because similar analysis, abused by Wall Street mortgage bankers, contributed to overconfident assumptions in pricing and selling collateralized debt obligations. We, however, assume an extra margin for error, three standard deviations (SD) versus the 1.6-to-2.0 standard deviations normally used. But during a tsunami risk event like 2008, even this isn't going to save the portfolio. And that's why the client also needs suspenders!

BACK TO BRACES

Rebalancing to a fixed asset mix (say 60% equities, 40% bonds) is a popular tactic among professional and retail investors alike. It's simple and intellectually satisfying.

Selling an asset class as it rises to buy others sounds right (sell high/ buy low). Doing this from 1990 to 2001, before and during the technology bubble, meant selling stocks into the run up to maintain a 60:40 mix during the entire period.

Meanwhile, the technology sector's weight in the S&P 500 Index rose from 8% to more than 30%, and the one-year moving average of S&P volatility rose from 12.5 to more than 15. Was the risk in the market the same at the beginning of the period compared with the peak? Of course it wasn't. Nevertheless, many investors' portfolios maintained the same static volatility risk profile throughout (see "Technology and Sector Risk," below).

Technology & Sector Risk S&P500 Technology Sector



Risk-based Asset Allocation S&P500 Price Index: Volatility



Rebalancing to a constant volatility means reducing risk when market volatility rises (sell stocks and buy bonds or cash) and vice versa when it is low or falling.

Fast forward to 2004 (see "Risk- Base Asset Allocation," left) and we have 12-month volatility low and stable until 2007. The S&P 500 continued to climb during this period and rising volatility provided a good caution signal into 2008.

We set the weight of S&P 500 in a simple equity/cash asset mix to target the constant level of volatility of 15% (the long-term volatility of S&P 500). The target weight of the S&P 500 is calculated as $[(\text{target volatility})/(\text{current volatility})]^2$ (the ratio of variances, hence the ratio is squared).

For example, the most recent 252-day volatility of 45% and target volatility of 15% (long-term level of volatility of S&P 500) result in $(0.15/0.45)^2 = 11.1\%$. The rest is allocated to cash earning 3% per annum. The resulting risk-based asset mix beats the S&P 500 by 3.68% per year with just over half the risk.

In short, portfolio management needs to grow up. Polarizing theories need revisiting. Choosing between value and growth, large cap/ small cap, top-down/bottom-up, active/passive, and fundamental/ technical analysis is the investment world's way to divide and conquer.

These labels have become marketing tag lines that simplify approaches because human nature prefers short cuts. Advisors need to explain themselves to clients and complexity rarely wins business. Markets aren't always so simple. Using both belt and suspenders to keep your pants up may seem silly, but tell that to the investors with their pants around their ankles.

DIVERSIFICATION OPTIONS

Exchange-traded funds (ETFs) have had the most profound impact on personal investing since the introduction of the modern mutual fund in 1924.

To the myriad strengths that drove mutual funds to growth&diversification, professional management and shared expenses&ETFs have added low costs, transparency, market access throughout the trading day, and tax efficiency.

Institutions have traditionally led the use of ETFs for effective acquisition and hedging of portfolio positions. The ability to short financial ETFs while shorting individual financial company shares was banned in 2008, and is just one example of the value of these instruments.

With more than 100 ETFs trading in Canada, over 800 in the U.S. and somewhere in excess of 500 in registration, this rapidly expanding universe demands better selection tools.

Diversification is a method of controlling risk by limiting exposure to any one holding. Institutions typically diversify by:

- asset class (stocks, bonds, cash, real estate, commodities, currency);
- region (domestic, foreign, emerging markets);
- style (value, growth, core);
- size (large cap, mid-cap, small cap); and
- sector (financials, materials, technology, energy).

Individual investors no longer need millions of dollars to get broad exposure. All of these diversification tools are available through ETFs.

HOW DIVERSIFICATION IS MEASURED

The quantitative way to measure diversification is by measuring the specific (idiosyncratic) risk in a portfolio. The less specific risk there is, the better the diversification. Specific risk is the risk "specific" to a security, not explained by systematic market factors (such as energy prices, interest rates, etc).

Specific risk is a metric routinely calculated by risk models. Investors without access to risk models can use PUR's "rule of thumb" approach:

- total number of securities (PUR recommends at least 50)
- weight represented by the top 10 holdings (PUR recommends under 30%); and
- weight of maximum individual holdings (PUR recommends 10%).

According to capital market theory, specific risk isn't rewarded. That's why minimizing exposure to this risk by increasing diversification makes sense. Better diversification can mean less variability in a portfolio's value. Professionals call this risk management; investors call it sleeping at night.

HOW IT WORKS

Diversification is based on the idea that prices of assets can move independently of one another (uncorrelated). Good diversification means lots of different risks, not lots of different assets, as many investors often tend to think. An ETF's risk is more reliable than individual securities because it is dampened by the variety and number of its holdings. The result offers a more effective approach to portfolio construction.

Single commodity-based ETFs represent pure systematic risk. They are asset classes by themselves. Some U.S. ETFs track commodity indices that have different sector concentrations. So, look before you leap.

An ETF's diversification is a function of the number, concentration and nature of its holdings.

iShares CDN Large Cap 60 Index Fund (Symbol: XIU) with 60 holdings vs. iShares CDN Composite Index Fund (Symbol: XIC), with 220 holdings, illustrates similar ETFs with different diversification. While similar, the XIC is

somewhat better. This doesn't necessarily mean that XIC is the better choice, however. Cost is a very important factor as well.

The iShares CDN Tech Sector Index Fund (Symbol: XIT) with only five holdings is a very concentrated ETF that would score low on diversification but may interest traders.

Without doubt, diversification is one of the most important factors in ETF evaluation. It is central to portfolio construction and an important reason for ETF popularity today. In the next issue, we'll discuss liquidity, which can be important when the economy hits the fan as it did in 2008.

INVESTOR OR TRADER?

Whether a client views himself as an investor or trader impacts how he or she picks ETFs.

An investor's horizon is more than five years and the person is looking to overweight assets expected to outperform. You need to manage risk, so diversification is important. Selecting the more diversified ETFs from different asset classes, regions, styles, sizes and sectors is a good way to succeed.

A trader, by contrast has an investing horizon somewhere around lunchtime tomorrow (or maybe up to one year). All you need to do is predict price movements in price, volume and trading statistics. You gain by exploiting volatility and you trade frequently. Ironically, ETFs dampen volatility. Nevertheless, calling a sector (like financials) may be easier than picking a single security (like TD Bank). Diversification is a two-edged sword, but it is useful in assessing exposure to underlying indices.

BEWARE OF LIQUIDITY TRAPS

Catastrophe in capital markets is always characterized by a lack of liquidity. No exceptions.

Significant imbalances between buyers and sellers (widened bid-ask spreads) can create market gaps. Occasionally this happens to the upside but predominately it occurs on the downside. Take as examples what happened in October 1987, September 2001, and the fourth quarter of 2008. Liquidity is important for investors, but a lack of liquidity is treacherous for everyone.

Since the 1990 launch of the first exchange-traded fund (ETF), the Toronto Index Participation Securities (TIPS), liquidity has been important. Originally developed for retail investors, TIPS became popular among institutional investors seeking broad market access in part because of the liquidity of the 35 stocks underlying TIPS. It follows that ETFs with illiquid holdings should be watched carefully, and fixed income ETFs can fall into this category.

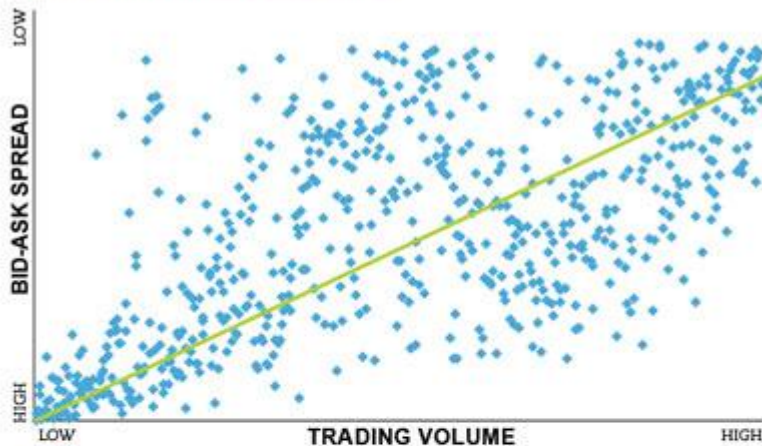
Theoretically, trading volume and liquidity for today's ETFs is not a problem with the creation/redemption mechanism. This structure authorizes designated brokers to create additional units if demand exceeds supply, and conversely, remove units when supply exceeds demand.

But there are differences in bidask spreads impacting every investor's bottom line that require some explanation.

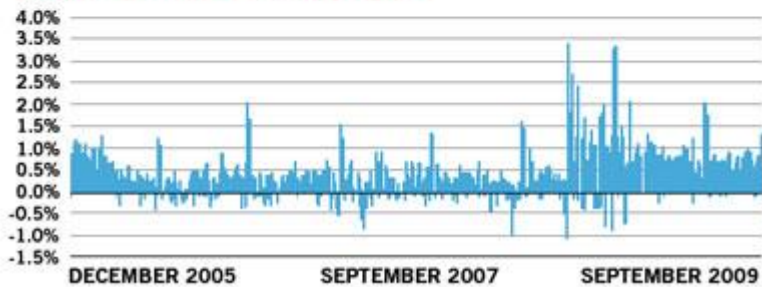
TIMING AND VOLUME

"An ETF manager may be doing a terrific job of tracking an index," says Ioulia Tretiakova, director of quantitative strategies for PUR Investing, "but the retail investor may still be impacted by liquidity costs, paying a hefty price in the form of wide bid-ask spreads or volatile premiums and/or discounts to net asset value (NAV), all resulting in less than stellar market liquidity.

Spread and Volume Correlations



Daily Historical Premium/Discount



iShares Canadian Real Return Bond ETF, (XRB)

“Transacting before a holiday or at other times when volume is expected to be low, can be expensive and should be avoided,” she adds.

For example the closing bid-ask spread for actively traded iShares CDN S&P/TSX 60 (XIU), as of Friday, October 9, 2009 (Thanksgiving weekend) was \$17.08-17.10 or 11.7 basis points (normally about 5.8 bps) and for less actively traded Claymore Canadian Fundamental Index ETF (CRQ), it was \$10.85 - 10.99 or 129 basis points (normally about 28 bps).

Bid-ask spreads are generally correlated with trading volume and tend to be tighter for ETFs with more assets under management, as those examples demonstrate. Three-month average trading volume: XIU 17.6 million shares vs. CRQ 35,632 shares.

And trading volume and bid-ask spreads are correlated (see “Spread and Volume Correlations,” above). While this isn’t a surprise, it’s good to note more activity reflects popularity. And that suggests better arbitrage opportunities to keep spreads narrow and ETF values close to NAV.

“Poor liquidity can cost investors money,” notes Tretiakova. “Most ETF prices oscillate around their NAVs. The absolute level of premium/discount and its standard deviation, a measure of how far, on average, the market price of an ETF tends to deviate from the NAV, warrants scrutiny.”

Some ETFs, primarily fixed income, trade mostly at a premium. For these ETFs, the magnitude of the average premium depends on the liquidity of the underlying assets, a good example being iShares Canadian Real Return Bond ETF, (XRB). Due to the limited depth of the Canadian real return bond market, this ETF tends to trade at a premium to NAV, closing at \$20 on October 9, 2009 with a NAV of only \$19.75, or a 1.27% premium (see “Daily Historical Premium/ Discount,” above).

Category	MEDIAN MUTUAL FUND	ETF	EXCHANGE-TRADED FUND
Canadian Equities	2.45%	0.16%	BMO Dow Jones Canadian Titans 60 (ZCN)
		0.17%	iShares Large Cap 60 (XIU)
		0.25%	iShares CDN Composite (XIC)
		0.65%	Claymore Canadian Fundamental (CRQ)
		1.15%	HBP S&P TSX 60 Bull Plus (HXU)
Canadian Bonds	1.96%	0.15%	Claymore 1-5 yr Laddered Gov't Bond (CLF)
		0.325%	BMO Canadian Gov't Bond Index (ZGB)
		0.35%	iShares CDN Government Bond (XGB)
Int'l Equities	2.69%	0.455%	BMO International Equity Hedged (ZDM)
		0.49%	iShares MSCI EAFE Hedged (XIN)
		0.65%	Claymore International Fundamental (CIE)
Emerging Markets	2.93%	0.535%	BMO Emerging Mkts Equity Index (ZEM)
		0.65%	Claymore BRIC (CBQ)
		0.82%	iShares CDN MSCI Emerging Markets (XEM)
		1.15%	HBP MSCI Emerging Mkt Bull Plus (HJU)
Commodities	2.60%	0.40%	iShares COMEX Gold Trust (IGT)
		0.75%	HBP COMEX Gold (HUG)
		1.15%	HBP COMEX Gold Bullion Bull Plus (HBU)

UNDERLYING LIQUIDITY

The overall measure of ETF liquidity is a combination of factors: Bid-ask spreads, fund assets, trading volume, premium-discount and last, but not least, the liquidity of the underlying assets. Imbalances can lead to tracking error that can distort strategies (we'll go into details about that later in this series).

If investors intend to hold positions for longer than six months, liquidity may be less of an issue, but larger spreads can be costly over time to frequent traders. A rule of thumb for liquidity is that if the securities underlying the ETF are popular, the ETF's construction is transparent, and trading is active, liquidity should be pretty good.

LOWER COSTS, BETTER PORTFOLIOS(SOMETIMES)

ETFs are less expensive than mutual funds by a wide margin— embedded mutual fund distribution costs, paid to financial advisors for selling them, are most of the difference.

Claymore is the only ETF sponsor in Canada paying advisors from a separate ETF series that is 0.50-0.75% more expensive. While brokerage costs must also be considered when acquiring ETFs, improving transparency is helping investors make more informed choices.

ETF COST DIFFERENCES

Among the Canadian Equity ETFs shown, newcomer Bank of Montreal (BMO) undercut comparable and more established iShares Large-Cap 60 by 0.01%. and similarly positioned themselves in bonds, U.S. and international equities, and emerging markets.

Sometimes costs reflect structural differences. Higher-priced iShares CDN Composite at 0.25%, includes a broader holdings base (S&P/TSX Composite's 204 issues). Claymore's Canadian Fundamental (0.65%) would appear to be out of step with the group, but includes an "embedded strategy" namely a value bias in the construction of its index. Claymore is actually offering an actively-managed ETF in passive clothing.

PASSIVE OR EMBEDDED STRATEGIES

Distinguishing passive ETFs from those with embedded strategies is a good starting point for portfolio building. One is not better than the other, but those with embedded strategies are usually more expensive. Director of Quantitative Strategies at PUR Investing, Ioulia Tretiakova, maintains: "You never know what the future return of an ETF is going to be, but you do know its cost."

Embedded strategies try to offer something in return for their higher cost. In Claymore's RAFI Fundamental series, it is a tilt towards value stocks. If this is what you want, ETFs can give you effective access. The Horizon BetaPro (HBP) Plus ETF series offers two times the DAILY return for the "Bull" version and two times the inverse DAILY return for the "Bear" series. This powerful leveraging capability comes at a cost of 1.15% but considering the "double exposure" makes the effective MER 0.575%. This appears expensive in the Canadian equity category with offerings at 0.16-0.17%, but in emerging markets, where iShares cost 0.82%, HBP appears more competitive.

TRADING COSTS

While lower cost is a key ETF benefit, management expense ratios tell only part of the story. Studies of U.S. mutual funds showed that annual trading costs were 1.44% per year (Edelin/Evans/Kadlec, 2007). Canadian mutual fund trading costs are not available, but exchange traded fund trading costs are certainly lower than mutual fund costs for two reasons:

1. The index nature of ETFs means little trading is required for rebalancing;
2. Market-makers for Canadian ETFs assume the cost and risk of rebalancing including index composition changes. Elsewhere in the world, the cost of an index change is borne by the ETF unit-holder. If the annual trading cost for an active Canadian mutual fund is 1.0%, and the comparable ETF cost is 0.0%, it is little wonder that active funds have so much difficulty beating index and ETF performance.

LOONIE EH?

Canadian investors, like counterparts around the world, focus most investments in their domestic currency. This makes sense because liabilities and expenses are Looniecentric. Some international ETFs are offered "hedged". This comes at a cost. Is it better to buy the hedged or unhedged ETF? The answer is related to your expected holding period. Here's a guideline:

1. The longer the holding period (over 4 years) you may be better off unhedged. The cost of hedging is fixed and compounds over time.
2. If you have a view about the direction of currencies, hedging for protection or unhedging for exposure can become part of your strategy.

ETFs offer an increasing palette of risk shapes and colours giving investors broad scope to construct portfolios that reflect their views and address their needs. Cost is a rare certainty in a financial world filled with unknowns. Consequently, it is one of the most important considerations in building any portfolio.

PUR Investing Inc. is a registered portfolio manager specializing in risk management using exchange traded funds.