Risk-Reward of Exchange Traded Funds: A Study of Canadian ETF's

by

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Abstract

Exchange Traded funds are the fastest growing investment product in capital markets today. Total funds deployed in ETFs are approaching US\$700 billion globally which is nearly 15 per cent of \$4.5 trillion held in traditional equity mutual funds. This study examines the risk-reward of 74 Canadian ETFs across three major sponsors representing nearly \$29 Billion in assets under management for the last 5 years (out of which, the last two years - 2007 and 2008- witnessed a general decline of the Canadian stock market).

The study found the best performing ETFs were international funds especially emerging market funds which witnessed high growth rates in the last decade (especially BRIC countries). Currency-hedged funds also performed relatively better reflecting the role of exchange rates in impacting the returns of cross-border investments. Commodity ETFs generally had shown mixed results: the bear commodity ETFs (reflecting the macro-economic performance) generally did well as compared to bull commodity ETFs.

In terms of risk-reward, the results are somewhat different. International and emerging market ETFs performed well in terms of positive and high alphas (excess returns) but also had displayed relatively high risk. In terms of risk-reward, the Canadian and US broad equity ETFs performed well (Treynor ratio of 0.11) while fixed income ETFs had the lowest Treynor ratio (-2.05). In terms of ranking, the currency-hedged ETFs performed relatively better than Canadian sector ETFs. The international and emerging market funds while displaying positive Treynor ratios (risk-reward) were the ETFs with relatively modest performance.

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Investment Terminology

<u>Source</u>: The ETF Book, Richard Ferri and Dictionary of Finance and Investment Terms, John Downes, Jordan Goodman, Seventh Edition, 2006

Active Management

An investment management strategy where the portfolio manager actively makes investment decisions and initiates buying and selling of securities in an effort to maximize a return.

Alpha

A measure of performance in percentage above or below what would have been predicted by risk as suggested by its beta. Positive Alpha means a fund performed greater than its risk would suggest, while negative means it underperformed.

Arbitrage Mechanism

At any point in the trading day, authorized participants can come to the fund manager with a basket of the underlying securities given in the published holdings, which the fund will then exchange for a creation unit consisting of a set number of shares in the ETF.

Authorized Participant (AP)

An institutional investor that is authorized to buy and sell ETF creation units directly with a fund company

Benchmark Index

An index that correlates with a fund, used to measure a fund manager's performance.

Beta

A measure of the magnitude of a portfolio's past share-price fluctuations in relation to the ups and downs of the overall market. The market has a beta of 1.0. So if a portfolio with a beta of 1.2 would have seen its share price rise or fall by 12% when the overall market rose or fell by 10%

Bid-Ask Spread

The difference between what a buyer is willing to bid (pay) for a security and the seller's ask (offer) price.

Creation Unit

A set of shares or securities that makes up one unit of the fund held by the trust that underlies an Exchange Traded Fund (ETF). One creation unit is the denomination of underlying assets that can be redeemed for a certain number of shares

Capital Asset Pricing Model (CAPM)

Models the relationships between expected risk and expected return. The model is grounded in the theory that investors demand higher returns for higher risks. It says that the return on an asset or a security is equal to the risk-free return – such as the return on a short-term treasury security – plus a risk premium.

Efficient Market

The theory, disputed by some experts, that stock prices reflect all market information that is known by all investors. Also states that investors cannot beat the market because it is impossible to determine future stock prices.

Exchange Traded Fund (ETF)

An ETF is an index fund that trades on the stock market. A common ETF is the Standard & Poor's Depositary Receipts (SPY), which tracks the S&P 500. A Canadian equivalent is XSP by iShares.

Expense Ratio

The percentage of a portfolio's average net assets used to pay its annual expenses. The expense ratio, which includes management fees, administrative fees and directly reduces return to investors.

Indexing

An investment strategy to match the average performance of a market or group of stocks. Usually this is accomplished by buying a small amount of each stock in a market.

Index Providers

Companies that construct and maintain stock and bond indexes. The main providers are S&P, Dow Jones, S&P/TSX, MSCI, Russell and Wilshire.

Intraday Value

Ongoing estimates of the underlying value of securities and cash that makeup ETF shares and are quoted every 15 seconds by the exchange listing the ETF. Also called the Intraday Indicative Value (IIV)

Management Expense Ratio (MER)

The amount an ETF or Mutual Fund pay to its investment advisor for the work of overseeing the fund's holdings.

Mutual Fund

A Closed-end fund that has a fixed number of shares, usually listed on a major stock exchange.

An Open-end fund has the ability to issue or redeem the number of shares outstanding on a daily basis. Prices are quoted once per day, at the end of the day, at the net asset value of the fund (NAV)

No Load is fund that charges no sales commission or load.

Real Return

The actual return received on an investment after factoring in inflation. For example, if the nominal investment return for a particular period was 8 percent and inflation was 3 percent, the real return would be 5 percent.

Risk

A chance that invested capital will drop in value. With reference to fluctuating market values of securities and portfolios, risk means exposure to uncertainty, which is measured by standard deviation

Risk Averse

Refers to the assumption that, given the same return and different risk alternatives, a rational investor will seek the security offering the least risk.

Risk-Free Return

Yield on a risk-free investment. For example, a 3-month Treasury bill is considered to be risk-free investment because of the unlikelihood of government default.

Risk Premium

In portfolio theory, the difference between the risk-free return and the total return from a risk investment. In the CAPM, the risk premium reflects market-related risk as measured by Beta.

Risk Tolerance

An investor's ability or willingness to endure declines in the prices of investments while waiting for them to increase in value.

Sharpe Ratio

A measure of risk-adjusted return. To calculate a Sharpe Ratio, an asset's excess return (its return in excess of the return generated by risk-free assets such as Treasury Bills) is divided by the asset's standard deviation. It should be compared to an appropriate benchmark. The higher the ratio, the safer the strategy.

Single Index Model (SIM)

A model of stock returns that decomposes influences on returns into a systematic factor, as measured by the return on the broad market index, and firm specific factors.

Unit Investment Trust (UIT)

Common type of ETF that requires exact duplication of an index and prohibits derivatives in operation. Examples include ETF's.

Volatility

The degree of fluctuation in the value of a security, mutual fund or index. Often expressed as a mathematical measure such as standard deviation or beta. The greater a fund's volatility, the wider, the fluctuations between high and low prices.

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Chapter 1

Introduction to Exchange Traded Funds

Exchange Traded funds (ETFs) are the fastest growing investment products in capital markets today (Gastineau, 2001, Poterba and Shoven, 2002). ETFs are shares which closely track the performance of an index, sector, or region¹. They offer the benefits of diversification and index tracking at a low cost. The ETFs industry began in 1993 and is the fastest growing (around 20 per cent per annum) asset class in the world². Total funds invested in all ETFs is approaching US\$700 billion globally, representing nearly 15 per cent of \$4.5 trillion held in traditional equity mutual funds (Santoli, 2009). The industry is rapidly approaching one trillion dollars of global investment and is expected to grow at double digits into the near future (Ferri, 2008).

With the financial crisis in the last two years, most mutual fund investors have experienced negative returns on their portfolios, while many ETFs have recorded positive returns; on average ETFs generated a total return of seventeen per cent in 2008 (Santoli, 2009).With management expenses of ETFs well below 1 per cent (compared to 2-5 per cent for mutual funds) and with real time quotes and liquidity, ETFs have become a popular short-term instrument amongst the investing public and with large institutional investors. The number of ETFs has expanded exponentially over the past fifteen years; it is estimated by then end of 2010, there will be more

¹ For an overview on ETFs, see Gastineau (2001) and Poterba and Shoven (2002).

² Today there are 104 ETFs in Canada, 768 USA, over 1200 Worldwide; widely popular as a short-term investment tool.

than 1000 available on U.S. Exchanges – with assets totaling well over \$1 Trillion.³. There are currently 104 Canadian sponsored ETFs across five major sponsors in Canada representing nearly \$29 Billion in assets under management⁴. In Canada, ETFs trading accounted for 14 per cent of the total trading on the TSX in June 2009, representing a year over year increase of 374 per cent⁵. In a survey of investment professionals conducted in March 2008, 67 per cent of respondents called ETFs the most innovative investment vehicle of the last two decades, and 60 per cent reported ETFs have fundamentally changed the way they construct investment portfolios⁶.

The risk and return of financial assets like stocks and mutual funds are adequately researched (Fama and French, 2004, Perold, 2004). There are very few studies on the risk-reward relationship of ETFs except for Agrrawal and Clark (2007) which is centered on US-based ETFs. The present study contributes to the literature in this field by examining the risk-reward relationships of publicly listed ETFs in Canada, which has not been attempted earlier. The main aim of the present study is as follows:

- (i) To the estimate the risk of various ETFs.
- (ii) To estimate the return and excess return (alpha) of ETFs.
- (iii) To rank the Canadian ETFs in terms of risk-reward (popularly known as the Treynor Ratio)

The study uses the popular analytical framework of asset pricing, viz., the capital asset pricing model (CAPM) of Sharpe (1964) and Littner (1965)⁷. The

³ Ferri, Richard, (2008)

⁴ Advisors News | Industry news | ADVISORS - ETFs continue to gather steam

⁵ TSX ETFS listings surpass 100 - Economy & markets - News Investment Executive

⁶ State Street Global Auvisors and Knowledge @ Wharton "The Impact of Exchange Traded Products on the Financial Industry" June 10, 2008

⁷ For an overview of the CAPM model, see Fama and French (2004) and Perold (2004).

study employs the econometric methods like ordinary least square (OLS) method for empirical investigation and is based on the data of 74 Canadian ETFs for the last 5 years (2004 to 2009).

The study is organized as follows: Chapter 1 provides an introduction to Exchange Traded Funds. Chapter 2 discusses the global evolution of ETFs and in particular, the evolution of ETFs in Canada. Chapter 3 provides a brief review of literature on the risk-reward relationship. Chapter 4 discusses the data sources and methodology. Chapter 5, we present the empirical results of risk as measured by beta. Chapter 6 we present the empirical results of excess returns as measured by alpha and ranks the risk of ETFs by the Treynor ratio. Chapter 7 summarizes the conclusions of the study.

Chapter 2

The Evolution of Exchange Traded Funds

This chapter provides an overview of the evolution of Exchange Traded Funds (ETFs). The chapter is organized as follows: Section 2.1 defines and discusses the pros and cons of ETFs. Section 2.2 summarizes the creation process. Section 2.3 discusses the differences between ETFs, Mutual Funds and Index Funds. Section 2.4 discusses the world-wide growth of the industry and in particular, the growth of ETFs in Canada.

Section 2.1: Definition of an Exchange Traded Fund

ETFs are a passively managed basket of financial assets which includes stocks, bonds or currencies that are traded throughout the day on a stock exchange in the same manner an individual stock is traded. ETFs offer the conveniences of diversification found in a mutual fund and the flexibility to trade like an individual stock⁸. ETFs are priced continually on a market exchange and fluctuate in price according to market conditions of supply and demand. The objective of ETFs portfolio managers is to match the performance of an underlying index before fees and expenses. In addition, they possess the characteristics of diversification just like a benchmark index such as the S&P 500.

According to Ferri (2008), ETFs are account structures, not investment strategies⁹. These structures are only limited to one's imagination; for example, there

⁸ Exchange Traded Fund, Street Authority.com. http://www.streetauthority.com/terms/e/ETFs/.asp ⁹ Ferri (2008)

are ETFs which move contrary to the market (called inverse ETFs) and thus mimic some the extreme (high risk) investment strategies witnessed in the market (like shorting). Investment companies' could design ETFs according to the type of fund, investment style and/or investment strategy. The investment return is subject only to the benchmark index it follows. Generally ETFs offer a passively managed investment strategy and usually have lower management fees, more liquidity, better tax advantages and complete transparency. These fundamental features will be discussed in greater detail for the remainder of this chapter.

Passive Management

Unlike actively managed funds which seek to generate a higher return then their benchmark, the main objective of all ETFs is to replicate the return of the benchmark index they were created to follow. For example, symbol XIU (iShares Canada) is the simplest case of passive management in Canada. It is designed to replicate a well-defined index of common stock, in this case the TSX 60. The portfolio manager buys each stock comprising the TSX 60 in exactly the same proportion it represents on the TSX 60 index. As such, the role of portfolio managers is to maintain the correct weighting rather then actively trying to create value by trading and selecting and de-selecting stocks.

Passive management is a key strategy as ETFs offer the investor less reason to "shop around" for a variety of broad based funds. A few well-chosen ETFs can provide the average investor ample diversification. Replication is the simplest technique used to construct passive ETFs. However, sometimes managers of ETFs have to make decisions in replicating the index. This is known as "tracking error" and can lead to increased transaction costs. In the case of the TSX 60, the manager has to conclude if it is in the best interest to replicate all sixty companies or exclude some of the smaller companies in order to reduce transaction costs. For index funds, cash kept in the fund for redemptions and dividends distribution are also key considerations for the manager of ETFs.

Lower Management Expense Ratio (MER)

Generally, ETFs have a lower MER than mutual funds and this is attributed to: (1) the passive management strategy adopted by ETFs portfolio managers which reduces costs associated with buying and trading securities in an attempt to beat the benchmark index and (2) lower marketing and accounting fees. A study by Deloitte (2007)¹⁰ concluded the average ETFs had an MER of 0.41 per cent compared to the average mutual fund, which had an MER of between 1-3 per cent. The lower fees results in more of the investor's money going towards the purchase of ETFs rather then administrative costs. Conversely the higher the fees, the lower the overall return the investor receives. A small change in a fee structure can result in a significant change in an investor's portfolio over the long term. The reality of compounding interest can impact portfolio values with small changes in MER fees.

There are also challenges for ETFs to keep their costs down relative to mutual or index funds. Due to their popularity, both advertising spending and licensing index fees have been steadily increasing. These two variables apply cost

¹⁰ Rongala (2009), p.9

pressures, which have resulted in slight MER increases. As the industry continues to grow, these two cost factors show signs of increasing fees rather then decreasing. This will pose a challenge to the industry as it attempts to negate the effects of fee increases rather than pass the increases along to the customer.

All investors dread management fees but realize they are a necessary evil of the investment industry. In today's world, to maximize returns, investors are seeking out low fee investment products. ETFs offer an alternative to the investor trying to minimize the impact of expense fees.

Liquidity

Liquidity is an important consideration when selecting an investment product. As mentioned earlier, ETFs trade like individual stocks on an exchange. They are traded throughout the day in the secondary market. The average daily trading volume reflects the natural liquidity of ETF shares trading on the open market. ETF shares of total US Equity dollar volume increased from 24 percent in July 2007 to 34 percent in July 2008¹¹. Eight of the ten most actively traded US Equities by dollar value were ETFs in July of 2008¹².

ETFs growth has been rapid. Liquidity is far from a concern as ETFs are now commonly traded on many exchanges worldwide. With Authorized Participant's (AP's) managing the creation and redemption process along with the secondary market trading and arbitrage pricing mechanisms on the stock exchanges, make

 ¹¹ NYSE Arca, Factset & BGI, July 2008
¹² NYSE Arca, Factset & BGI, July 2008

liquidity a non-issue. These reasons explain why liquidity is considered a major strength of the ETFs structure.

Tax Advantages

In a mutual fund, redemptions can have an adverse tax impact for investors. When a mutual fund manager sells securities to raise cash for fund redemptions, these sales generate capital gains. In an ETF structure, the shares in-kind redemption mechanism generally does not lead to any capital gains. Any capital gains tax on ETFs can be delayed until the ETFs are finally sold. Mutual funds on the other hand are quite different. Mutual funds generate unrealized tax gains for stocks, which have gone up in value. Once these stocks are sold, the fund calculates the tax liability to the owner in the proportion of how many fund units were held.

ETFs are structured differently for tax purposes. Through a regulatory loophole, ETFs are created by trading an equivalent certificate (the ETFs for the many stocks that make up the basket) in what is called an *in-kind* trade. This exchange of essentially identical items does not trigger capital gains according to the IRS. Traditional mutual funds must go into the open market and exchange cash for stocks and vice versa, which trigger realization of gains. It's a subtle difference but which results in an advantage for ETFs investors¹³. In summary, the best way to look at the tax benefits of ETFs is to regard them as a stock trade. ETFs often have non-taxable trades of ETFs shares for underlying stock and vice versa, traditional mutual funds generally have sales events, which trigger tax consequences¹⁴.

¹³ Bloomberg, from May, 2002 issue of Financial Planning Magazine,

¹⁴ Wiandt, (2002) http://www.indexfunds.com/articles/20010928_ETFstax_adv_ETFs_JW.htm

Transparency

Stocks held within ETFs are published daily. By law, ETFs sponsors must disclose to the public the securities holdings and their weights in the index while active open-end mutual fund holdings are only disclosed periodically, usually several week or months later¹⁵. As shares trade throughout the day, this disclosure is necessary for the shares to be correctly priced. Mutual funds on the other hand, do not disclose their holdings on a daily basis. This allows investors to trade ETFs in the market at known prices. This simplifies the process for the investor.

When an investor begins to build a portfolio, choosing the right asset allocation strategy or diversification strategy becomes easier when the investor knows exactly what index or what sector they are investing in. This in direct contrast to an actively managed mutual fund, where the fund manager may on a regular basis may decide to adjust the fund by selecting or de-selecting stocks. If the adjustments were made public or transparent immediately, the fund manager's strategy would be exposed and may even be exploited or copied by other competitors trying to match the return performance of the fund being actively managed.

In summary, ETFs transparency includes no hidden fees or costs. This signals to the buyer you getting exactly what you pay for. Secondly, ETFs holdings are published daily for anyone to review, usually on the issuing fund company's website. The market prices are set in an open fair price based on bid and ask spreads. Lastly, owning ETFs indicates owning a proportion of the underlying stocks making up the ETFs.

¹⁵ Ferri (2008)

Section 2.2: ETFS - The Creation Process

All ETFs are publically traded securities. Gastineau (2001, 2002) provides extensive literature on how ETFs are created. According to Gastineau (2001, 2002), each ETFs share is a claim on a trust that holds a specified pool of assets. ETFs shares are created when an authorized participant (AP) deposits publically traded shares with a trustee and in return receives ETFs shares in return known as creation units. These are usually created in units of 50,000 and then are broken up and distributed amongst individual investors (Ferri 2008).

The secondary market is where ETFs are traded amongst individual investors. The price of any ETFs is nearly in-line within the stated index. The Net Asset Value (NAV) of the underlying basket of stocks primarily determines the price of ETFs. During the trading day, market forces of supply and demand can have a discount or premium effect on their price as compared to their NAV. If a discount or premium is identified, new ETFs shares can be created to meet the additional demand, thus bringing the price back closer the NAV. In addition, if an arbitrage opportunity is created, usually large institutional investors will step in and arbitrage the price of the ETFs closer to the NAV.

It is the primary market which sets ETFs apart (Demaine, 2002)¹⁶. In this market, ETFs are different from any other investment vehicle. New units can be either created or redeemed through an ordinary exchange of constituent shares that make up an index, and this also ensures an organized supply of shares to the market.

¹⁶ Demaine (2002)

In Figure 2.1 and Figure 2.2, Gary Gastineau (2003) illustrates the creation/redemption process.¹⁷



Source: Ferri, 2008, p 5

"Specific procedures allow index baskets, in the same shape as the funds existing assets, to be received by or delivered from the fund. This dissipates any imbalance in the supply or demand for the fund's units. Furthermore, since the creation/redemption process offers arbitrage potential (between cash values of the components and the cash values of the ETFs in the secondary market) the AP is motivated to address any premiums/discounts as part of their market-making activity"¹⁸.

¹⁷ Gastineau Gary L(2003), http://www.hofstra.edu/pdf/biz_mlc_gastineau.pdf

¹⁸ Demaine (2002), p. 354-366



Figure 2.2: Process of Creation of ETFS Units

Section 2.3: ETFs vs. Mutual Fund vs. Index Fund

As discussed earlier, ETFs are commonly traded on a stock exchange. They can be bought through a *margin account*¹⁹ and be *sold short*²⁰ if the investor chooses. In contrast, Mutual funds can only be acquired directly through the fund company. Secondly, ETFs vary from mutual funds in terms of pricing: ETFs are actively traded on a stock exchange; therefore, they are continuously being priced every fifteen seconds with a *bid and ask price spread*²¹ through economic forces of supply and demand.

In contrast, *Mutual Funds* can only be purchased or redeemed at the end of the trading day. Mutual funds pricing is pre-determined or forward priced as investors can place orders to buy or sell shares throughout the day and then will

¹⁹ *Margin Account*: Buying securities with borrowed money usually from a broker and using the securities purchased as collateral. By utilizing this leverage strategy, the investor can magnify the effects of returns.

²⁰ Selling Short: Technique used by investors whereby they "borrow" securities from a brokerage firm and sell them believing the value of the securities is about to drop in. Then they wait to buy them back at a lower price and return to the broker. The sale at higher price less the purchase at the lower price is the profit or return.

²¹ **Bid or Ask Price Spread**: Bid price is the maximum price a buyer is willing to pay for a security and the Ask is the minimum a seller is willing to sell the security. The difference between the two is the price spread.

receive the price when the Net Asset Value (NAV) is calculated at day's end. At the end of each trading day, the NAV of each Mutual fund is calculated and buy and sell transactions occur based on the underlying NAV. Consequently, the price at which investors buy and sell shares may not always equal the NAV of the stocks in the ETFs basket. As well, two investors selling the same ETFs shares at different times throughout the day may receive different prices for the same shares, both of which may differ from the ETFs NAV. ETFs have an *arbitrage mechanism*²², which controls any price discrepancy and keeps the market price close to its NAV. The arbitrage is permitted by a select few of intuitional investors called Authorize Participants (AP). When a pricing discrepancy occurs, AP's are allowed to buy or redeem ETFs shares. The arbitrage trade then allows AP's to exchange individual stocks for ETFs shares or the reverse and the shares can be turned in for individual stocks.

An *Index Fund* is another form of a basket of financial assets. Index funds track an underlying index and are also considered a passive investment. Tracking is usually achieved by statistically sampling an equal proportion of the financial assets, which comprise the underlying index. In the process, an index funds achieve a diversification of portfolios as embedded in the underlying index. As a result of the passive investment strategy, index funds usually charge lower management fees.

John Bogle of the Vanguard Group created the first index fund in 1975. The original name of the fund, *First Index Investment Trust* was created to replicate the

²² Arbitrage Mechanism: At any point in the trading day, authorized participants can come to the fund with a basket of the underlying securities given in the published holdings, which the fund will exchange for a creation unit consisting of a set number of shares in the ETFS

S&P 500 index. Later renamed the *Vanguard 500 Index Fund*, "it started with comparatively meager assets of \$11 million but crossed the \$100 billion milestone in November 1999; this astonishing increase was funded by the market's increasing willingness to invest in such a product"²³.

Index funds are priced during normal business days and are similar to the pricing of ETFs. Index funds tend to have slightly lower expense ratios than ETFs. Normally index funds do not generate a return greater than the returns of the underlying index it follows. When tracking errors and fees are a factored in, an index fund will normally generate a return slightly lower then the return of the benchmark index. The main fundamental difference is an index fund is priced at the end of the business day based on its Net Asset Value (NAV) and ETFs are continually priced through-out the trading day.

Section 2.4: Growth of the World-Wide ETFS industry

ETFs are a rapidly growing investment product (Gastineau 2001, 2002). The first ETFs were created in 1993 and new ETFs have been entering the market at an exponential rate. In 2007, assets under management (AuM) rose worldwide by 41 percent to USD 796.6 bn and in Europe by twenty seven percent to EUR 89.2 bn (USD 128.4 bn) (Dieckerman 2008) (Chart 2.3). The biggest single market is the USA with AuM of USD 580.7 bn (73 percent market share), followed by Europe with AuM of USD 128.4 bn (16 percent market share).²⁴

²³ <u>https://personal.vanguard.com/us/whatweoffer/mutualfundinvesting/overview?Link=DeckB</u> (accessed on December 23, 2009)

²⁴ Source Morgan Stanely (2008), p.2, PriceWaterhouseCoopers.pdf



Chart 2.3: Progress of Exchange Traded Funds – 1998-2008

Source: Investment Company Institute (ICI), p.41, http://www.icifactbook.org/

Today, attracting the most new net cash inflows are ETFs focusing in the specialty sectors of growth, fixed income and commodities indices. In 2008 there were 92 Canadian ETFs with market capitalization of over \$1 billion, compared with 72 at the end of 2006 and just 10 in 2001 (Anderson, 2008). Interest in ETFs among all types of investors has continued to grow at a brisk pace (see chart 2.1). Furthermore, since the breakthrough of ETFs in 1993 in the USA, the global market for ETFs has experienced average annual rates of growth in AuM in the high double digits²⁵. ETFs accounted for 57.6% of Net inflows into equity funds in the USA (Morgan Stanley, 2008)²⁶.

The demand for ETFs has accelerated as institutional investors have found ETFs to be a convenient vehicle for participating in, or hedging against, broad movements in the stock market. Retail investors and their financial advisers have

²⁵ Morgan Stanley, (2008), p.3

²⁶ Morgan Stanley, (2008), p.3

become increasingly aware of these investment vehicles. In contrast to a buy and hold strategy, investments in ETFs provide an opportunity to make short term gains (profits). According to the Investment Company Institute, an estimated 2 percent of households, or 2.3 million, owned ETFs in 2008. Households that owned mutual funds, an estimated 4 percent also owned ETFs. Assets in ETFs accounted for 5 percent of total net assets managed by investment companies at year-end 2008. Net issuance of ETFs shares continued to rise in 2008, reaching a record \$177 billion. (ICI, 2009).

Millions of dollars, 1999-2008		Investment Objective				
	Total	Broad- based	Sector	Global	Bond & Hybrid	Commodities
1999	\$11,929	\$10,221	\$1,596	\$112	-	
2000	42,508	40,591	1,033	884	-	•
2001	31,012	26,911	2,735	1,366	-	
2002	45,302	35,477	2,304	3,792	3,729	-
2003	15,810	5,737	3,587	5,764	721	-
2004	56,365	29,084	6,514	15,645	3,778	\$1,353
2005	56,729	16,941	6,719	23,455	6,756	2,859
2006	73,995	21,589	9,780	28,432	5,729	8,475
2007	150,617	61,152	18,122	48,842	13,440	9,062
2008	177,220	88,105	30,296	25,243	23,010	10,567

Table 2.1: Net Issuance of Exchange Traded Funds

Source: ICI Fact-book (2009) p.49, http://www.icifactbook.org/

Even when the worldwide economy slowed rapidly in 2008, net inflows into ETFs have still grown considerably over the past decade with the net issuance of ETFS shares accounting for much of this increase (ICI 2009). From year-end 1998 through 2008, the number of ETFs issued was \$661 billion in net new shares, and investor demand for broad-based domestic equity ETFs accounted for nearly 50 percent. New equity ETFs issued totaled \$336 billion in net new shares during this 10-year period, and their assets were \$266 billion at year-end 2008. Within the broad-based domestic equity category, ETFs that track large cap domestic equity indexes, such as the S&P 500, managed \$185 billion or 35 percent of all assets invested in ETFs. Chart 2, illustrates in \$Billions of dollars through 2008 the total net assets concentrated in large cap domestic stocks.



Chart 2.4: ETFs New Equity Issue- Year-end 2008

Source: ICI Fact-book 2009, p.46, http://www.icifactbook.org/

As investor demand increased for ETFs, fund sponsors continue to introduce new products onto the market. Over the period of 2000 to 2008, there were 758 ETFs created with the majority being offered in the last three years. Until 2008, few ETFs had been liquidated. In 2008, market pressures, started affecting ETFs that track identical indexes as they competed against each other to gain market share. ETFs, which were tied to or specialized in niche market indexes failed to generate enough interest from investors. As a result 50 ETFs were liquidated during 2008; the number of ETFs increased, on net, by nearly 100 to 728 at year-end 2008.



Chart 2.5: Growth of ETFs

Source: ICI Fact-book (2009), p.47, http://www.icifactbook.org/

The Canadian Experiment

The birth of ETFs in Canada began in 1989 with the launch of "Index Participation Shares" (IPU) on the Toronto Stock Exchange (TSE) in 1990. The IPU's were similar in structure to modern day ETFs as they represented a basket of stocks, which replicated a benchmark index. Known as "TIPS"²⁷ these units were created to track the performance of the Canadian market index known as the TSE 35 (the top 35 Canadian companies based on market cap). The success of

TIPS 35 led to a broader version, which became know as the TIPS 100. They also traded on the stock exchange at a designated IPU to index ratio.

In 1999 a new IPU began trading on the Canadian Stock exchange. The iUnits S&P/TSE 60 symbol XIU replicated the benchmark of the top sixty Canadian companies on the TSE. This new IPU replaced the TSE 35 and TSE 100 respectively. In April 1999, Mid-cap and Small-cap IPU's were added to the exchange.

The *i60s* were almost identical to the TIPS, with a few minor differences. The TIPS 35 and TIPS 100 were both passively managed indices. The S&P/TSX 60 is an actively managed index. An S&P selection committee manages the inclusion of companies in the index using fundamental valuation criteria. The key criteria are size (assets and market capitalization), liquidity and sector leadership.

²⁷ Kirzner, Eric, "Get ready for the i60's", Canadian Investment Review



Chart 2.6: Growth Curve of ETFs in Canada

Source: Exchange Traded Funds - ETFs Market Statistics | TMXmoney

Growth of ETFs has been dramatic over the past two decades. In the early 1990s, only one Canadian ETF was available to advisors and their clients. The chart above dramatizes the trading volume in recent years as investors are increasingly utilizing ETFs as investment products.

Chapter 3

Literature Review: Risk - Reward

The analytical framework of *Risk – Reward* is widely popular in academic and empirical discourse (Campbell, 1996). The Capital Asset Pricing Model (CAPM) by William Sharpe (1964) and John Litner (1965) is the most widely used analytical framework in calculating the cost of equity and to evaluate investment portfolios (Bos and Newbold, 1984; Fabozzi and Francis, 1978). This chapter provides an overview of the analytical framework for analyzing risk-reward relationships.

The chapter is organized as follows: Section 3.1 lays out the key ideas of the risk-reward relationship. Section 3.2 provides indicators of the most commonly used measures of risk-reward evaluation. Section 3.3 discusses the risk preferences of investors. Section 3.4 reviews the concept of optimum portfolio outlined by Markowitz (1965). Section 3.5 provides the analytical framework of the Capital Asset Pricing Model (CAPM)²⁸ the predominant theory of risk-return. Section 3.6 extends the CAPM theory with the Fama-French Three Factor Model. Section 3.7 critically evaluates the empirical literature on risk-reward in mutual fund, index funds and ETFs.

²⁸ For literature on CAPM, see Perold (2004), Fama-French (2004).

Section 3.1 Risks and the Reward Relationship

In modern finance the notion of risk is central to security analysis and portfolio selection²⁹ (Sharpe 1972). The literature refers to various types of risk such as interest rate risk, inflation risk, business risk, financial risk, liquidity, exchange rate risk and country risk etc.

These risks are broadly classified as: *Systematic* (market risk) and *Non Systematic* (business specific risk) (Sharpe 1965). Systematic risk is attributable to broad macro-factors such as national income, employment, inflation and exchange rates. Non-Systematic risk factors effect individual securities or specific industries. The non-systematic component of risk can be managed through a well-diversified portfolio.

It is systematic risk which requires pricing. The most widely used indicators of systematic risks are (1) Standard Deviation (2) Beta (3) R-square (4) Alpha (5) Sharpe Ratio and the (6) Treynor Ratio. This literature provides a brief description of these concepts in the following paragraphs.

Section 3.2 -Measures of Systematic Risk

Standard Deviation is the most widely used measure of variability. The higher the variability in financial assets like stocks, the higher the risk associated with investing in these assets. It is the measure of deviation of each observation from the arithmetic mean of the observations. Standard deviation is a measure of total risk and not market risk. In order to understand market risk, we have to examine the concept of *Beta* which replaced standard deviation in the literature.

²⁹ Sharpe (1972),p. 2

Beta (ß) measures the co-movements of returns of a financial asset against the overall stock market index (normally the S&P/TSX, the S&P 500 or the Dow Jones Index). Beta is a measure of systematic risk or market risk which cannot be diversified. Beta, along with Alpha (α) and (\mathbb{R}^2) are the central pillars of modern portfolio theory – both at the theoretical and practical level.

 R^2 is an alternative statistical measure of risk. It is derived from performing ordinary least square (OLS) regression analysis on an individual asset against an underlying benchmark index. The R^2 value measures in a percentage form the degree of market risk and non-market risk. The R^2 maximum value is 1.0. Therefore, the closer the value is to 1.0, the more risk or more movement in the asset due to overall market economic forces such as higher inflation, exchange rate fluctuations or higher unemployment. These factors affect everyone in the market. Conversely, the remaining R^2 value indicates more business specific risk, such as labor strikes or events like a commodity shortage, which affect only a specific industry. The latter risk can be diversified and therefore will not be rewarded with a higher expected return.

Alpha, is a measure of excess return (over a risk-free asset) (*Ri-Rf*) where *Ri* is the actual return of the underlying financial asset and *Rf* is the risk free asset (normally the yield on treasury bills of a certain maturity period). Then simply, alpha is the measure of excess return above what was predicted by the CAPM model. Investors and portfolio managers are always seeking positive alpha investments.

William Sharpe (1966) whose contributions have already been discussed with the CAPM also developed a useful tool designed known as the *Sharpe Ratio*, to measure the excess return a stock generated above the risk free rate of return from a ninety-one day Treasury bill divided by the standard deviation or risk volatility of the stock. The ratio enables the investor to assess how well the stock performed given the additional risk assumed. The formula is defined as follows:

Sharpe Ratio = (Investment Return – Risk Free Rate)/ Standard Deviation

A positive Sharpe ratio would indicate a financial investment product performed better on a risk-adjusted basis than the risk free asset (T-Bill). Logically then we can conclude, the higher the ratio, the better the overall performance relative to the risk taken. On a cautionary note, the ratio is a reflection of past performance and does not suggest the future performance will continue. If an investment had a positive Sharpe ratio during a particular timeline, this would not necessarily indicate future performance would continue. Therefore, an investor should carefully consider all aspects before purchasing any investment product including ETFs. A Sharpe ratio within the range of 1.0 - 2.0 would be considered good performance.

Jack Treynor (1965) recognized two components of risk; risk from general fluctuations and risk from unique fluctuations in the securities in the portfolio. His research primarily focused on risk adjusted performance of systematic risk. He went on to formulate his work into a work ratio still used today in the investment community. The ratio is utilized extensively in this study.

The *Treynor ratio* is a risk to reward ratio which considers only systematic risk and not total risk. Treynor (1965) developed this ratio to standardize returns relative to beta. Similar to the Sharpe Ratio (Sharpe 1966), which calculates the risk

premium relative to standard deviation, the *Treynor ratio* calculates the risk premium relative to beta as the per unit of risk. The numerator in the formula measures the risk premium and the denominator is the measure of risk as measured by beta and expressed as the risk premium return per unit of risk:

$$\mathbf{T}_{i} = \frac{\mathbf{R}_{i} - \mathbf{RFR}}{\boldsymbol{\beta}_{i}} \tag{3.1}$$

Risk adverse investors would prefer to maximize this value. The resulting steepness of the slope line indicates the better the risk return trade-off. Therefore, a higher *Ti* value indicates better overall performance. This ratio is primarily used to evaluate individual assets as compared to the Sharpe ratio, which is more appropriate for well-diversified asset portfolios. The research argues all assets should have the same Treynor ratio, the same risk to reward risk ratio where risk refers to systematic risk. Then to the extent they do not, there is evidence that at least some portfolios have earned excess returns (Jordan 2006).

Section 3.3 Risk Preferences

Investors are broadly classified into these categories: a) risk - indifferent, b) risk - averse, c) risk - seeker (Holt and Laury 2002). For the risk indifferent investor, the required return does not change with an increase in risk. For the risk - averseinvestor, the required return increases with an increase in risk like (Hedge funds and ETFs which offer leverage or double leverage financial assets). For the risk-seeking investor, the required return decreases for an increase in risk. Most of the investors would come under a category of risk-indifferent (investors of higher maturity) and risk-seeking investors (investors who are relatively young). Figure 3.1 displays the risk appetite of investors in an illustrative way.



Figure 3.1 Risk Classifications

Source: http://www.investopedia.com/articles/basics/03/050203.asp?viewed=1³⁰

Depending on investors risk appetite, every investor would appear somewhere on the risk-reward line. The general principle then being the larger the risk assumed, the higher the required return on investment. By minimizing the risk taken, the investor should expect to be compensated with a lower return. A question can then posed; are there any investment products which do not have any risk associated with them? The simple answer is "yes". Using the definition of risk in this manner, a Canadian government bond can be considered a risk-free asset because it is highly unlikely the Canadian government would default at the time of maturity. If all investors chose to minimize the risk, the result would have everyone holding riskfree assets such as government bonds, checking or savings accounts or short-term money market funds.

³⁰ Accessed December 12,2009
In Figure 3.2, investment assets are separated by into a three-part pyramid based on *risk characteristics*. The bottom of the pyramid classifies low risk assets and the top of the pyramid, high-risk assets. Therefore, a properly diversified portfolio would have many combinations of assets through-out the pyramid. The ultimate goal then is to diversify the portfolio to obtain maximum returns while taking measures to identify the *risk –averse point* where an investor is most comfortable while minimizing as much of the risk as possible (Markowitz 1959).

Figure 3.2: Risk-Reward Pyramid



Source: http://www.investopedia.com/articles/basics/03/050203.asp?viewed=1³¹

³¹ Accessed December 12, 2009

Section 3.4 Optimum Portfolios

The pioneering attempt to study *risk – reward* in a framework of an optimum portfolio is the attempt made by Markowitz (1959). Markowitz's theory starts with an assumption, all investors are risk averse as measured by standard deviation. He goes on to argue we should look at the risk of an entire portfolio not just the individual securities making up the portfolio. Furthermore, the addition of an individual security should not be evaluated as to its individual risk but standard deviation effect does asset have on the entire portfolio. Does the addition of the asset make the entire portfolio more or less riskier?

Markowitz then utilized the concept of "correlation" to determine how the individual securities moved in relation to each other within an existing portfolio. He further suggested, the lower the correlation, the more diversified the portfolio would be. The important concept Markowitz suggested; a properly diversified portfolio could be constructed which could yield a high return for the minimum amount of risk taken.

From this body of work, became the common notion of "Do not put all your in eggs in one basket". Modern Portfolio Theory or (MPT) changed the way investors considered the investments they chose plus the portfolio they created. Chart 3.3, illustrates the key concept developed by Markowitz and is named the *Efficient Frontier Model*. What Markowitz illustrated was standard deviation and the correlation of assets can be used to plot the relative return of any asset. The chart shows the difficulty an investor faces when choosing financial assets. For example, historically small cap stocks provide the highest return, but usually with the highest risk and they would appear in the upper right quadrant. Investors, who prefer a low risk strategy may choose T-Bills with lower returns, would appear in the bottom left quadrant, while other investors may choose riskier investment somewhere in between. There is no one investment that is best for all investors. In Figure 3.3, the curved line, better known, as the *optimum market portfolio* would represent the collection of diversified assets, which would optimally provide the maximum return and minimize the risk for any investor depending on risk appetite.



Figure 3.3 Markowitz Efficient Frontier Model

Source: http://www.investopedia.com/terms/e/efficientfrontier.asp³²

Since its inception, academic scholars have been trying to disprove this theory. Murphy (1977) in separate studies concluded the risk-reward relationship was proved weaker than expected. He further concluded there was no stable relationship between risk and return and the higher risk did not necessarily translate

³² Accessed December 13, 2009

into a higher return. Another study by (Haugen and Heins 1975) concluded in their empirical research, there was no support for the conventional hypothesis that higher levels of systematic risk led to higher returns.

The *Single Index model* (SIM) developed by William Sharpe (1963) describes the advantages of using a simplified model of the relationships among securities for practical applications of MPT. Sharpe developed this model and determined the movements are due to a single common influence. Hence, the measure of this relationship can be found by relating the stock return to a benchmark index. The formula of the single Index model is

$$r_i = a_i + \beta_i r_{m|} \tag{3.2}$$

Where:

Ri = return on stock i ai = component of stock return is independent of the market's performance Rm = the rate of return on the market index Bi = constant that measures the expected change in r given a change in m

The basic assumption underlying the SIM is through Ordinary Least Squares, the returns of a security can be linearly regressed against a benchmark index. Generally a broad market index like the S&P 500 is used as the benchmark. The SIM separates the stock's return into two components. The first, known as *Alpha* (α) and the second, market related risk as (Beta * Return of the Market) symbolized as $\beta(Rm)$.

Alpha represents the individual stock's return based on factors specific to its own company or industry. For example, a newly discovered gold deposit or a fire destroying a key facility would affect a firm's ability to generate positive excess returns. This risk factor can be properly diversified away. The market related part is a macro-level event affecting the entire market as a whole. For example, a change in interest rates or an increase in inflation would affect the entire economy. These events are not specific to one company or industry. The market risk factor cannot be diversified away. Therefore, the SIM is an individual related risk plus market related risk added together. *The key assumption about the SIM is stocks co-vary together only because of their common relationship to the market index.* In other words, only the market influences the performance of stocks. As a result of Sharpe's work, this model is viewed as simplifying the calculation of portfolio variance. The accuracy of the model depends on the accuracy of the key assumption of covariance. Lastly, the objective of the SIM is to simplify the calculations necessary for an investor to determine their optimum portfolio.

3.5 Capital Asset Pricing Model (CAPM)

Building on the work of Markowitz, William Sharpe (1964) and John Litner (1965) created a new economic model known as the Capital Asset Pricing Model (CAPM). This model integrates the statistical behavior pattern of securities with the risk aversion of typical investors. It is considered the centerpiece of modern investing and sheds light on how assets are priced and what risk factors are considered to correctly price an asset. This work garnered Sharpe the Nobel Prize in Economics in 1990.

Today CAPM is used to determine the cost of equity for firms in their capital budgeting plans. As well, public utilities use this model for rate setting and in the context of this study, finance and investment professionals in pricing stocks and building investment portfolios. The premise under CAPM is investors will not invest in a security unless the expected return is equal to the required return. CAPM then goes on to explain how required returns are determined.

There are two types of risk an investor considers prior to investing. The first being, an investor requires compensation for having their money invested for a period of time. The second being, an investor requires additional compensation for the possibility the investment generating the expected return. This is a measure of the movement or sensitivity of stock's return against a benchmark index. Statistically speaking, it a measure of covariance of how the stock moves in relation to movements in the market.

The calculation derives the *Beta* (Sharpe 1964). A stock with a beta of less than one is less variable than a stock with a beta greater than one. This suggests the lower the beta, the less risk associated with stock and the lower the firm specific risk premium would be required. Conversely, the higher the beta, the more firm specific risk is associated with the stock and requires a larger risk premium in order to be adequately compensated for the additional risk.

The marker risk premium is a function of a market return minus a risk free rate. This is also known as the *equity risk premium*. Multiplying the beta by the market risk premium generates the equity risk premium. Adding this value to the value of the risk free rate derives the total risk premium an investor would require in order to be properly compensated for investing in the stock (Sharpe 1964). To compensate for the risk, the investment is required to achieve a risk adjusted return achieved by the overall market. A risk free rate plus a market premium are the basis of the CAPM. The firm's cost of equity is the sum of the return of a risk free asset plus the market risk premium as measured by beta for assuming firm specific risk. The risk free rate compensates the investor for the use of their money and the risk premium compensates the investor for the uncertainty of the investment not achieving its expected return. According to CAPM, this would be the expected return an investor would require in order to properly be compensated for the additional risk incurred by investing in a stock and adding to their portfolio.

Together, the total risk is then determined by the amount of variance between the returns. CAPM invokes beta as the degree of measure of a stock's risk compared the overall market risk. The CAPM implies there is a linear relationship between risk and return by the formula:

$$E(R_i) = R_f + \beta_i (E(R_m) - R_f)$$
(3.3)

Ri = expected return on the investment Rf = expected risk-free of return β = volatility of investment relative to an index (beta) E(Rm) = expected rate of return of the market

Figure 3.4 – Security Market Line



Source: Hedges (2009), PPT Slide 11, Corporate Finance, Comm 725, UNBC, 2009

The vertical intercept represents the investment in risk free asset such as short-term government bond. The SML concludes in an equilibrium situation, for every asset sitting on the line, the rate of return is equal to the required rate of return. It defines the required return on basis of risk. The SML represents equilibrium stability. If stability is upset, forces are created to push it back into equilibrium. For example, if the expected return on an investment becomes less then the required return, this would signal to rational investors to sell the investment because it no longer meets their criteria for an expected return. The "sell-off" would lead to excess supply and limited demand forces. This would result in a drop in price. This drop in price would entice new investors, because of an increase in expected return. *The most important aspect of the SML is forces are continually created to push towards an equilibrium state*. Determining prices of individual securities is accomplished primarily through the Gordon Model. The Gordon Model is not discussed as it is considered beyond the scope of this study.

The CAPM is just a theory. In order to apply the CAPM model a number of assumptions are required. First, investors choose investments based on their interpretation of risk and reward. Second, there is also an assumption investors can borrow or lend money at a risk free rate. Third, investors can buy or sell any amount of stocks but the total value of the stocks does not change. This eliminates issues surrounding liquidity risk. Fourth, transaction costs, short selling or taxes are not considered. Finally, investors have access to the same information.

	Mean	Standard deviation
Canada	5.7	17.9
France	6.7	21.7
Germany ¹	9.6	28.5
Japan	10.0	33.2
United Kingdom	5.5	16.7
United States	6.7	20.0

Table 3.1: Global Equity Risk Premium

The historical returns have provided an insight to the equity risk premium (See Table 3.1). The empirical research done by Dimson (2002) calculated the equity market risk premium for sixteen countries over a 102-year period from 1900-2001, and showed risk-premiums relative to risk-free assets are substantial.

In its simplicity the model works extremely well and provides consistently good results. In addition, the CAPM outlines the differences between diverse and non-diverseable risk. For these reasons, it has become one of the most popular models used in finance today; as mentioned earlier, companies use the CAPM to calculate their cost of equity for capital budgeting purposes. Public utilities use CAPM to establish rates they will charge and various financial professional utilize CAPM to determining asset prices.

Critics of the model have made testing the CAPM controversial. For example, Fama and French (1992) found evidence that stock market returns were predictable and demonstrated the predictability in a cross section of stock returns. Fama & French (1992) showed value stocks with high book to market value ratios, outperformed growth stocks with low book-to-market ratios on a risk-adjusted basis. Jegadeesh and Titman (1993) presented analysis in which a strategy of buying past winners and selling past losers generated a positive return. This type momentum strategy has generated positive returns for nearly a decade when it was re-tested by the same authors in 2001.

These studies argue the CAPM does not sufficiently explain the cross sections of stock returns and the sources of the deviations. CAPM is a static model by which the expected returns are assumed to be constant. Merton (1973) and Campbell (1993) proved the returns of assets by measuring its covariance with variables that forecast the entire market. As well, Guo (2003) provided additional insight into market risk premiums, whereby investors also seek liquidity premiums on stocks to due to limited stock participation.

Although some of these criticisms are true and have been proven empirically, the simplicity and ease of using the CAPM is still considered worthwhile. The mainstream view on the failure of the CAPM is assuming investors care only about

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the mean variance of portfolio returns and ignore other important dimensions of risk The argument that a single factor is not sufficient in the stock market to account for the variation in returns will go on indefinitely. The solution may lie in the development of more sophisticated asset pricing models such as the Fama-French Model (1992).

3.6. Fama- French Three-Factor Model

The CAPM model is essentially based on two factors: risk free rate and risk premium. The empirical investigation based on CAPM has generally resulted in low explanatory power. Thus there was a need to incorporate other factors to improve the explanatory power in empirical investigation. The Fama-French Three Factor Model (1992) incorporated variables to reflect size and value to augment the CAPM model. They have done extensive research in this area and found factors describing "size" and "value" to be the most significant factors, outside of market risk, for explaining the realized returns of publicly traded stocks. To represent these risks, they constructed two factors: *SMB* to address size risk and *HML* to address value risk. The model goes on to prove a positive SMB indicates a small cap stock outperformed a large cap and vice versa.

The SMB factor stands for "Small Minus Big", and measures the additional return average investors have historically received by investing in stocks of companies with a small market capitalization. This additional return is often referred to as the "size premium." The HML Factor; HML, which stands for "High Minus Low", measures the "value premium" provided to investors for investing in

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companies with high book-to-market values. A positive HML indicates a value stock outperformed a growth stock and vice versa.

Their research has proven over the time period of 1926 to 2002, there is a premium for value stocks over growth stocks and this premium has averaged approximately 5.1 percent annually (French 2003). Also the two additional factors the researchers have tested, often yielding an R² value of approximately 0.95 (French 2003). Furthermore, the model has proven the fact positive alphas observed in a CAPM regression are more a function of exposure to HML or SMB factors, rather than actual portfolio manager's performance (French 1992).

From their research, investors learned to weigh their portfolios in such a way that they have generated greater or lesser exposure to each of the specific risk factors, and therefore can adjust their asset allocation portfolio to different levels of expected returns. This has led to the mutual fund industry developing matrices to target different strategies and exposure to risk. For example, these "style boxes" are a common feature on the Morningstar® website.

Fund In	nvestme	nt Style	
Value	Blend	Growth	
		1	Size
			Large
			Mid
			Small

Figure 3.5: Fund Investment Style and Size of Companies

Source: http://news.morningstar.com/articlenet/article.aspx?id=118018³³

³³ Date accessed: December 14, 2009

By combining the original market risk factor from the CAPM and incorporating it with the newly developed factors by Fama-French, this model calculates the expected return of an investment asset as a result of its relationship to market, size and value risk. The formula for the Fama-French Three Factor Model:

$$r_A = r_f + \beta_A (r_M - r_f) + s_A SMB + h_A HML$$
(3.3)

Section 3.7: Risk-Reward of Stocks, Mutual, Index Funds and ETFs

The risk-reward of portfolios like mutual funds, index funds and ETFs are generally supposed to differ from individual assets in the portfolio. Given the fact these portfolios diversify the risk of individual asset classes, the risk of these portfolios are expected to be lower than individual assets which comprise these portfolios.

Filbeck and Tompkins (2004) studied the value of management tenure in creating excess returns by including a measure of risk-adjusted returns as a variable. Moskowitz (2000) examined various types of balanced mutual funds. The study concluded lower net returns were primarily caused by transaction costs. Rompotis (2009) analyzed data from active and passive ETFs listed in the United States. His research concluded active ETFs underperformed both the passive ETFs as well as market indexes. The research utilized the Sharpe ratio as well as regression analysis to suggest active fund managers showed limited ability to select ETFs and choosing the correct time to enter the market. In addition, his research looked at tracking error

and determined tracking error estimates were greater for active ETFs rather then passive or index funds. However, there are no similar studies in the Canadian context in this area. The present study is an attempt to fill this gap.

Chapter 4

Data Sources and Methodology

This chapter discusses the data source and methodology used in the riskreward empirical investigation of ETFs. Section 4.1 discusses the data base used for the study. Section 4.2 discusses the methodology. Appendix 4.1 at the end of the concluding chapter displays the name and symbol of the ETFs studied and the date of inception.

Section 4.1 Data base

The study is based on data of 74 Canadian ETFs for the last 5 years (2004 to 2009). The data period used is from September 1, 2004 to August 30, 2009. The data was downloaded from the *DataStream* database; provided by Thomson Reuters. The data relates to ETFs prices on a monthly basis and corresponding benchmark index such as S&P 500 which is a broad based market index. The returns on individual ETFs were generated from corresponding price data. In the case of ETFs which were created recently, the data points could be considerably lower and these are also indicated in Appendix 4.1.

For the purposes of this study, the top three Canadian investment firms offering ETFs products were chosen. Horizon Bet Pro funds (HBP) has been actively traded since 2007 with over \$100 million in assets under management in Canada³⁴. HBP offer investors the opportunity to invest in ETFs, which use leverage techniques

³⁴ Horizon Beta Pro (HBP) Accessed on December 12, 2009

http://www.tmxmoney.com/en/sector_profiles/exchange_traded_funds/funds/funds.html

to magnify the performance results of the assets. Each ETFs attempts to generate returns, which are 200 percent (Bull) and an inverse –200 percent (Bear) performance of its underlying index. Thirty ETFs from this company were analyzed to gain an understanding of leverage effects their performance.

The second largest ETFs investment company in Canada is Claymore Funds with assets in excess of \$13.3 Billion as of September 2009³⁵. Claymore offers a variety of ETFs ranging from Canadian, US, and Global core equity markets, sector strategies, dividend and income based strategies and fixed income based strategies. Twenty ETFs from all investment categories were analyzed in this study.

Finally, iShares Canada is the leading ETFs provider with assets under management exceeding \$22 Billion as September 2009³⁶. In Canada, iShares was founded in 1999. Thirty ETFs from this fund company were analyzed. They were divided into three sections. Section one, analyzes fourteen ETFs tracking various indices on the Canadian equity benchmark index. A further six ETFs studied the fixed income market of government and corporate bonds. Lastly, the remaining ETFs cover a broad range of alternative indexes such as international and emerging markets and as well as investment style classes like growth and value portfolios.

Other ETFs providers include Bank of Montreal and the Invesco group. They are excluded from the empirical investigation as these products are relatively new and simply do not have enough trading activity to warrant a complete a thorough analysis of their performance.

³⁵ Claymore Funds Website accessed on December 12, 2009

http://www.claymoreinvestments.ca/about/about-claymore/

³⁶ iShares Website accessed on December 12, 2009

http://www.tmxmoney.com/en/sector_profiles/exchange_traded_funds/funds.html

Section 4.2 Methodological Framework

We adopt the methodological framework of CAPM for risk-reward analysis. The CAPM framework is used to derive the risk of ETFs as well as to calculate alpha (α) – the excess return of each ETFs as discussed in chapter 2. The individual risk of each ETFs was calculated using the single index model, viz,

 $Ri=\alpha + \beta Rm$,

(4.1)

Where Ri= is the return of each ETFs (generated from ETFs prices) and Rm is the market index (S&P 500). The coefficient associated with beta (β) is taken as the measure of ETFs risk.

The excess return (α) is generated from the fundamental CAPM equation as given below:

$$\mathbf{Ri} = \mathbf{Rf} + \boldsymbol{\beta} \left[\mathbf{E}(\mathbf{Rm}) - \mathbf{Rf} \right]$$
(4.2)

Where Ri = return of individual ETFs; Rf= risk-free rate (one year Canadian treasury bill rate); beta (β) is the estimate of market risk (from equation 4.1) and E(Rm) is the expected market return (estimated as the average return in the market index for the last 5 years). The excess return (α) is estimated by transforming equation 4.2 as follows:

$$\mathbf{Ri} - \mathbf{Rf} = \beta \left[\mathbf{E}(\mathbf{Rm}) - \mathbf{Rf} \right]$$
(4.3)

Chapter 5

Market Risk of Canadian ETFs - Empirical Results

Based on the analytical framework outlined in chapter three and the database discussed in the previous chapter, we present the results of market risk for Canadian ETFs. We have chosen to present the estimates of market risk of various ETFs in Canada based on the risk characteristics of ETFs rather than the originator of these ETFs.

This chapter is organized as follows: Section 5.1, we present the estimation of market risk *Beta* (β) and *R square* (R^2) for Fixed Income ETFs. Section 5.2, we present the results of Canadian ETFs. Section 5.3, we present similar results for international (global) ETFs sold in Canada. Section 5.4 presents the results of commodity ETFs. Section 5.5 we present the results of gold and precious metals. Section 5.6 we present the results of alternative investments. Section 5.7 we present the results of currency hedged ETFs. The appendix table 5.1 following the concluding chapter presents ETFs symbols with the name description and the benchmark index the ETFs is designed to replicate.

Section 5.1 Fixed Income ETFs

Fixed income assets are supposed to be lowest risk ETFs among the menu of financial assets. As the term "fixed" implies, these ETFs provides investors with fixed cash flows over a specified period of time. This removes the majority of risk for an investor. There does remain a small risk where default can still occur. It is however unlikely the government of Canada would default. With that in mind we would expect to find government backed ETFs to offer the lowest risk. With corporate bonds there is slight increase in the possibility of default and such bond ratings apply risk premiums to these financial assets increasing the return slightly for investors. In Chart 5.1, nine fixed income ETFs were ranked according to their market risk beta. As is evident, all the fixed income ETFs had negative betas. The government bond *CLF* offers the least amount of financial risk. These ETFs also employs a laddered strategy 1-5 year maturity period. The short-term nature of these ETFs also insulates it from risk as it can renew at different interest rates in a relatively short period. Therefore we would also expect to see long-term bonds with a larger *Beta* implying there is more risk over a longer period of time. The data supports, the US government 30-year bond *HTD* is the riskiest fixed income asset in this study. Reason being, the extent of bond maturity period extends 30 years and the ETFs employing a double leverage strategy to maximize the return.



Chart 5.1 Risk (ß)

Table 5.1 Risk (R²)

	Fund			Date of	
Fixed Income	Manager	ETF	R ²	Inception	
Premium Money Market	Claymore	CMR	21.83%	Feb-08	
CDN Government Bond Index	iShares	XGB	16.66%	Nov-06	
CDN Bond Index	iShares	XBB	8.58%	Nov-00	
CDN Long Term Bond Index	iShares	XLB	5.06%	Nov-06	
CDN Real Return Bond	iShares	XRB	2.95%	Dec-05	
US 30 Year Bond Bear Plus	Horizon	HTD	2.79%	Jun-08	
CDN Corporate Bond Index	iShares	ХСВ	2.00%	Nov-06	
CDN DEX Short Term Bond Index	iShares	XSB	1.15%	Nov-00	
1-5 Year Laddered Government	Claymore	CLF	0.05%	Jan-08	

In Table 5.1, we can see market risk in percentage terms is very low amongst the fixed income assets. By incorporating them into a portfolio the market risk is minimized. The most significant risk factor affecting fixed income ETFs is interest rate risk. Therefore, depending on the maturity period we would expect the risk appetite of investors to change when there is significant changes in interest rates.

Section 5.2 Canadian and US Equity ETFs

Canadian Equity and US Equity are the most popular amongst investors. There is a large amount of variety and choices for an investor with any risk appetite to consider. In this category we would expect to find broad based ETFs, which track large segments of the economy to offer the least amount of risk. In contrast, ETFs employing leverage strategies or tracking single commodity indices would generally higher in risk. For reference a straight-line beta of 1.0 indicates in the chart replicates the beta of the underlying S&P 500 Benchmark index.

In Chart 5.2A, we identify the five ETFs from Horizon Beta Pro funds with the highest risk. All of these ETFs employ either a double leverage or a double inverse strategy. General principles of finance confirm when leverage or double leverage is employed the risk and return is magnified. *HFU* (financials) and *HEU* (energy) track specific sectors in the stock market. In recent years we have seen significant return variation in both of these sectors. The global economic downturn in the financial services sector and the rapid rise and fall of energy prices has had an effect on these assets in terms of risk. Further analysis in the next chapter will test the hypothesis, the riskier the asset the greater the return.

On the opposite spectrum, *XTR* is an income trust ETFs. By its structure, it distributes a fixed income each month to the investor. Also, by distributing cash payments directly to the investor, this ETFs has tax advantages over other ETFs, again minimizing its risk. As expected *XSP*, is designed to replicate the return of the S&P 500 index and the beta is consistent with the hypothesis. Preferred shares are considered hybrids (neither a fixed income asset nor an equity asset). They do distribute monthly income to the shareholder and have a claim above equity investors in the event of default. The data illustrates this implies a reduced level of risk. *CPD* the preferred shares ETFs supports a lower risk level. There are ten ETFs which offer close approximation to the market index performance. This supports the notion, beating the benchmark index is very hard to do.

Chart 5.2A: Risk (ß)



Table 5.2B: Risk (R²)

Canadian & US Equity	Fund Manager	ETF	R ²	Date of Inception
S&P 500 Bull Plus ETFS	Horizon	HSU	99.4%	Jun-08
CDN S&P/TSX Hedged to CDN \$	iShares	XSP	91.7%	May-01
RAFI Core \$US Hedged CDN	Claymore	CLU	90.8%	Sep-06
NASDAQ 100 Bull Plus ETFS	Horizon	HQU	84.7%	Jun-08
RAFI Core Canada	Claymore	CRQ	82.5%	Feb-06
S&P/TSX Capped Financials Bull Plus	Horizon	HFU	75.8%	Jun-07
S&P/TSX 60 Bull Plus ETFS	Horizon	нхи	73.6%	Jan-07
S&P/TSX 60	iShares	XIU	69.7%	Sep-99
S&P/TSX Capped Financials Index	iShares	XFN	69.6%	Mar-01
S&P/TSX Capped Composite Index	iShares	XIC	68.7%	Feb-01
S&P/TSX Completion Index	iShares	XMD	65.0%	Mar-01
S&P/TSX Small Cap Index	iShares	xcs	63.5%	May-07

S&P/TSX REIT Index	iShares	XRE	57.6%	Oct-02
S&P/TSX Capped Energy Bull Plus	Horizon	HEU	45.8%	Jun-07
Preferred Share	Claymore	CPD	42.3%	Apr-07
S&P/TSX Capped Energy Index	iShares	XEG	33.2%	Mar-01
S&P/TSX Capped Information Technology	iShares	XIT	32.7%	Mar-01
S&P/TSX Capped Materials Fund	iShares	XMA	16.5%	Dec-05
S&P/TSX Income Trust Fund	iShares	XTR	2.0%	Dec-05

From Table 5.2B we can surmise equity ETFs are largely susceptible to market forces as evidenced by the higher R^2 values. As this study utilized the S&P 500 as the underlying benchmark, both *HSU* and *XSP*, which are designed to track this index, demonstrated the highest correlation to S&P 500. *XTR* showed little correlation to the index consistent with it lower β . This suggests investors value the steady stream of interest payments and consider the value of those cash payments to be less risky than investing in other specific sector ETFs.



Chart 5.2C: Risk (ß)

Chart 5.2.C illustrates six equity ETFs which generated negative ß. The fund *XSU* replicates the Russell 2000 US index and is hedged in Canadian dollars. Three of the ETFs almost achieved their intended strategy of doubling the index. Exchange rate fluctuations have had an effect on the perceived level risk for this ETFs negative beta. The remaining five ETFs employed a double leverage inverse strategy. These ETFs are designed to replicate two times the inverse performance of their underlying indices. As indices fall in value, the ETFs would employ leverage to "short" to magnify the returns of this strategy. Also, these ETFs are relatively new to the trading market. As the market has recently rebounded, these ETFs have performed poorly and with the effects of leverage, have resulted in higher levels of risk.

Canadian & US Equity	Fund Manager	ETF	R ²	Inception Date
S&P 500 Bear Plus	Horizon	HSD	95.2%	Jun-08
NASDAQ 100 Bear Plus	Horizon	HQD	80.2%	Jun-08
S&P/TSX 60 Bear Plus	Horizon	HXD	73.7%	Jan-07
S&P/TSX Capped Financials Bear Plus	Horizon	HFD	70.9%	Jun-07
S&P/TSX Capped Energy Bear Plus	Horizon	HED	26.1%	Jun-07
CDN Russell 2000 Hedged to CDN \$	iShares	xsu	2.4%	May-07

Table 5.2D: Risk (R²)

In this table we further illustrate the close relationship the inverse double leverage demonstrated with the benchmark index. The movements in these assets have strong correlation to the movements in the underlying index as measured by high R^2 values. However, the inverse strategy has not been effective as further evidence supports market timing is not a viable strategy. For double leverage ETFs to attain double returns of the benchmark index, would require higher R² values to better approximate the movements of the benchmark index.

Section 5.3 International and Emerging Markets

International investing adds new options for domestic portfolios. Currency and stock markets usually move in different directions. Investing in global, emerging markets and country specific index offers investors stock and currency diversification. Overall, investing in these ETFs diversifies a portfolio and reduces overall risk. The Chart 5.3A illustrates the beta co-efficient for six ETFs in this asset category. We would expect little correlation with the S&P 500 index.





From the data, HJU achieved the beta greater than 2.0 due to its double leverage strategy and due to its higher R² value. Conversely, the HJD failed to meet to double the index, but also had the lowest R² value. As for, *CJP*, *XIN*, *CIE*, these ETFs had betas lower than 1.0, indicating the market-related risk is lower relative to the S&P 500. The lower betas do not suggest low volatility.

Table 5.3 Risk (R²)

International & Emerging Markets	Fund Manager	ETF	R ²	Inception Date
CDN MSCI EAFE Hedged to CDN \$	iShares	XIN	81.8%	Sep-01
MSCI Emerging Markets Bull Plus	Horizon	нји	74.1%	Jul-08
RAFI Core Japan Hedged CDN	Claymore	CJP	67.4%	Feb-07
BRIC Hedged CDN	Claymore	СВQ	64.8%	Sep-06
RAFI Core International	Claymore	CIE	54.4%	Feb-07
MSCI Emerging Market Bear Plus	Horizon	HJD	23.4%	Jul-08

Table 5.3B illustrates the strong relationship international and emerging markets have with the returns of the S&P 500. This supports the notion the world's equity market returns are linked to the movement of the S&P 500. These ETFs are diversified in nature and reduce business specific risk from significantly impacting their return. This is main reason asset allocation strategies include international and emerging market ETFs into investor's portfolios. The fund *HJD* with the lowest (β) also had highest lowest R² value indicating the inverse strategy of this ETF supports more market timing risk factors as the reason for poorer performance.

Section 5.4 Commodities

There are many commodity indices. The majority are only a few years old and almost all indices use commodity futures contracts in order to benchmark the underlying index. Investing in commodities represents a hedge against inflation. As the price of various commodities like oil, lumber, food etc rise, so do the value of commodities.

When economic growth is expanding and coupled with the limited supply of commodities, usually results in advancing commodity prices. Due to the lack of diversification we would expect to find individual commodities with high betas. Chart 5.4A illustrates commodity ETFs with positive betas. Meaning during the course of this study, the commodity these ETFs benchmarked was considered to be in demand. We also are looking to see if the 2 times double leverage ETFs achieved their objective with Betas of 2.0 or greater.



Chart 5.4A: Positive (ß)

The two ETFs generating the highest betas were *HOU*, which is benchmarked against the NYMEX Crude Oil index. The other, *HMU*, is benchmarked against S&P/TSX base metal index. Both of these ETFs are intended to achieve 2 times the beta as they utilize a leveraging strategy. The lack of diversification verifies these two ETFs did generate higher betas. It is not uncommon for significant short-term price swings on these commodities. The amount of available inventory and currency fluctuations can affect all ETFs in the commodity sector to have significant variability. *HNU*, did not achieve its double return objective due high inventories from mild weather and excess drilling activity.

Commodities	Fund Manager	ETF	R ²	Inception Date
Oil Sands	Claymore	CLO	45.1%	Oct-06
Global Water (S&P 500)	Claymore	CWW	41.9%	Jun-07
S&P/TSX Global Base Metals Bull Plus	Horizon	нми	37.8%	Jun-08
Global Agriculture	Claymore	cow	34.2%	Dec-07
Global Mining	Claymore	CMW	32.5%	Jun-07
NYMEX Crude Oil Bull Plus	Horizon	нои	28.8%	Jan-08
NYMEX Natural Gas Bull Plus	Horizon	HNU	7.2E-12	Jan-08

Table 5.4B: Risk (R²)

Compared to other investing sectors, The R² values in commodities were found to be lower. This would indicate supply and demand forces specific to the commodity are the main drivers of performance. However on a macro level, currency fluctuations and inflation pressures can also have an effect in the movement of this asset class.





From this chart, *HOD* is the only ETFs to achieve its intended inverse double leverage beta. ETFs which use inverse double leverage of future contracts to seek positive returns on the falling oil prices. Three of the ETFs in this asset class use double inverse leverage futures contract to generate positive returns on falling commodity prices.

Commodities	Fund Manager	ETF	R ²	Inception Date	
NYMEX Crude Oil Bear Plus	Horizon	HOD	42.1%	Jan-08	
GAS Commodity	Claymore	GAS	18.3%	Feb-08	
S&P/TSX Global Base Metals Bear Plus	Horizon	HMD	16.4%	Jun-08	
NYMEX Natural Gas Bear Plus	Horizon	HND	4.7E-04	Jan-08	

Table 5.4D: Risk (R²)

From this table, we can see business specific forces driving the performance and less overall market forces having an effect. This would suggest these instruments are utilized in market timing strategies. This provides additional support suggesting market-timing strategies are not very effective. For inverse ETFs, it is very critical to be on the "right side" in terms of timing as the percentage change can vary drastically over short periods of time. From this we can conclude, double inverse leverage ETFs are not an effective "Buy & Hold" strategy. These ETFs may be utilized on a short-term basis as the returns can be magnified greatly due to the leverage employed.

Section 5.5 Gold & Precious Metals

Gold and Precious metals are defensive investments. Meaning investors seek these commodities during global economic downturns. Gold has a finite supply.

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The performance of these ETFs would be driven more by the price of gold or the price of gold mining stocks than the underlying index. As such we would expect to see lower beta and lower R^2 values. Regardless of whether the price of gold fluctuates wildly, the beta relative to the underlying index would be low. Also, during periods of rising prices, gold and other precious metals are considered as hedges against inflation. Investors can access these markets without physically taking possession of the commodity.



Chart 5.5 Gold & Precious Metals: (ß)

From the chart we can see the betas are lower as predicted. The two ETFs which employed double leverage and inverse double leverage strategies generated the highest Betas. None of the double leverage ETFs achieved the double beta in relation to the S&P 500 benchmark index.

Table 5.5 Risk (R²)

Gold & Precious Metals	Fund Manager	ETF	R ²	Inception Date
S&P/TSX Global Gold Bear Plus	Horizon	HGD	3.6%	Jun-07
S&P/TSX Global Gold Bull Plus	Horizon	HGU	1.5%	Jun-07
CDN S&P/TSX Global Gold Index	iShares	XGD	1.0%	Mar-01
COMEX Gold Bullion Bear Plus	iShares	HBD	0.6%	Jan-08
COMEX Gold Bullion Bull Plus	Horizon	HBU	0.1%	Jan-08
Comex Gold Trust	iShares	IGT	0.1%	Dec-05

This sector has produced the lowest R² values in this study. As predicted the performance of these ETFs are more affected by the price of gold or the performance on individual mining stocks then movements in the benchmark index. We do not find many gold companies in the S& P 500.

Section 5.6 Alternative Investments

As the ETFs industry has evolved, various investment styles have been created. These styles include dividend income, growth, and value on through to specific industries like the North American Agribusiness HAU. In this section we can see nine ETFs with betas ranging from 1.49 HAU for a specific industry to 0.14 XCV, which is benchmarked to the Dow Jones Value index. The lower beta represents a significant difference between the S&P 500 and Dow Jones Value index. As well, R² value indicated a high S&P 500 related correlation with HAU to basically no correlation with the two iShares ETFs designed to track a different index.



Chart 5.6A: Alternative Investments: Positive (B)

Alternative Investment	Fund			
Strategy	Manager	ETF	R ²	Inception Date
Monthly Advantaged Hedged	Claymore	СҮН	89.4%	Jan-08
Income Balanced	Claymore	CBD	86.2 %	Jun-07
Growth Balanced	Claymore	CBN	80.8%	Jun-07
Canadian Dividend	Claymore	CDZ	78.7%	Sep-06
Global Real Estate	Claymore	CGR	56.4%	Aug-08
Global Infrastructure	Claymore	CIF	51.7%	Aug-08
S&P Agribusiness N.A. Bull Plus	Horizon	HAU	41.3%	Mar-08
CDN Dow Jones Dividend Index	iShares	XDV	2.9%	Dec-05
CDN Dow Jones Value Index	iShares	xcv	1.7%	Nov-06

Table 5.6B: Risk (R²)

From the table we can the movements with the two iShares ETFs were virtually not affected by movements with the benchmark index. These ETFs were designed to track a separate index.

Chart 5	.6C:	Alternative	Investments:	Negative	(ß)
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-0.20	XEN	XCG	XCR	XGR	XGC	HAD
-0.40						
-0.60						
-0.80						
-1.00 -						
-1.20 -						
-1.40 -						
-1.60 -						
		E	xchange T	raded Fund	d	

Table 5.6D: Risk (R²)

Alternative Investment Strategy	Fund Manager	ETF	R ²	Inception Date
S&P Agribusiness N.A. Bear Plus	Horizon	HAD	28.0%	Mar-08
Conservative Core Portfolio Builder	iShares	XCR	10.6%	Nov-08
Growth Core Portfolio Builder	iShares	XGR	8.1%	Nov-08
Global Completion Portfolio Builder	iShares	XGC	5.9%	Nov-08
CDN Dow Jones Growth Index	iShares	XCG	0.0%	Nov-06
CDN Jantzi Social Index	iShares	XEN	0.0%	May-07

Specialty funds like these, which invest in other assets not listed in the S&P 500 benchmark, all have lower betas because their performance is tied more to other indexes or other factors. The low R² values support the hypothesis that other factors unrelated to movements in the benchmark index are the drivers of performance for this asset class.

Section 5.7 Currency Hedged ETFS

In the past, institutional investors primarily invested in the currency markets. Today, with ETFs, all types of investors have access to these markets. In this section we consider two currency ETFs hedges to the US dollar. Also, these ETFs employ a double leverage or an inverse double leverage strategy. These ETFs are created to generate returns of an underlying bond or currency. This represents an underlying benchmark for investors creating exposure to underlying bond or currency markets. "The Indices are calculated based on daily returns of a Daily Contract Settlement Price published by the Chicago Board of Trade ("CBOT") in the case of the US Long Bond Index contracts, and the Chicago Mercantile Exchange in the case of the C\$ Currency contract, for the Designated Relevant Contracts"³⁷.



Chart 5.7 Currency: (ß)

The two ETFs did not double the S&P 500 index performance.

Table 5.7 Risk (R²)

Currency Hedged				
& Non-Hedged	Fund Manager	ETF	R ²	Inception Date
US Dollar US Bear Plus	Horizon	HDD	45.0%	Jun-08
US Dollar US Bull Plus	Horizon	HDU	37.1%	Jun-08

The lower R² values and betas illustrate these ETFs do not approximate the movements of the S&P 500. The primary movements are perhaps more dependent on currency exchange rates.

³⁷ Horizon Beta Pro Currency Fact Sheet <u>http://www.hbpETFs.com/indexPerformance.asp</u> (Accessed on December 14, 2009)

Chapter 6

Risk - Reward of ETFs in Canada - Empirical Results

This chapter presents an empirical estimation of the risk-reward relationship of 74 Canadian ETFs based on the price data for the last five year period (September 2004 to August 2009). This chapter is divided into four sections. Section 6.1 reviews the analytical framework and assumptions underlying the empirical investigation. Section 6.2 presents the estimates of excess return (alpha) of Canadian ETFs asset classes. Section 6.3 presents the results of Canadian ETFs in terms of risk-reward and Section 6.4 presents the conclusions emanating from empirical investigation. Appendix 6.1 and 6.2 presents the performance of each of the individual ETFs in terms of excess returns and risk-reward respectively

Section 6.1: The Analytical & Empirical Framework

As discussed in chapter three, the analytical framework for estimation of excess returns (alpha) is the Capital Asset Pricing Model. The estimation of excess returns (alpha) requires two crucial inputs – the Risk-Free rate (Rf) and expected return of the market [E(Rm)]. We have chosen the three-month Treasury bill rate as a representative of Risk-Free Rate (Rf) in Canada (available from Bank of Canada website under the rates and statistics section) as this maturity segment was found to be the most active and liquid segment of the short-term treasury bill market. The 3-month Treasury bill rate in Canada is approximately 1.5 percent. The Expected Return of Market [E(Rm)] was calculated from the monthly S&P/TSX intervals

during the period of study from beginning of September 2004 to the end of August, 2009. The return was rounded-off and this comes to 8 percent for the 5 year period and consequently the estimated risk-premium in the Canadian context comes 6.5 percent (Table 6.1). It may be recalled from chapter three; Canada's historical risk premium from 1900 to 2001 was calculated to be 5.7 percent. This provides support for the risk premium value used in this study. The empirical estimation of excess return is based on CAPM and is based on equation 4.2 in Chapter 4 [Ri – Rf= β (E(Rm-Rf)].

Table 6.1: Basic Assumptions underlying CAPM Model

САРМ	Assumptions
Risk Free Rate (Rf)	1.5%
Return Market [E(Rm)]	8.0%
Risk Premium [Rf-E(Rm)]	6.5%

For evaluating ETFs portfolios in terms of risk-reward, the analytical framework in this area considers the Sharpe Ratio and Treynor Ratio. The most significant different between these indicators as discussed in chapter four is the Sharpe ratio measures the reward to total risk, while in Treynor ratio uses systematic risk instead of total risk.

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Table	6.2:	Summary	of	Expected	Returns,	Actual	Returns	&
		Excess Re	tu	rns				

ETF Asset Class	Total Return	Expected Return (CAPM)	Alpha
International & Emerging Markets	9.84%	6.63%	3.21%
Canadian & US Broad Equity	5.79%	4.34%	2.43%
Currency \$US Hedged	7.8%	5.49%	2.82%
Fixed Income	1.76%	1.37%	0.40%
Alternative investment Strategies	0.87%	3.82%	-2.95%
Gold & Precious Metals	5.22%	4.33%	1.18%
Canadian Sector Funds	-2.62%	5.38%	-8.00%
Commodities	-17.53%	2.85%	-20.38%

Section 6.2: Excess Returns (Alpha) of Canadian ETFs-Empirical Results

In this section, we present the estimated excess returns (alpha) of Canadian ETFs by broad asset classes as well individual Canadian ETFs for the period September 2004 to August 2009. Table 6.2 provides estimates of excess returns of ETFs by broad asset class and these show international and emerging market ETFs have generated the highest excess returns (alpha) during the period of study, followed by Canadian and US equity ETFs, currency hedged funds and fixed income funds. These results are in tune with emerging market growth story especially that of BRIC countries (Brazil, Russia, India and China) which witnessed rapid economic growth in the last decade. Among the international and emerging market ETFs, the one based on Emerging markets (MSCI Emerging Market Bull Plus – symbol *HJU*)

generated the highest return of nearly 143 per cent during the period of investigation (Appendix table 6.1). Other funds which have generated substantial excess returns are the global real estate and global portfolio funds (symbols CGR and XGC respectively – see Appendix table 6.1).

Among the Canadian and US broad equity funds, the one based on NASDAQ 100 Bull (symbol *HQU*) and S&P 500 Bull (symbol *HSU*) have generated good returns; in the range of 26 to 76 per cent (Appendix table 6.1). The currency hedged funds also generated substantial positive returns during the period of investigation bringing into focus the importance of exchange rate volatility and its hedge as crucial parameters in generating positive excess returns (See Appendix table 6.1). The fixed income funds reflecting the lower risk has generated relatively lower returns (less than 1 per cent).

Among the worst-performing Canadian ETFs, were the commodity fund and Canadian Sector funds and alternative investment strategy funds (Table 6.2). The performance of commodity ETFs represents an interesting picture. Commodity funds, which were based on a bear market (like crude oil and natural gas); have performed relatively well reflecting the downward slide in t_{1e} market over the last two years (Table 6.3 and Appendix table 6.1). The bull funds have generally performed poorly during the last 5 years.

The bear ETFs performed well during a period of worldwide declining commodity prices. In particular the ETFs funds under the symbol *HND*, the natural gas bear ETFs benefited by consistent and prolonged pricing declines in the natural gas futures market due to excess supply and high inventories of that commodity.

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HOU, the crude oil bear ETFs also benefited by falling crude oil prices during the period of this study as crude oil prices fell over 50 percent from their highs of \$147 dollars barrel in July 2008 (NYMEX).

				Total	CAPM	
Commodities	Fund	Symbol	Date	Return	Return	Alpha
NYMEX Natural Gas Bear Plus	Horizon	HND	Jan-08	156.91%	0.83%	156.08%
NYMEX Crude Oil Bear Plus	Horizon	HOD	Jan-08	55.65%	-17.59%	73.24%
S&P Agribusiness N.A. Bear Plus	Horizon	HAD	Mar-08	53.70%	-8.40%	62.11%
Global Mining	Claymore	CMW	Jun-07	0.03%	7.33%	-7.30%
Oil Sands	Claymore	CLO	Oct-06	-1.31%	9.61%	-10.92%
Global Agriculture	Claymore	COW	Dec-07	-7.92%	5.36%	-13.28%
Global Water (S&P 500)	Claymore	CWW	Jun-07	-11.48%	5.74%	-17.22%
S&P Agribusiness N.A. Bull Plus	Horizon	HAU	Mar-08	-25.27%	11.20%	-36.47%
S&P/TSX Global Base Metals Bull Plus	Horizon	HMU	Jun-08	-28.23%	13.30%	-41.53%
S&P/TSX Global Base Metals Bear Plus	Horizon	HMD	Jun-08	-53.09%	-6.11%	-46.98%
NYMEX Crude Oil Bull Plus	Horizon	HOU	Jan-08	-81.00%	15.92%	-96.92%
GAS Commodity	Claymore	GAS	Feb-08	-126.48%	-1.59%	-124.89%
NYMEX Natural Gas Bull Plus	Horizon	HNU	Jan-08	-159.37%	1.50%	-160.87%

Table 6.3 Commodity ETFs

In terms of performance, five out the seven worst-performing commodity ETFs employed double leverage or double leverage inverse strategies. The bottom two performers were benchmarked against natural gas. These results indicate highrisk investment funds especially commodity funds do not perform over the medium term (over a 5 year period). They could however represent a good choice for shortterm investments and carry substantial risks over a longer investment horizon.

Section 6.3: Risk-Reward Canadian ETFs Overall Performance

The empirical results presented in chapter 6.2 identified international and emerging market ETFs as the asset class which generated the highest excess returns. These asset classes also possess higher market risk. When one evaluates these funds in terms of risk-reward, the rankings are quite different (Table 6.3). The Canadian and U.S Equity ETFs had the highest Treynor ratio's (Table 6.3). In this category, NASDAQ Bull ETFs (Symbol *HQU*) had the highest Treynor ratio.

Asset Class	Total Return	Alpha (Excess Returns)	Treynor Ratio
Canadian & US Broad Equity	5.79%	2.43%	0.11
Currency \$US Hedged	-21.2%	-22.97%	0.09
Canadian Sector Funds	-2.62%	-8.00%	0.06
International/Emerging Markets	9.84%	3.21%	0.01
Alternative Investments	1.05%	-2.80%	-0.02
Gold & Precious Metals	-8.22%	-11.10%	-1.01
Commodities	-17.53%	-20.38%	-1.13
Fixed Income	1.64%	0.58%	-2.05

	Table 6.	4	Trevnor	Ratio	Rankings	of	Canadian	ETFS	bv	Asset	Class
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According to the Treynor ratio, thirty-two or 43 percent of the ETFs generated a positive Treynor Ratio. *XEN* generated the highest ratio of 4.10, while *CEW* generated the lowest value. Two ETFs in the study *CDZ & XIT* generated a zero Treynor Ratio.

According to the data, forty one or 55 percent of the ETFs studied generated negative Treynor ratios. This indicates, investors were not properly rewarded for the risk taken to invest in these particular ETFs. Most of the negative returns did not drift from zero. Two ETFs, *HND & HNU* both of which track the NYMEX Natural Gas Market generated the least return for the risk taken.

Section 6.4 – Conclusions

The empirical results presented in the preceding paragraphs provides interesting contrast about the performance (excess returns) of Canadian ETFs over a 5 year period. During the 5-year period of study, the terminal years (2007 to 2009) witnessed collapse of the stock market due to the financial crisis and the initial few years (2004 to 2007) represent a bull market. In that sense, the present study presents a balanced assessment of risk-reward of Canadian ETFs without being unduly influenced by only one phase of the business cycle. The ETFs performing well over 5 year period were international funds especially emerging market funds which witnessed high growth rates in the last decade (especially BRIC countries). The currency-hedged funds also performed relatively well reflecting the role of exchange rates in impacting the returns of cross-border investments. Commodity ETFs have generally shown mixed results: the bear commodity ETFs (reflecting the macroeconomic performance) have generally done well as compared to bull commodity ETFs. The performance of commodity ETFs brings into focus the importance of aligning the macro-economic indicators into investment portfolio decisions.

In terms of risk-reward, the results are somewhat different. The international and emerging market ETFs performed well in terms of positive and high alphas (excess returns) also had relatively high risks. In terms of risk-reward, the Canadian and US broad equity ETFs performed well (Treynor ratio of 0.11) while the fixed income ETFs had the lowest Treynor ratio (-2.05). In terms of ranking, the currencyhedged ETFs funds performed relatively better than Canadian sector ETFs. The international and emerging market funds while displaying positive Treynor ratio's (risk-reward) demonstrated relatively modest performance.

Chapter 7

Conclusion

Exchange Traded funds are the fastest growing investment product in capital markets today. ETFs closely track the performance of an index, sector, or region and offer the benefits of diversification and index tracking at a low cost. The total dollars deployed in ETFs is approaching US\$700 billion globally which is nearly 15 per cent of \$4.5 trillion held in traditional equity mutual funds. This study examines the risk-reward of 74 Canadian sponsored ETFs across the three major sponsors representing nearly \$29 Billion in assets under management. These account for nearly 14 per cent of trading in Toronto Stock Exchange.

In modern finance the notion of risk is central to security analysis and portfolio selection. These risks are broadly classified as: *Systematic* (market risk) and *Non Systematic* (business specific risk). Systematic risk is attributable to broad macro-factors such as national income, employment, inflation and exchange rates. Non-Systematic risk factors effect individual securities or specific industries. The non-systematic component of risk can be managed through a well-diversified portfolio. It is the systematic risk which requires pricing. The most widely used indicators of systematic risks are (1) Standard Deviation (2) Beta (3) R-square (4) Alpha (5) Sharpe Ratio and the (6) Treynor Ratio.

This study is based on the monthly data of 74 Canadian ETFs for the last 5 years (September 2004 to August 2009). The data relates to ETFs prices on a monthly basis and corresponding benchmark index such as the S&P 500 which is a

broad based market index. The returns on individual ETFs were generated from corresponding price data. For the purposes of this study, the top three Canadian investment firms offering ETFs products were chosen.

We adopt the methodological framework of CAPM for risk-reward analysis. The CAPM framework is used to derive the risk of each ETF and to calculate alpha (α) – the excess return of each ETFs. The market risk of each ETF was calculated using the single index model (SIM). The excess return (α) is generated from the fundamental CAPM equation (Ri -Rf = β [E(Rm) – Rf].

The empirical results presented in the preceding paragraphs provides interesting contrast about the performance (excess returns) of Canadian ETFs over a 5 year period. During the 5-year period of study, the terminal years (2007 to 2009) witnessed collapse of the stock market due to the financial crisis and the initial few years (2004 to 2007) represent a bull market. In that sense, the present study presents a balanced assessment of risk-reward of Canadian ETFs without being unduly influenced by only one phase of the business cycle. The best performing ETFs over the 5 year period were international funds especially emerging market funds which witnessed high growth rates in the last decade (especially BRIC countries). The currency-hedged funds also performed relatively better reflecting the role of exchange rates in impacting the returns of cross-border investments. Commodity ETFs have generally shown mixed results: the bear commodity ETFs (reflecting the macro-economic performance) have generally done well as compared to bull commodity ETFs. The performance of commodity ETFs brings into focus the importance of aligning the macro-economic indicators into investment portfolio decisions.

In terms of risk-reward, the results are somewhat different. The international and emerging market ETFs performed well in terms of positive and high alphas (excess returns) but also had relatively high risks. In terms of risk-reward, the Canadian and US broad equity ETFs funds performed well (Treynor ratio of 0.11) while the fixed income ETFs had the lowest Treynor ratio (-2.05). In terms of ranking, the currency-hedged ETFs performed relatively better than Canadian sector ETFs. The international and emerging market funds displaying positive Treynor ratios (risk-reward) were the ETFs with relatively modest performance.

The concept of risk-reward is one aspect of the evaluation of ETFs. It would be interesting to examine its performance (risk-reward) in terms of other competing funds like mutual funds, index funds. Similarly, the performance of these funds (ETFs, mutual and index funds) in terms of their cost – management expense ratio's (MER) is another area worth examining. These issues require further extension of the study.

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Appendix 4.1: Fund Sponsor and Inception Date

Fixed Income	Fund Manager	Symbol	Inception Date
1-5 Year Laddered Government	Claymore	CLF	Jan-08
CDN Bond Index	IShares	XBB	Nov-00
CDN Corporate Bond Index	IShares	XCB	Nov-06
CDN Government Bond Index	IShares	XGB	Nov-06
CDN DEX Short Term Bond Index	IShares	XSB	Nov-00
CDN Long Term Bond Index	IShares	XLB	Nov-06
CDN Real Return Bond	IShares	XRB	Dec-05
Premium Money Market	Claymore	CMR	Feb-08
US 30 Year Bond Bear Plus	Horizon	HTD	Jun-08
Canadian & US Broad Equity	Fund		Inception
	Manager	Symbol	Date
NASDAQ 100 Bull Plus ETFS	Horizon	HQU	Jun-08
S&P 500 Bull Plus ETFS	Horizon	HSU	May-01
S&P/TSX 60	IShares	XIU	Sep-99
S&P/TSX Completion Index	IShares	XMD	Mar-01
RAFI Core Canada	Claymore	CRQ	Feb-06
CDN S&P/TSX Hedged to CDN \$	IShares	XSP	May-01
S&P 500 Bear Plus	Horizon	HSD	Jun-08
NASDAQ 100 Bear Plus	Horizon	HQD	Jun-08
RAFI Core \$US Hedged CDN	Claymore	CLU	Sep-06
S&P/TSX 60 Bull Plus ETFS	Horizon	HXU	Jan-07
CDN Russell 2000 Hedged to CDN \$	IShares	XSU	May-07
S&P/TSX 60 Bear Plus	Horizon	HXD	Jan-07
S&P/TSX Small Cap Index	IShares	XCS	May-07
Canadian Sector Funds	Fund		Inception
	Manager	Symbol	Date
S&P/TSX Capped Materials Fund	IShares	XMA	Dec-05
S&P/TSX Capped Energy Index	IShares	XEG	Mar-01
S&P/TSX Capped Composite Index	IShares	XIC	Feb-01
S&P/TSX Capped Financials Index	IShares	XFN	Mar-01
S&P/TSX REIT Index	IShares	XRE	Oct-02
S&P/TSX Income Trust Fund	IShares	XTR	Dec-05
S&P/TSX Capped Information Technology Fund	IShares	XIT	Mar-01
S&P/TSX Capped Financials Bear Plus	Horizon	HFD	Jun-07
S&P/TSX Capped Financials Bull Plus ETFS	Horizon	HFU	Jun-07
S&P/TSX Capped Energy Bull Plus ETFS	Horizon	HEU	Jun-07
S&P/TSX Capped Energy Bear Plus	Horizon	HED	Jun-07

International & Emerging	Fund	1	Inception
Markets	Manager	Symbol	Date
MSCI Emerging Markets Bull Plus	Horizon	HJU	Jul-08
Global Real Estate	Claymore	CGR	Aug-08
Global Completion Portfolio Builder	IShares	XGC	Nov-08
BRIC Hedged CDN	Claymore	CBQ	Sep-06
Global Infrastructure	Claymore	CIF	Aug-08
CDN MSCI EAFE Hedged to CDN \$	IShares	XIN	Sep-01
RAFI Core International	Claymore	CIE	Feb-07
RAFI Core Japan Hedged CDN	Claymore	CJP	Feb-07
MSCI Emerging Markets Bear Plus	Horizon	HJD	Jul-08
Currency Hedged	Fund		Inception
	Manager	Symbol	Date
US Dollar US Bear Plus ETFS	Horizon	HDD	Jun-08
US Dollar US Bull Plus ETFS	Horizon	HDU	Jun-08
	Fund		Inception
Commodities	Manager	Symbol	Date
NYMEX Natural Gas Bear Plus	Horizon	HND	Jan-08
NYMEX Crude Oil Bear Plus	Horizon	HOD	Jan-08
S&P Agribusiness N.A. Bear Plus	Horizon	HAD	Mar-08
Global Mining	Claymore	CMW	Jun-07
Oil Sands	Claymore	CLO	Oct-06
Global Agriculture	Claymore	COW	Dec-07
Global Water (S&P 500)	Claymore	CWW	Jun-07
S&P Agribusiness N.A. Bull Plus	Horizon	HAU	Mar-08
S&P/TSX Global Base Metals Bull Plus	Horizon	HMU	Jun-08
S&P/TSX Global Base Metals Bear Plus	Horizon	HMD	Jun-08
NYMEX Crude Oil Bull Plus	Horizon	HOU	Jan-08
GAS Commodity	Claymore	GAS	Feb-08
NYMEX Natural Gas Bull Plus	Horizon	HNU	Jan-08
	Fund		Inception
Gold & Precious Metals	Manager	Symbol	Date
Comex Gold Trust	IShares	IGT	Jun-07
S&P/TSX Global Gold Bull Plus	Horizon	HGU	Jun-07
CDN S&P/TSX Global Gold Index	IShares	XGD	Mar-01
COMEX Gold Bullion Bull Plus	Horizon	HBU	Jan-08
COMEX Gold Bullion Bear Plus	Horizon	HBD	Jan-08
S&P/TSX Global Gold Bear Plus	Horizon	HGD	Dec-05
	Fund		Inception
Alternative Investment Strategy	Manager	Symbol	Date
Growth Core Portfolio Builder	IShares	XGR	Nov-08
Preferred Share	Claymore	CPD	Apr-07

Conservative Core Portfolio Builder	IShares	XCR	Nov-08
CDN Dow Jones Growth Index	IShares	XCG	Nov-06
CDN Dow Jones Dividend Index	IShares	XDV	Dec-05
CDN Dow Jones Value Index	IShares	XCV	Nov-06
Canadian Dividend	Claymore	CDZ	Sep-06
Income Balanced	Claymore	CBD	Jun-07
CDN Jantzi Social Index	IShares	XEN	May-07
Growth Balanced	Claymore	CBN	Jun-07
Monthly Advantaged Hedged	Claymore	CYH	Jan-08

Appendix 5.1: ETF Symbols

Benchmark Index	Symbol
S&P/TSX 60 Bull Plus	HXU
S&P/TSX Capped Financials Bull Plus	HFU
S&P/TSX Capped Energy Bull Plus	HEU
S&P/TSX Global Gold Bull Plus	HGU
S&P/TSX Global Base Metals Bull Plus	HMU
COMEX Gold Bullion Bull Plus	HBU
NYMEX Crude Oil Bull Plus	HOU
NYMEX Natural Gas Bull Plus	HNU
S&P Agribusiness N.A. Bull Plus	HAU
S&P 500 Bull Plus	HSU
NASDAQ 100 Bull Plus	HQU
US Dollar US Bull Plus	HDU
MSCI Emerging Markets Bull Plus	HJU
Benchmark Index	Symbol
S&P/TSX 60 Bear Plus	HXD
S&P/TSX Capped Financials Bear Plus	HFD
S&P/TSX Capped Energy Bear Plus	HED
S&P/TSX Global Gold Bear Plus	HGD
S&P/TSX Global Base Metal Bear Plus	HMD
COMEX Gold Bullion Bear Plus	HBD
NYMEX Crude Oil Bear Plus	HOD
NYMEX Natural Gas Bear Plus	HND
S&P Agribusiness N.A. Bear Plus	HAD
S&P 500 Bear Plus	HSD
NASDAQ 100 Bear Plus	HQD
US Dollar US Bear Plus	HDD
MSCI Emerging Markets Bear Plus	HJD
Benchmark index	Symbol
RAFI Core Canada	CRQ
RAFI Core \$US Hedged CDN	CLU
RAFI Core International	CIE
RAFI Core Japan Hedged CDN	CJP
Global Real Estate	CGR
Global Infrastructure	CIF
Global Mining	CMW
Global Agriculture	COW
Global Water (S&P 500)	CWW

Oil Sands	CLO
Equal Weight Balance	CEW
BRIC Hedged CDN	CBQ
Canadian Dividend	CDZ
Monthly Advantaged Hedged	CYH
Preferred Share	CPD
1-5 Year Laddered Government	CLF
Premium Money Market	CMR
Income Balanced	CBD
Growth Balanced	CBN
GAS Commodity	GAS
Canadian Equity Benchmark Index	Symbol
S&P/TSX 60	XIU
S&P/TSX Capped Composite Index	XIC
S&P/TSX Completion Index	XMD
S&P/TSX Small Cap Index	XCS
S&P/TSX Capped Energy Index	XEG
S&P/TSX Capped Financials Index	XFN
S&P/TSX Capped Information Technology Fund	XIT
S&P/TSX REIT Index	XRE
S&P/TSX Capped Materials Fund	XMA
S&P/TSX Income Trust Fund	XTR
Canadian Dow Jones Dividend Index	XDV
Canadian Dow Jones Growth Index	XCG
Canadian Dow Jones Value Index	XCV
Canadian Jantzi Social Index	XEN
Fixed Income Benchmark Index	Symbol
Canadian DEX Short Term Bond Index	XSB
Canadian Bond Index	XBB
Canadian Real Return Bond	XRB
Canadian Long Term Bond Index	XLB
Canadian Corporate Bond Index	XCB
Canadian Government Bond Index	XGB
Alternative Benchmark Index	Symbol
Canadian S&P/TSX Global Gold Index	XGD
Canadian S&P/TSX Hedged to CDN \$	XSP
Canadian Russell 2000 Hedged to CDN \$	XSU
Canadian MSCI EAFE Hedged to CDN \$	XIN
Conservative Core Portfolio Builder	XCR
Growth Core Portfolio Builder	XGR
Global Completion Portfolio Builder	XGC
Comex Gold Trust	IGT

	Category	Symbol	Total Return	Expected Return (CAPM)	Alpha
Α.	Fixed Income ETF	5			
	1-5 Year Laddered Government	CLF	5.16%	1.48%	3.68%
	CDN Bond Index	XBB	5.05%	1.09%	3.96%
	CDN Corporate Bond Index	ХСВ	4.76%	1.32%	3.44%
	CDN Government Bond Index	XGB	4.64%	0.92%	3.72%
	CDN DEX Short Term Bond Index	XSB	4.45%	1.40%	3.05%
	CDN Long Term Bond Index	XLB	3.75%	0.99%	2.77%
	Preferred Share	CPD	2.83%	4.06%	-1.22%
	CDN Real Return Bond	XRB	2.42%	0.86%	1.56%
	Premium Money Market	CMR	1.73%	1.46%	0.27%
	US 30 Year Bond Bear Plus	HTD	-17.20%	0.07%	-17.27%
	Average		1.76%	1.37%	0.40%
	B. Canadian & US	Broad Equity	ETFs		
	NASDAQ 100 Bull Plus ETFS	HQU	87.27%	11.27%	75.99%
	S&P 500 Bull Plus ETFS	HSU	39.78%	14.04%	25.73%
	S&P/TSX 60	XIU	9.94%	7.11%	2.83%
	S&P/TSX Completion Index	XMD	5.83%	7.33%	-1.51%
	RAFI Core Canada	CRQ	4.20%	7.32%	-3.13%
	CDN S&P/TSX Hedged to CDN \$	XSP	-1.83%	8.03%	-9.85%
	S&P 500 Bear Plus	HSD	-3.34%	-10.32%	6.98%
	NASDAQ 100 Bear Plus	HQD	-7.56%	-10.26%	2.70%

Appendix 6.1: Performance Analysis: Asset Class

RAFI Core \$US Hedged CDN	CLU	-7.82%	8.90%	-16.72%
S&P/TSX 60 Bull Plus ETFS	HXU	-9.85%	12.82%	-22.68%
CDN Russell 2000 Hedged to CDN \$	XSU	-12.73%	0.15%	-12.88%
S&P/TSX 60 Bear Plus	HXD	-12.73%	-8.09%	8.09%
S&P/TSX Small Cap Index	XCS	-15.95%	8.10%	-24.05%
Average		5.79%	4.34%	2.43%

C. Currency Hedged ETFs

US Dollar US Bear Plus ETFS	HDD	-14.5%	-3.94%	23.97%
US Dollar US Bull Plus ETFS	HDU	-27.9%	7.51%	21.97%
Average		-21.2%	1.78%	22.97%

D. International & Emerging Markets ETFs

MSCI Emerging Markets Bull Plus	HJU	158.91%	16.25%	142.66%
Global Real Estate	CGR	27.02%	7.38%	19.64%
Global Completion Portfolio Builder	XGC	21.97%	0.78%	21.19%
BRIC Hedged CDN	CBQ	18.05%	11.66%	6.38%
Global Infrastructure	CIF	6.45%	6.21%	-0.24%
CDN MSCI EAFE Hedged to CDN \$	XIN	0.72%	7.69%	-6.97%
RAFI Core International	CIE	-7.45%	6.66%	14.11%
RAFI Core Japan Hedged CDN	CJP	-23.18%	7.80%	-30.98%
MSCI Emerging Markets Bear Plus	HJD	-113.89%	-4.73%	-109.16%
Average		9.84%	6.63%	3.21%
E. Commodity ETFs				
NYMEX Natural Gas Bear Plus	HND	156.91%	0.83%	156.08%
NYMEX Crude Oil Bear Plus	HOD	55.65%	-17.59%	73.24%
S&P Agribusiness N.A. Bear Plus	HAD	53.70%	-8.40%	62.11%

Global Mining	CMW	0.03%	7.33%	-7.30%
Oil Sands	CLO	-1.31%	9.61%	-10.92%
Global Agriculture	COW	-7.92%	5.36%	-13.28%
Global Water (S&P 500)	CWW	-11.48%	5.74%	-17.22%
S&P Agribusiness N.A. Bull Plus	HAU	-25.27%	11.20%	-36.47%
S&P/TSX Global Base Metals Bull Plus	HMU	-28.23%	13.30%	-41.53%
S&P/TSX Global Base Metals Bear Plus	HMD	-53.09%	-6.11%	-46.98%
NYMEX Crude Oil Bull Plus	HOU	-81.00%	15.92%	-96.92%
GAS Commodity	GAS	-126.48%	-1.59%	-124.89%
NYMEX Natural Gas Bull Plus	HNU	-159.37%	1.50%	-160.87%
Average		-17.53%	2.85%	-20.38%

F. Gold and Precious Metals ETFs

Comex Gold Trust	IGT	16.89%	1.33%	15.55%
S&P/TSX Global Gold Bull Plus	HGU	16.62%	4.76%	11.86%
CDN S&P/TSX Global Gold Index	XGD	14.28%	2.94%	11.33%
COMEX Gold Bullion Bull Plus	HBU	-1.61%	1.92%	-3.53%
COMEX Gold Bullion Bear Plus	HBD	-11.41%	0.52%	-11.93%
S&P/TSX Global Gold Bear Plus	HGD	-84.09%	5.78%	-89.87%
Average		-8.22%	2.88%	-11.10%

G. Alternative Investment Strategy ETFs

Growth Core Portfolio Builder	XGR	20.85%	0.87%	19.98%
Conservative Core Portfolio Builder	XCR	13.40%	1.05%	12.35%
CDN Dow Jones Growth Index	XCG	2.29%	1.35%	0.94%
CDN Dow Jones Dividend Index	XDV	2.04%	2.47%	-0.43%
CDN Dow Jones Value Index	XCV	1.29%	2.38%	-1.10%

Canadian Dividend	CDZ	1.14%	7.41%	-6.27%
Income Balanced	CBD	-1.32%	4.83%	-6.14%
CDN Jantzi Social Index	XEN	-5.63%	1.39%	-7.02%
Growth Balanced	CBN	-12.08%	6.36%	-18.44%
Monthly Advantaged Hedged	СҮН	-13.26%	10.15%	-23.40%
Average		0.87%	3.82%	-2.95%

Appendix 6.2: Treynor Ratio of Various Canadian ETFs

	Fund			Total	Treynor
Category	Manager	Symbol	Date	Return	Ratio
		Fixed I	ncome		
1-5 Year Laddered Government	Claymore	CLF	Jan-08	5.16%	-14.50
CDN Bond Index	IShares	XBB	Nov-00	5.05%	-0.56
CDN Corporate Bond Index	IShares	ХСВ	Nov-06	4.76%	-1.17
CDN Government Bond Index	IShares	XGB	Nov-06	4.64%	-0.35
CDN DEX Short Term Bond Index	IShares	XSB	Nov-00	4.45%	-2.00
CDN Long Term Bond Index	IShares	XLB	Nov-06	3.75%	-0.29
CDN Real Return Bond	IShares	XRB	Dec-05	2.42%	-0.09
Premium Money Market	Claymore	CMR	Føb-08	1.73%	-0.36
US 30 Year Bond Bear Plus	Horizon	HTD	Jun-08	-17.20%	0.85
Average				1.64%	-2.05

Canadian & US Broad Equity

NASDAQ 100 Bull Plus ETFS	Horizon	HQU	Jun-08	87.27%	0.57
S&P 500 Bull Plus ETFS	Horizon	HSU	May-01	39.78%	0.20
S&P/TSX 60	IShares	XIU	Sep-99	9.94%	0.10
S&P/TSX Completion Index	IShares	XMD	Mar-01	5.83%	0.05
RAFI Core Canada	Claymore	CRQ	Feb-06	4.20%	0.03
CDN S&P/TSX Hedged to CDN \$	IShares	XSP	May-01	-1.83%	-0.10
S&P 500 Bear Plus	Horizon	HSD	Jun-08	-3.34%	0.03
NASDAQ 100 Bear Plus	Horizon	HQD	Jun-08	-7.56%	0.05
RAFI Core \$US Hedged CDN	Claymore	CLU	Sep-06	-7.82%	-0.08
S&P/TSX 60 Bull Plus ETFS	Horizon	HXU	Jan-07	-9.85%	-0.07
CDN Russell 2000 Hedged to CDN \$	IShares	XSU	May-07	-12.73%	0.69
S&P/TSX 60 Bear Plus	Horizon	HXD	Jan-07	-12.73%	0.06
S&P/TSX Small Cap Index	IShares	XCS	May-07	-15.95%	-0.17
Average				5.79%	0.10

Canadian Sector Funds

S&P/TSX Capped Materials Fund	IShares	XMA	Dec-05	17.17%	0.22	
S&P/TSX Capped Energy Index	IShares	XEG	Mar-01	13.23%	0.12	
S&P/TSX Capped Composite Index	IShares	XIC	Feb-01	8.98%	0.09	
S&P/TSX Capped Financials Index	IShares	XFN	Mar-01	8.66%	0.07	
S&P/TSX REIT Index	IShares	XRE	Oct-02	7.28%	0.06	
S&P/TSX Income Trust Fund	IShares	XTR	Dec-05	1.18%	-0.02	
S&P/TSX Capped Information Technology Fund	IShares	XIT	Mar-01	1.10%	0.00	
S&P/TSX Capped Financials Bear Plus	Horizon	HFD	Jun-07	-15.29%	0.09	
S&P/TSX Capped Financials Bull Plus ETFS	Horizon	HFU	Jun-07	-15.77%	-0.08	
S&P/TSX Capped Energy Bull Plus ETFS	Horizon	HEU	Jun-07	-24.63%	-0.13	
S&P/TSX Capped Energy Bear Plus	Horizon	HED	Jun-07	-30.74%	0.25	
Average				-2.62%	0.06	
A. International & Emerging Market ETFs						
~	meenanoi		ging mai	RELETIS		
MSCI Emerging Markets Bull Plus	Horizon	HJU	Jul-08	158.91%	0.69	
MSCI Emerging Markets Bull Plus Global Real Estate	Horizon Claymore	HJU DGR	Jul-08 Aug-08	158.91% 27.02%	0.69 0.28	
MSCI Emerging Markets Bull Plus Global Real Estate Global Completion Portfolio Builder	Horizon Claymore IShares	HJU DGR KGC	Jul-08 Aug-08 Nov-08	158.91% 27.02% 21.97%	0.69 0.28 -1.85	
MSCI Emerging Markets Bull Plus Global Real Estate Global Completion Portfolio Builder BRIC Hedged CDN	Horizon Claymore IShares Claymore	HJU DGR KGC DBQ	Jul-08 Aug-08 Nov-08 Sep-06	158.91% 27.02% 21.97% 18.05%	0.69 0.28 -1.85 0.11	
MSCI Emerging Markets Bull Plus Global Real Estate Global Completion Portfolio Builder BRIC Hedged CDN Global Infrastructure	Horizon Claymore IShares Claymore Claymore	HJU DGR KGC DBQ CIF	Jul-08 Aug-08 Nov-08 Sep-06 Aug-08	158.91% 27.02% 21.97% 18.05% 6.45%	0.69 0.28 -1.85 0.11 0.07	
MSCI Emerging Markets Bull Plus Global Real Estate Global Completion Portfolio Builder BRIC Hedged CDN Global Infrastructure CDN MSCI EAFE Hedged to CDN \$	Horizon Claymore IShares Claymore Claymore IShares	+JU DGR KGC DBQ CIF XIN	Jul-08 Aug-08 Nov-08 Sep-06 Aug-08 Sep-01	158.91% 27.02% 21.97% 18.05% 6.45% 0.72%	0.69 0.28 -1.85 0.11 0.07 -0.01	
MSCI Emerging Markets Bull Plus Global Real Estate Global Completion Portfolio Builder BRIC Hedged CDN Global Infrastructure CDN MSCI EAFE Hedged to CDN \$ RAFI Core International	Horizon Claymore IShares Claymore Claymore IShares Claymore	+JU DGR KGC DBQ CIF XIN CIE	Jul-08 Aug-08 Nov-08 Sep-06 Aug-08 Sep-01 Feb-07	158.91% 27.02% 21.97% 18.05% 6.45% 0.72% -7.45%	0.69 0.28 -1.85 0.11 0.07 -0.01 -0.11	
MSCI Emerging Markets Bull Plus Global Real Estate Global Completion Portfolio Builder BRIC Hedged CDN Global Infrastructure CDN MSCI EAFE Hedged to CDN \$ RAFI Core International RAFI Core Japan Hedged CDN	Horizon Claymore IShares Claymore Claymore IShares Claymore Claymore	+JU DGR KGC DBQ CIF XIN CIE CJP	Jul-08 Aug-08 Nov-08 Sep-06 Aug-08 Sep-01 Feb-07 Feb-07	158.91% 27.02% 21.97% 18.05% 6.45% 0.72% -7.45% -23.18%	0.69 0.28 -1.85 0.11 0.07 -0.01 -0.11 -0.25	
MSCI Emerging Markets Bull Plus Global Real Estate Global Completion Portfolio Builder BRIC Hedged CDN Global Infrastructure CDN MSCI EAFE Hedged to CDN \$ RAFI Core International RAFI Core Japan Hedged CDN MSCI Emerging Markets Bear Plus	Horizon Claymore IShares Claymore Claymore IShares Claymore Claymore Horizon	+JU CGR KGC CBQ CIF XIN CIE CJP HJD	Jul-08 Aug-08 Nov-08 Sep-06 Aug-08 Sep-01 Feb-07 Feb-07 Jul-08	158.91% 27.02% 21.97% 18.05% 6.45% 0.72% -7.45% -23.18% -113.89%	0.69 0.28 -1.85 0.11 0.07 -0.01 -0.11 -0.25 1.20	
MSCI Emerging Markets Bull Plus Global Real Estate Global Completion Portfolio Builder BRIC Hedged CDN Global Infrastructure CDN MSCI EAFE Hedged to CDN \$ RAFI Core International RAFI Core Japan Hedged CDN MSCI Emerging Markets Bear Plus Average	Horizon Claymore IShares Claymore IShares Claymore Claymore Horizon	+JU CGR KGC CBQ CIF XIN CIE CJP HJD	Jul-08 Aug-08 Nov-08 Sep-06 Aug-08 Sep-01 Feb-07 Feb-07 Jul-08	158.91% 27.02% 21.97% 18.05% 6.45% 0.72% -7.45% -23.18% -113.89% 9.84%	0.69 0.28 -1.85 0.11 0.07 -0.01 -0.11 -0.25 1.20 0.01	
MSCI Emerging Markets Bull Plus Global Real Estate Global Completion Portfolio Builder BRIC Hedged CDN Global Infrastructure CDN MSCI EAFE Hedged to CDN \$ RAFI Core Japan Hedged CDN MSCI Emerging Markets Bear Plus Average	Horizon Claymore IShares Claymore IShares Claymore Claymore Horizon	HJU CGR KGC CBQ CIF XIN CIE CJP HJD	Jul-08 Aug-08 Nov-08 Sep-06 Aug-08 Sep-01 Feb-07 Feb-07 Jul-08	158.91% 27.02% 21.97% 18.05% 6.45% 0.72% -7.45% -23.18% -113.89% 9.84% S.	0.69 0.28 -1.85 0.11 0.07 -0.01 -0.11 -0.25 1.20 0.01	
MSCI Emerging Markets Bull Plus Global Real Estate Global Completion Portfolio Builder BRIC Hedged CDN Global Infrastructure CDN MSCI EAFE Hedged to CDN \$ RAFI Core International RAFI Core Japan Hedged CDN MSCI Emerging Markets Bear Plus Average	Horizon Claymore IShares Claymore IShares Claymore Claymore Horizon	HJU DGR KGC DBQ CIF XIN CIE CJP HJD	Jul-08 Aug-08 Nov-08 Sep-06 Aug-08 Sep-01 Feb-07 Feb-07 Jul-08	158.91% 27.02% 21.97% 18.05% 6.45% 0.72% -7.45% -23.18% -113.89% 9.84% S. -14.5%	0.69 0.28 -1.85 0.11 0.07 -0.01 -0.11 -0.25 1.20 0.01	
MSCI Emerging Markets Bull Plus Global Real Estate Global Completion Portfolio Builder BRIC Hedged CDN Global Infrastructure CDN MSCI EAFE Hedged to CDN \$ RAFI Core Japan Hedged CDN MSCI Emerging Markets Bear Plus Average US Dollar US Bear Plus ETFS US Dollar US Bull Plus ETFS	Horizon Claymore IShares Claymore Claymore Claymore Claymore Horizon Cuarter Cuarter Cuarter Cuarter Cuarter Cuarter	HJU DGR KGC DBQ CIF XIN CIE CJP HJD Trency Hee HDD HDU	Jul-08 Aug-08 Nov-08 Sep-06 Aug-08 Sep-01 Feb-07 Feb-07 Jul-08 dged ETF Jun-08 Jun-08	158.91% 27.02% 21.97% 18.05% 6.45% 0.72% -7.45% -23.18% -113.89% 9.84% S. -14.5% -27.9%	0.69 0.28 -1.85 0.11 0.07 -0.01 -0.11 -0.25 1.20 0.01 -0.17 0.35	

Commodities ETFs

NYMEX Natural Gas Bear Plus	Horizon	HND	Jan-08	156.91%	-15.09		
NYMEX Crude Oil Bear Plus	Horizon	HOD	Jan-08	55.65%	-0.18		
S&P Agribusiness N.A. Bear Plus	Horizon	HAD	Mar-08	53.70%	-0.34		
Global Mining	Claymore	CMW	Jun-07	0.03%	-0.02		
Oil Sands	Claymore	CLO	Oct-06	-1.31%	-0.02		
Global Agriculture	Claymore	COW	Dec-07	-7.92%	-0.16		
Global Water (S&P 500)	Claymore	CWW	Jun-07	-11.48%	-0.20		
S&P Agribusiness N.A. Bull Plus	Horizon	HAU	Mar-08	-25.27%	-0.18		
S&P/TSX Global Base Metals Bull Plus	Horizon	HMU	Jun-08	-28.23%	-0.16		
S&P/TSX Global Base Metals Bear Plus	Horizon	HMD	Jun-08	-53.09%	0.47		
NYMEX Crude Oil Bull Plus	Horizon	HOU	Jan-08	-81.00%	-0.37		
GAS Commodity	Claymore	GAS	Feb-08	-126.48%	2.69		
NYMEX Natural Gas Bull Plus	Horizon	HNU	Jan-08	-159.37%	- 174062 .78		
Average				-17.53%	-1.13		
Gold & Precious Metals ETFs							
	Gold &	Precious	Metals ETF	5			
Comex Gold Trust	Gold &		Metals ETF:	5 16 89%	-6 01		
Comex Gold Trust	Gold &	IGT	Jun-07	5 16.89% 16.62%	-6.01 0.30		
Comex Gold Trust S&P/TSX Global Gold Bull Plus	Gold & IShares Horizon	IGT HGU	Jun-07 Jun-07	5 16.89% 16.62%	-6.01 0.30		
Comex Gold Trust S&P/TSX Global Gold Bull Plus CDN S&P/TSX Global Gold Index	Gold & IShares Horizon IShares	IGT HGU XGD	Jun-07 Jun-07 Jun-07 Mar-01	5 16.89% 16.62% 14.28%	-6.01 0.30 0.58		
Comex Gold Trust S&P/TSX Global Gold Bull Plus CDN S&P/TSX Global Gold Index COMEX Gold Bullion Bull Plus	Gold & IShares Horizon IShares Horizon	IGT HGU XGD HBU	Jun-07 Jun-07 Mar-01 Jan-08	5 16.89% 16.62% 14.28% -1.61%	-6.01 0.30 0.58 -0.48		
Comex Gold Trust S&P/TSX Global Gold Bull Plus CDN S&P/TSX Global Gold Index COMEX Gold Bullion Bull Plus COMEX Gold Bullion Bear Plus	Gold & IShares Horizon IShares Horizon Horizon	IGT HGU XGD HBU HBD	Jun-07 Jun-07 Mar-01 Jan-08 Jan-08	5 16.89% 16.62% 14.28% -1.61% -11.41%	-6.01 0.30 0.58 -0.48 0.86		
Comex Gold Trust S&P/TSX Global Gold Bull Plus CDN S&P/TSX Global Gold Index COMEX Gold Bullion Bull Plus COMEX Gold Bullion Bear Plus S&P/TSX Global Gold Bear Plus	Gold & IShares Horizon IShares Horizon Horizon Horizon	IGT HGU XGD HBU HBD HGD	Jun-07 Jun-07 Mar-01 Jan-08 Jan-08 Dec-05	5 16.89% 16.62% 14.28% -1.61% -11.41% -84.09%	-6.01 0.30 0.58 -0.48 0.86 -1.30		
Comex Gold Trust S&P/TSX Global Gold Bull Plus CDN S&P/TSX Global Gold Index COMEX Gold Bullion Bull Plus COMEX Gold Bullion Bear Plus S&P/TSX Global Gold Bear Plus Average	Gold & IShares Horizon Horizon Horizon	IGT HGU XGD HBU HBD HGD	Jun-07 Jun-07 Mar-01 Jan-08 Jan-08 Dec-05	s 16.89% 16.62% 14.28% -1.61% -11.41% -84.09% -8.22%	-6.01 0.30 0.58 -0.48 0.86 -1.30 -1.01		
Comex Gold Trust S&P/TSX Global Gold Bull Plus CDN S&P/TSX Global Gold Index COMEX Gold Bullion Bull Plus COMEX Gold Bullion Bear Plus S&P/TSX Global Gold Bear Plus Average	Gold &	IGT HGU XGD HBU HBD HGD	Jun-07 Jun-07 Mar-01 Jan-08 Jan-08 Dec-05	s 16.89% 16.62% 14.28% -1.61% -11.41% -84.09% -8.22% By	-6.01 0.30 0.58 -0.48 0.86 -1.30 -1.01		
Comex Gold Trust S&P/TSX Global Gold Bull Plus CDN S&P/TSX Global Gold Index COMEX Gold Bullion Bull Plus COMEX Gold Bullion Bear Plus S&P/TSX Global Gold Bear Plus Average	Gold &	IGT HGU XGD HBU HBD HGD	Metals ETF: Jun-07 Jun-07 Mar-01 Jan-08 Jan-08 Dec-05 Dec-05	s 16.89% 16.62% 14.28% -1.61% -11.41% -84.09% -8.22% Sy 20.85%	-6.01 0.30 0.58 -0.48 0.86 -1.30 -1.01		
Comex Gold Trust S&P/TSX Global Gold Bull Plus CDN S&P/TSX Global Gold Index COMEX Gold Bullion Bull Plus COMEX Gold Bullion Bear Plus S&P/TSX Global Gold Bear Plus Average Growth Core Portfolio Builder Preferred Share	Gold &	IGT HGU XGD HBU HBD HGD XGR XGR CPD	Metals ETF: Jun-07 Jun-07 Mar-01 Jan-08 Jan-08 Dec-05 Ment Strates Nov-08 Apr-07	s 16.89% 16.62% 14.28% -1.61% -11.41% -84.09% -8.22% Sy 20.85% 2.83%	-6.01 0.30 0.58 -0.48 0.86 -1.30 -1.01 -2.00 0.03		
Comex Gold Trust S&P/TSX Global Gold Bull Plus CDN S&P/TSX Global Gold Index COMEX Gold Bullion Bull Plus COMEX Gold Bullion Bear Plus S&P/TSX Global Gold Bear Plus Average Growth Core Portfolio Builder Preferred Share Conservative Core Portfolio Builder	Gold &	IGT HGU XGD HBU HBD HGD XGR XGR CPD XCR	Jun-07 Jun-07 Jun-07 Mar-01 Jan-08 Jan-08 Dec-05 ment Strates Nov-08 Apr-07 Nov-08	s 16.89% 16.62% 14.28% -1.61% -11.41% -84.09% -8.22% 3.22% 20.85% 2.83% 13.40%	-6.01 0.30 0.58 -0.48 0.86 -1.30 -1.01 -2.00 0.03 -1.71		
Comex Gold Trust S&P/TSX Global Gold Bull Plus CDN S&P/TSX Global Gold Index COMEX Gold Bullion Bull Plus COMEX Gold Bullion Bear Plus S&P/TSX Global Gold Bear Plus Average Growth Core Portfolio Builder Preferred Share Conservative Core Portfolio Builder Conservative Core Portfolio Builder	Gold &	Precious IGT HGU XGD HBU HBD HGD XGR XGR CPD XCR XCG	Jun-07 Jun-07 Jun-07 Mar-01 Jan-08 Jan-08 Dec-05 Mov-08 Apr-07 Nov-08 Apr-07 Nov-08 Nov-08	s 16.89% 16.62% 14.28% -1.61% -11.41% -84.09% -8.22% 20.85% 2.83% 13.40% 2.29%	-6.01 0.30 0.58 -0.48 0.86 -1.30 -1.30 -2.00 0.03 -1.71 -0.33		
Comex Gold Trust S&P/TSX Global Gold Bull Plus CDN S&P/TSX Global Gold Index COMEX Gold Bullion Bull Plus COMEX Gold Bullion Bear Plus S&P/TSX Global Gold Bear Plus Average Growth Core Portfolio Builder Preferred Share Conservative Core Portfolio Builder CDN Dow Jones Growth Index CDN Dow Jones Dividend Index	Gold &	Precious IGT HGU XGD HBU HBD HGD XGR XGR CPD XCR XCG XDV	Jun-07 Jun-07 Jun-07 Mar-01 Jan-08 Jan-08 Dec-05 Mov-08 Apr-07 Nov-08 Nov-08 Nov-08 Dec-05 Dec-05	s 16.89% 16.62% 14.28% -1.61% -11.41% -84.09% -8.22% 3.22% 20.85% 2.83% 13.40% 2.29% 2.04%	-6.01 0.30 0.58 -0.48 0.86 -1.30 -1.01 -2.00 0.03 -1.71 -0.33 0.04		

Canadian Dividend	Claymore	CDZ	Sep-06	1.14%	0.00
Income Balanced	Claymore	CBD	Jun-07	-1.32%	-0.06
CDN Jantzi Social Index	IShares	XEN	May-07	-5.63%	4.10
Growth Balanced	Claymore	CBN	Jun-07	-12.08%	-0.18
Monthly Advantaged Hedged	Claymore	СҮН	Jan-08	-13.26%	-0.11
Average				1.05%	-0.02

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