



# HORIZONS ETFs | HOW LEVERAGED AND INVERSE LEVERAGED ETFs WORK

SUMMER 2017



# AGENDA

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- How Leveraged and Inverse ETFs Work
- Effects of Compounding
- Volatility and Leveraged ETFs
- Trading and Investing Strategies

# HOW HORIZONS LEVERAGED ETFs WORK

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Provide double (2x) or double inverse (-2x) exposure to the daily performance of the underlying benchmark

Key attributes of leveraged ETFs:

- Risk limited to capital invested
  - **Never lose more than principal invested versus shorting**
- RRSP, TFSA and RESP eligible
- No margin call risk – if you don't use a margin account

# UNIVERSAL EFFECTS OF COMPOUNDING ON INVESTMENT RETURNS

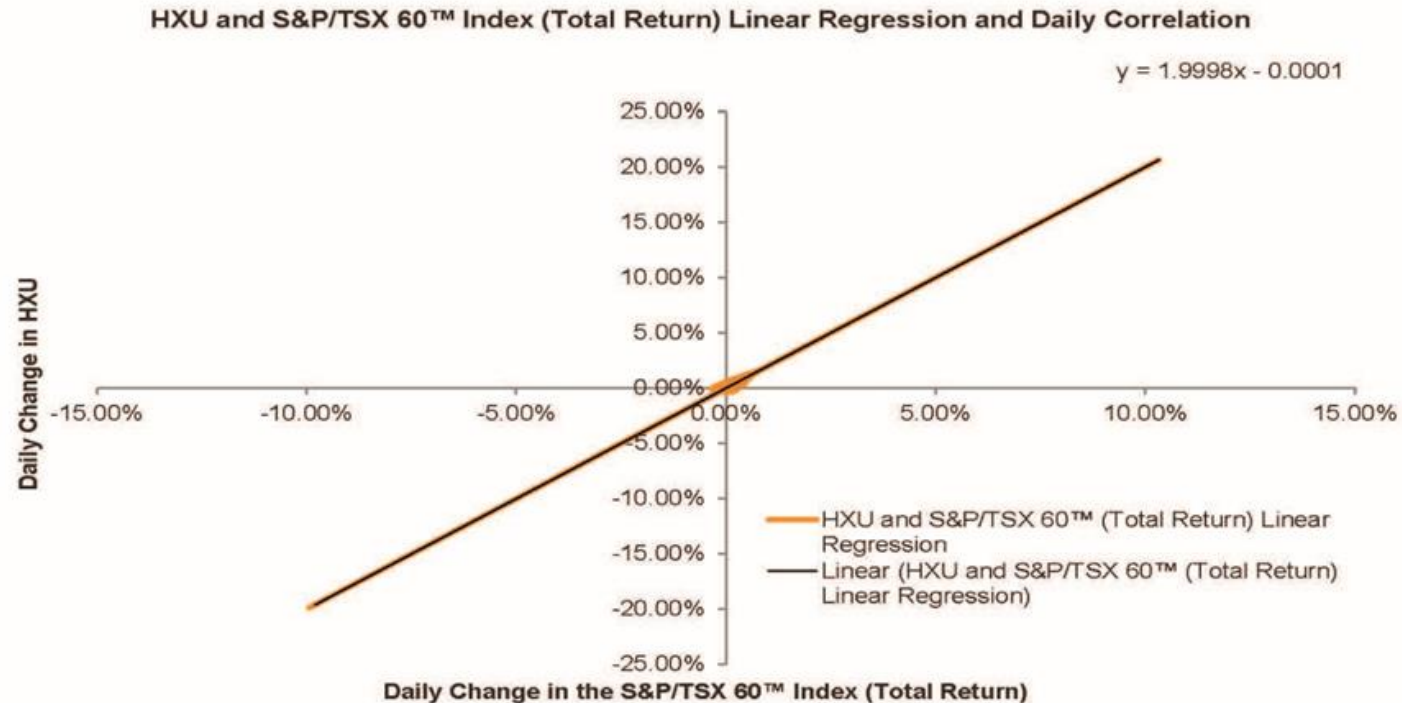
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- Compounding affects all investments over time
  - Upward-trending periods enhance returns
  - Downward-trending periods reduce losses
- Volatile periods reduce returns and may increase losses
- Positive and negative effects of compounding are magnified in leveraged and inverse funds
  - **The impact of compounding on a 2x leveraged fund is greater than 2x**
  - **Due to the compounding effect of daily resets, returns generated over more than one day could be much different than the expected returns when comparing the ETF to its underlying benchmark**



# HOW DO LEVERAGED ETFS WORK? (ILLUSTRATIVE PURPOSES ONLY)

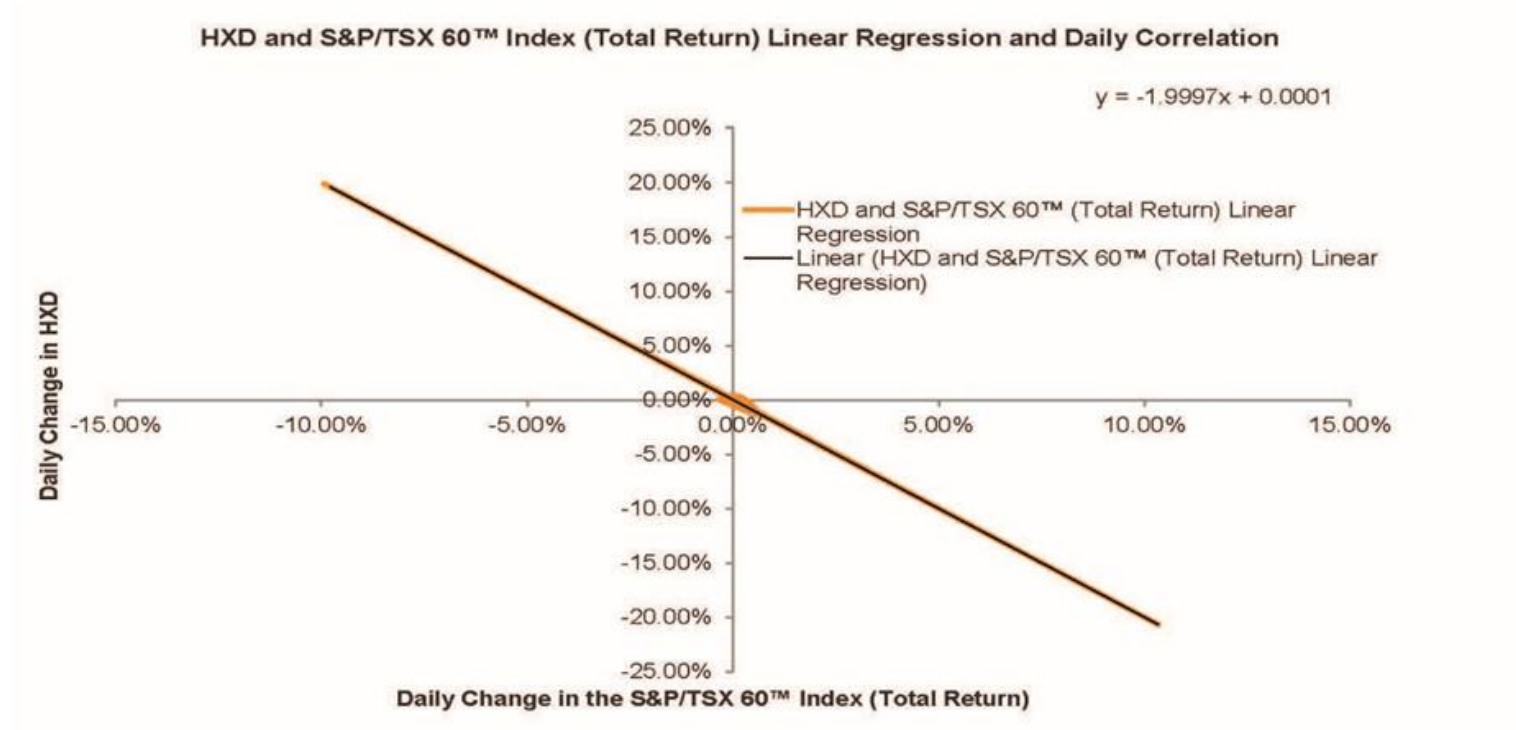
- If the underlying index of the ETF goes up 1% on a day, then the ETF should increase approximately 2% that day



**Daily Correlations:** This chart illustrates the daily performance of the BetaPro S&P/TSX 60™ 2x Daily Bull ETF (HXU) versus the S&P/TSX 60™ Index from inception (January 2007) to July 31, 2017.

# HOW DO INVERSE ETFs WORK? (ILLUSTRATIVE PURPOSES ONLY)

- If the underlying index of the inverse ETF goes down 1% on a day, the Inverse ETF should increase approximately 2% that day



**Daily Correlations:** This chart illustrates the daily performance of the BetaPro S&P/TSX 60™ -2x Daily Bear ETF (HXD) versus the S&P/TSX 60™ Index from inception (January 2007) to July 31, 2017.

# EXAMPLES OF COMPOUNDING ON AN INDEX, INVERSE AND LEVERAGED ETFS

	INDEX	-1x INVERSE ETF	-2x DAILY ETF
	Daily Return	Daily Return	Daily Return
<b>UPWARD TREND</b>			
Day 1 Return	10%	-10%	-20%
Day 2 Return	10%	-10%	-20%
Compounded 2-day Return	21%	-19%	-36%
<b>DOWNWARD TREND</b>			
Day 1 Return	-10%	10%	20%
Day 2 Return	-10%	10%	20%
Compounded 2-day Return	-19%	21%	44%
<b>VOLATILE MARKET</b>			
Day 1 Return	10%	-10%	-20%
Day 2 Return	-10%	10%	20%
Compounded 2-day Return	-1%	-1%	-4%

FOR ILLUSTRATIVE PURPOSES ONLY.  
None of the returns shown contemplate fees or expenses;  
not actual returns.





# IMPACT OF VOLATILITY ON RETURNS OF 2X DAILY BULL ETFs

Estimated return over one year when the ETF objective is to seek daily investment results, before fees and expenses and leverage costs, that correspond to twice (200%) the respective daily performance index

Index and Leveraged ETF Returns		Benchmark Volatility												
1 Year Index Performance	200%, 1 Year Index Performance	0.00%	5.00%	10.00%	15.00%	20.00%	25.00%	30.00%	35.00%	40.00%	45.00%	50.00%	55.00%	60.00%
-60%	-120%	-84.05%	-84.09%	-84.21%	-84.41%	-84.69%	-85.03%	-85.44%	-85.91%	-86.44%	-87.01%	-87.62%	-88.26%	-88.92%
-55%	-110%	-79.80%	-79.85%	-80.00%	-80.25%	-80.60%	-81.04%	-81.56%	-82.15%	-82.82%	-83.54%	-84.31%	-85.12%	-85.96%
-50%	-100%	-75.05%	-75.11%	-75.30%	-75.61%	-76.03%	-76.57%	-77.21%	-77.95%	-78.77%	-79.66%	-80.61%	-81.61%	-82.65%
-45%	-90%	-69.79%	-69.87%	-70.10%	-70.47%	-70.99%	-71.64%	-72.41%	-73.30%	-74.29%	-75.37%	-76.52%	-77.73%	-78.99%
-40%	-80%	-64.04%	-64.13%	-64.40%	-64.84%	-65.46%	-66.23%	-67.15%	-68.21%	-69.39%	-70.67%	-72.04%	-73.48%	-74.98%
-35%	-70%	-57.78%	-57.89%	-58.20%	-58.73%	-59.45%	-60.35%	-61.43%	-62.67%	-64.06%	-65.56%	-67.17%	-68.86%	-70.61%
-30%	-60%	-51.02%	-51.15%	-51.52%	-52.12%	-52.95%	-54.00%	-55.26%	-56.70%	-58.30%	-60.04%	-61.91%	-63.87%	-65.90%
-25%	-50%	-43.77%	-43.91%	-44.33%	-45.02%	-45.98%	-47.19%	-48.63%	-50.27%	-52.11%	-54.11%	-56.25%	-58.50%	-60.84%
-20%	-40%	-36.01%	-36.17%	-36.65%	-37.44%	-38.53%	-39.90%	-41.54%	-43.41%	-45.50%	-47.78%	-50.21%	-52.77%	-55.42%
-15%	-30%	-27.76%	-27.94%	-28.48%	-29.37%	-30.60%	-32.14%	-33.99%	-36.11%	-38.46%	-41.03%	-43.78%	-46.66%	-49.66%
-10%	-20%	-19.00%	-19.21%	-19.81%	-20.81%	-22.18%	-23.92%	-25.99%	-28.36%	-31.00%	-33.87%	-36.95%	-40.19%	-43.54%
-5%	-10%	-9.75%	-9.98%	-10.65%	-11.76%	-13.29%	-15.22%	-17.53%	-20.17%	-23.11%	-26.31%	-29.74%	-33.34%	-37.08%
0%	0%	0.00%	-0.25%	-1.00%	-2.22%	-3.92%	-6.06%	-8.61%	-11.53%	-14.79%	-18.34%	-22.14%	-26.13%	-30.26%
5%	10%	10.25%	9.97%	9.15%	7.80%	5.93%	3.57%	0.76%	-2.46%	-6.05%	-9.96%	-14.14%	-18.54%	-23.10%
10%	20%	21.00%	20.69%	19.79%	18.31%	16.25%	13.67%	10.59%	7.06%	3.12%	-1.17%	-5.76%	-10.59%	-15.59%
15%	30%	32.24%	31.91%	30.92%	29.30%	27.06%	24.24%	20.87%	17.01%	12.71%	8.03%	3.01%	-2.26%	-7.73%
20%	40%	43.98%	43.62%	42.55%	40.78%	38.34%	35.27%	31.61%	27.41%	22.73%	17.63%	12.17%	6.43%	0.48%
25%	50%	56.22%	55.83%	54.67%	52.75%	50.11%	46.78%	42.81%	38.25%	33.17%	27.64%	21.72%	15.50%	9.05%
30%	60%	68.95%	68.53%	67.28%	65.20%	62.35%	58.75%	54.46%	49.53%	44.04%	38.05%	31.66%	24.93%	17.95%
35%	70%	82.18%	81.73%	80.38%	78.14%	75.06%	71.19%	66.56%	61.25%	55.33%	48.88%	41.98%	34.73%	27.21%
40%	80%	95.91%	95.42%	93.97%	91.57%	88.26%	84.09%	79.11%	73.41%	67.04%	60.11%	52.70%	44.90%	36.82%
45%	90%	110.14%	109.61%	108.05%	105.48%	101.93%	97.46%	92.12%	86.00%	79.18%	71.74%	63.80%	55.44%	46.77%
50%	100%	124.85%	124.29%	122.63%	119.87%	116.08%	111.30%	105.58%	99.04%	91.74%	83.79%	75.29%	66.35%	57.08%
55%	110%	140.07%	139.47%	137.69%	134.75%	130.70%	125.60%	119.50%	112.52%	104.73%	96.25%	87.17%	77.63%	67.73%
60%	120%	155.78%	155.14%	153.24%	150.12%	145.80%	140.37%	133.87%	126.43%	118.14%	109.10%	99.44%	89.27%	78.73%

Legend	Colour
Make more than you expect or lose less than you expect	
Make less than you expect or lose more than you expect, between 0 - 20%	
Make less than you expect or lose more than you expect by more than 20%	
Chose the right direction but lost money because of volatility	

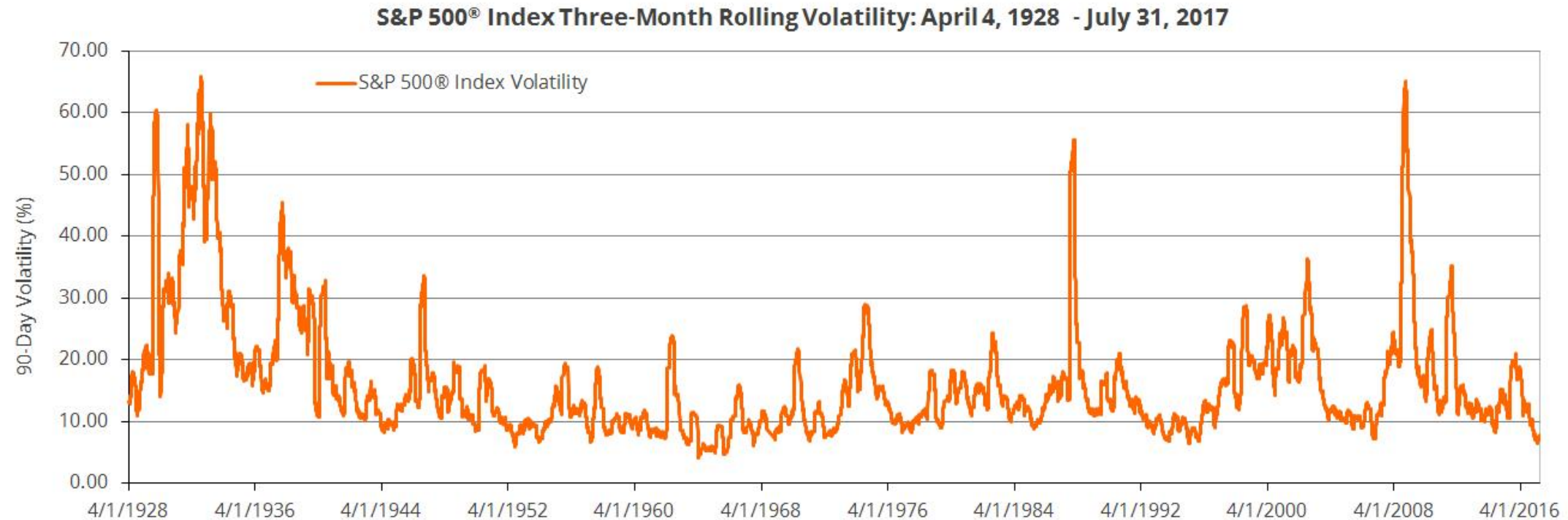
Source: Horizons ETFs.  
 Expected Returns = 200% one year index performance.  
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# LEVERAGED AND INVERSE LEVERAGED FUNDS AFFECTED BY RECORD VOLATILITY

Highest short-term volatility levels for U.S. equities in 89 years affected all investments, including leveraged funds.



Source: Bloomberg, 90-day rolling volatility based on the daily S&P 500® Index returns between April 4, 1928 and July 31, 2017.

# ANNUAL INDEX VOLATILITY 2011 – 2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
S&P/TSX 60™ Index	14.90%	41.46%	27.28%	12.92%	18.87%	12.71%	10.46%	10.36%	14.88%	12.99%
S&P/TSX Capped Financials Index™	13.22%	42.56%	37.21%	14.47%	18.13%	12.00%	9.49%	9.81%	14.67%	14.27%
S&P/TSX Capped Energy Index™	19.81%	60.22%	39.21%	18.37%	28.81%	21.02%	14.23%	24.37%	32.22%	31.55%
S&P/TSX Global Gold Index™	28.92%	80.36%	47.50%	26.53%	30.26%	29.15%	43.24%	38.49%	44.04%	46.64%
S&P 500® Index	15.95%	41.05%	27.28%	18.06%	23.40%	13.28%	11.35%	11.44%	15.59%	13.32%
Solactive Light Sweet Crude Oil Front Month MD Rolling Futures Index ER	29.78%	58.37%	52.08%	28.41%	34.86%	26.42%	18.71%	24.95%	47.23%	45.85%
Solactive Natural Gas Front Month MD Rolling Futures Index ER	44.89%	48.35%	61.60%	42.27%	32.84%	49.10%	31.44%	44.60%	44.57%	43.94%
S&P 500 VIX Short-Term Futures™ Index	63.22%	66.90%	53.77%	61.97%	79.63%	75.26%	57.17%	61.91%	78.66%	71.96%

The historical return volatility of the indices are shown for illustrative purposes only. It is not meant to forecast, imply or guarantee the future volatility of any particular investment or index, which will vary. The historical return volatility results of the Solactive indices shown are prior to their inception date (each of which was on September 30, 2014) and are hypothetical, back-tested daily total returns.

Source: Bloomberg, as at December 30, 2016.

Past volatility is not indicative of future volatility.

# LEVERAGED ETFs PERFORMANCE SUMMARY

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- Leveraged ETFs track +/-2X extremely well on a daily basis
- Over periods longer than a day, performance is market-path-dependent – focus on your economic exposure
- Directional markets are favourable for performance:
  - Earn greater than 2X, or lose less than 2X
- The greater the two-way volatility, the further performance will deviate (be worse) from +/-2X the period return



**LEVERAGED  
COMMODITY/VOLATILITY  
FUTURES ETFS**

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**HORIZONS**  
ETFs

# COMMODITY MARKET HOURS – CONFIRMING TIMES

	Open	Close
ETFs	9:30 a.m.	4:00 p.m.
NYMEX® Crude Oil	9:00 a.m.	2:30 p.m.
NYMEX® Natural Gas	9:00 a.m.	2:30 p.m.
COMEX® Gold	8:20 a.m.	1:30 p.m.
COMEX® Silver	9:00 a.m.	2:30 p.m.
VIX Futures	8:30 a.m.	4:15 p.m.



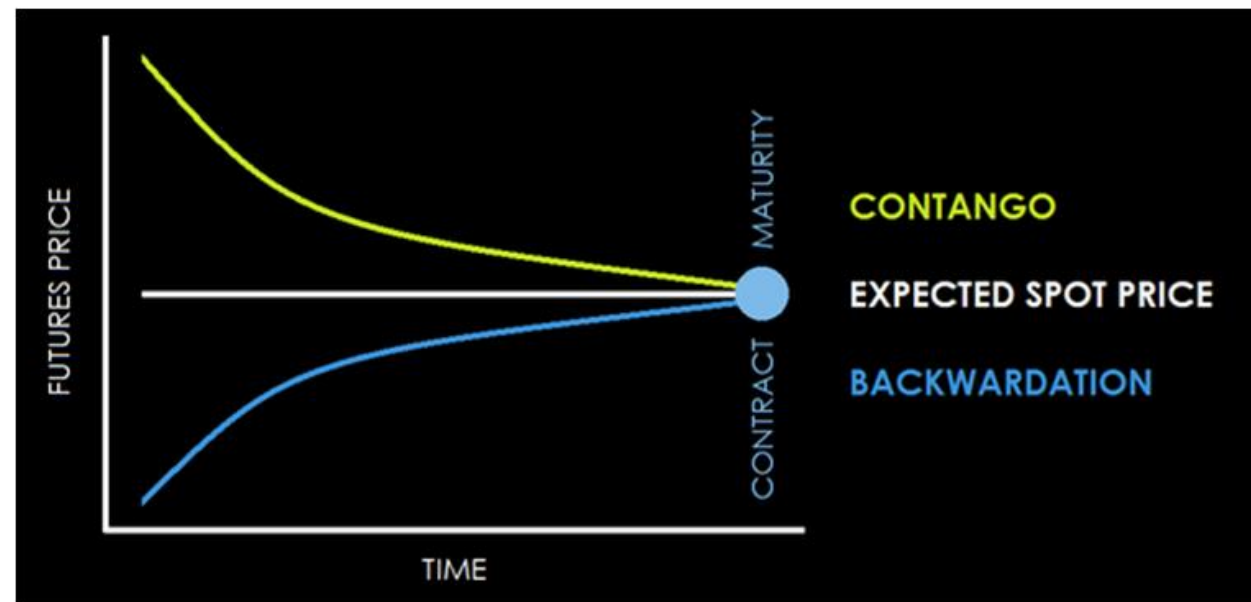
# CONTANGO/BACKWARDATION

**Contango** is when the futures price is above the expected future spot price. The value of the futures contracts will decrease as they converge with the spot price.

In order for a futures trade to be profitable during a period of contango, the spot price will have to rise higher than value of the futures contract.

**Normal backwardation** is when the futures price is below the expected future spot price. The value of the futures prices will increase as they converge with the spot price.

In backwardation, a futures trade will be profitable as long as the value of the spot price remains higher than the value of the futures contract.





# DO VOLATILITY ETFs TRACK THE VIX? NO!

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The following ETFs seek daily investment results, before fees, expenses, distributions, brokerage commissions and other transaction costs that endeavour to correspond in their stated manor to the daily performance of the S&P 500 VIX Short-Term Futures Index™:

- The BetaPro S&P 500 VIX Short-Term Futures™ ETF (HUV) is 1X the *daily* performance of the Index
- The BetaPro S&P 500 VIX Short-Term Futures™ 2X Daily Bull ETF (HVU) is 2X the *daily* performance of the Index
- The BetaPro S&P 500® VIX Short-Term Futures™ Daily Inverse ETF (HVI) is -1X the *daily* performance of the Index

In order to achieve their investment objectives, each of the ETFs will hold a combination of two monthly VIX futures contracts, which cover a rolling 60-day period. Either the ETF will hold the current month and next month contract, or the next month contract and the contract of the following month.

# TRADING AND INVESTING STRATEGIES

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Leveraged and inverse leveraged ETFs provide flexibility to an investor for:

- Low-cost Investing
  - **ETFs are a low-cost way to gain exposure to an asset class**
- Downside Protection
  - **Hedge existing long positions to dampen volatility**
- Alpha Generation
  - **Directional plays or pair trading**
- Cash Equalization
  - **Instant market exposure or part of tax-loss harvesting strategy**
- Cash-Efficient Investing
  - **Index exposure with only 50% of capital requirement**

## THINGS TO NOTE

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- Limit orders
- Stop losses
- Stay away from trading orders at the beginning and end of a trading day, as the ETF can be more volatile during that time (9:30 – 9:45 a.m. and 3:45 – 4:00 p.m.)
- Look at market depth and size of ETFs on the bid and the offer
- Determine where there is a sizeable bid or offer and that is where you can likely transact



# THE HORIZONS LEVERAGED, INVERSE AND VOLATILITY ETFs

## EQUITIES

	Single	Bull+ (+2x)	Bear+ (-2x)	Inverse (-1x)
BetaPro S&P/TSX 60™ ETFs		HXU	HXD	HIX
BetaPro S&P/TSX Capped Financials™ 2X Daily ETFs		HFU	HFD	
BetaPro S&P/TSX Capped Energy™ 2X Daily ETFs		HEU	HED	
BetaPro S&P/TSX Global Gold™ 2X Daily ETFs		HGU	HGD	
BetaPro S&P 500® Index ETFs		HSU	HSD	HIU
BetaPro NASDAQ-100® 2X Daily ETFs		HQU	HQD	

## COMMODITIES

BetaPro Gold ETFs	HUG	HBU	HBD
BetaPro Silver ETFs	HUZ	HZU	HZD
BetaPro Crude Oil ETFs	HUC	HOU	HOD
BetaPro Natural Gas ETFs	HUN	HNU	HND

## VOLATILITY

BetaPro S&P 500 VIX Short-Term Futures™ Bull+ 2X Daily ETF		HVU	
BetaPro S&P 500 VIX Short-Term Futures™ Daily Inverse ETF			HVI
BetaPro S&P 500 VIX Short-Term Futures™ 2x Daily Bull ETF	HUV		

# SUMMARY

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- Leveraged (2X) and (-2x) ETFs allow investors to increase their exposure to existing indices
- Take advantage of directional markets
- Recognize the effects of compounding and volatility
- Invest strategically and transact with care



## FUN FACT: DID YOU KNOW?

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- Horizons ETFs is the sole provider of leveraged and inverse ETFs in Canada
- Collectively, leveraged and inverse ETFs represent close to 38% of the cumulative Canadian ETF market volume\*

\*30-Day Average Daily Volume.  
Source: Bloomberg, as at March 01, 2017.





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The Horizons Exchange Traded Products consist of the Horizons Index ETFs (“Index ETFs”), 2x Daily Bull and 2x Daily Bear ETFs (“2x Daily ETFs”), Inverse ETFs (“Inverse ETFs”), VIX ETFs (defined below) and active ETFs. The 2x Daily ETFs and certain other Horizons Exchange Traded Products use leveraged investment techniques that can magnify gains and losses and may result in greater volatility of returns. These Horizons Exchange Traded Products are subject to leverage risk and may be subject to aggressive investment risk and price volatility risk, which, where applicable, are described in their respective prospectuses. Each 2x Daily ETF seeks a return, before fees and expenses, that is either 200% or -200% of the performance of a specified underlying index, commodity or benchmark (the “Target”) for a single day. Each Index ETF or Inverse ETF seeks a return that is 100% or - 100%, respectively, of the performance of a Target. Due to the compounding of daily returns, a 2x Daily ETF’s or Inverse ETF’s returns over periods other than one day will likely differ in amount and possibly direction from the performance of their respective Target(s) for the same period. The Horizons Exchange Traded Products whose Target is the S&P 500 VIX Short-Term Futures Index™ (the “VIX ETFs”), one of which is a 2x Daily ETF and one of which is an Index ETF, as described in their prospectus, are speculative investment tools that are not conventional investments. The VIX ETFs’ Target is highly volatile. As a result, the VIX ETFs are not generally viewed as stand-alone long-term investments. Historically, the VIX ETFs’ Target has tended to revert to a historical mean. As a result, the performance of the VIX ETFs’ Target is expected to be negative over the longer term and neither the VIX ETFs nor their Target are expected to have positive long term performance. **Investors should monitor their holdings, as frequently as daily, to ensure that they remain consistent with their investment strategies.**

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**HORIZONS**

EXCHANGE TRADED FUNDS

ALPHA \* BENCHMARK \* BETAPRO

**MIRAE ASSET**

**THANK YOU**