Horizons Emerging Markets Futures Roll Index

Overview

The Horizons Emerging Markets Futures Roll Index (the “Index”) is designed to measure returns that mirror the holding of the underlying equity index futures and, in doing so, represent a liquid benchmark for investors that seek exposure to the underlying equity index futures. The Index is designed to measure the performance of the underlying MSCI Emerging Markets Index Futures (MES) listed on the Intercontinental Exchange (“ICE”).

The Index has both excess return (ER) and total return (TR) versions which are calculated based on the daily returns of the Daily Contract Settlement Price published by ICE for the MSCI Emerging Markets Index Future for the Designated Relevant Contracts.

The excess return version of the Index captures the performance of the equity index futures. The total return version of the Index captures both the equity index futures return as well as a USD denominated deposit which is invested at the US Federal Funds Effective Rate.

The Index is a proprietary index owned and operated by Horizons ETFs Management (Canada) Inc. (Horizons ETFs), calculated by an arms length third party calculation agent.

Please refer to the defined terms below.

Bloomberg Code

The following indices will be tracked on a daily basis and under nornmal market conditions, are reported on Bloomberg by approximately 6:00 PM Eastern Time on each Business Day.

Index Code (Bloomberg)	Index Description	Underlying Equity Index Futures
CMDYHXEE <Index>	Horizons Emerging Markets Futures Roll Index (Excess Return)	MSCI Emerging Markets Index Future
CMDYHXEM <Index>	Horizons Emerging Markets Futures Roll Index (Total Return)	MSCI Emerging Markets Index Future

This Index is provided by Horizons ETFs and designed to reflect the returns generated over time through long notional investments in a series of MSCI Emerging Markets Index Future contracts that are in turn based on the performance of the MSCI Emerging Markets Index (Underlying Index). The MSCI Emerging Markets Index Futures are listed on the Intercontinental Exchange ("ICE").. The Underlying Index is designed to represent the performance of large and mid-cap securities across 26 emerging markets. The Underlying Index encompasses a number of regions and market segments/sizes and tracks a substantial portion of the free float-adjusted market capitalization in each of the 26 countries. As noted above, the Index is based in whole, or in part, on the MSCI Emerging Markets Index Futures listed on ICE. The MSCI Emerging Markets Index Futures data is used by Horizons ETFs with permission under license by ICE Data, LLP.

Primary and Secondary Contracts

The Index tracks MES listed on ICE. The Prompt Contract refers to the MES futures contract that is closest to expiration and is usually for delivery in the next calendar month. The Primary Contract is the contract that will be used at the beginning of each calendar month. The Index rolls from the Primary Contract into the Secondary Contract as described in the section "Index Contract Roll Period and Weights" below. The Designated Relevant Contract at the beginning of each month is as follows. For more detail, please refer to the Contract Roll Period and Weights Section below.

	MES		
Month Begin Date	**Prompt Contract**	**Primary Contract**	**Secondary Contract**
January	H	H	H
February	H	H	H
March	H	H	M
April	M	M	M
May	M	M	M
June	M	M	U
July	U	U	U
August	U	U	U
September	U	U	Z
October	Z	Z	Z
November	Z	Z	Z
December	Z	Z	H

MES Month Codes

Month	Month Code	Month	Month Code
March	H	September	U
June	M	December	Z

The Futures Contracts of the Index

Reference Financial Instrument	Currency	Bloomberg Ticker	Reference Market
MSCI Emerging Markets Contract	USD	MESA Index Generic	ICE Futures U.S.

Index Contract Roll Period and Weights

The notional portfolio of the Underlying Index is 100% invested into the Primary Contract of the MSCI Emerging Markets Index Future, and then rolled into the Secondary Contract over a four day period in each of March, June, September and December.

The roll dates for the MSCI Emerging Markets Index Futures will begin on the day that is the 6th Business Day (as defined below) prior to the last trading day of the Primary Contract on ICE and will end on the day that is the 3rd Business Day prior to the last trading day of the Primary Contract on ICE. For the purpose of the Index, a Business Day is any day in which the ICE is open and publishes a Contract Settlement Price for the Designated Relevant Contracts, a good trading day on the Toronto Stock Exchange ("TSX"), and a day where both Canadian Dollars ("CAD") and US Dollars ("USD") can settle. The determination of the appropriate Designated Relevant Contract is based on the day of the month and is based on the rules below:

Business Day prior to the last trading day of the Primary Contract on ICE	**End Of Day Contract Weight**
Day 7 or greater	100% Primary, 0% Secondary
Day 6	75% Primary, 25% Secondary
Day 5	50% Primary, 50% Secondary
Day 4	25% Primary, 75% Secondary
Day 3	0% Primary, 100% Secondary
Day 2 and for the remainder of the month	0% Primary, 100% Secondary

Market Disruption Events

From time to time, market disruption events may occur that will result in the postponement of the Index and/or the adjustment of the roll period. A Market Disruption Day will be deemed to have occurred if any of the following events occur:

i. The Daily Contract Settlement Price or Index is not published by the Exchange or index provider, respectively, by 6:00 PM, Eastern Time;

ii. The Daily Contract Settlement Price or Index price is erroneous, in the reasonable judgment of Horizons and/or the Calculation Agent, and such error is not corrected by 6:00pm, Eastern Time;

iii. The Daily Contract Settlement Price is a Limit price (as defined by the applicable Exchange);

iv. Trading in the relevant contract is disrupted during the last 30 minutes prior to the scheduled closing time (or rescheduled closing time if the contract closing time is rescheduled);

If any of these events occur on a roll date, the Index will not be posted for that Business Day AND the portion of the roll that was to take place on the Market Disruption Day will take place on the next non-Market Disruption BusinessDay. For instance, if the Market Disruption Day occurred on Day 4, the 25% portion that was to be rolled on that day will be added to the 25% roll on the following Business Day making the total roll 50% on Day 3, assuming Day 3 is not also a Market Distruption Day.

Index Calculation

<u>Excess Return Index</u>

The following explains, in detail, how the applicable index is to be calculated on a daily basis.

t	The discrete list of days for the life of the transaction, from the first day (0) to the last day (T). $t \in I \mid t \in [\ 0, 1, 2, \ldots, T\text{-}2, T\text{-}1, T\ ]$
a	The discrete list denoting a specific time-step for a generic trading day. For this Index only two time-steps are contemplated: "throughout that trading day until and including settlement" (0) and "at settlement and after for that trading day" (1). $a \in I \mid a \in [\ 0, 1\ ]$
n	The discrete list denoting the futures contract to be referenced. For this Index only the "Primary contract" (0) and the "Secondary contract" (1) are contemplated. $n \in I \mid n \in [\ 0, 1]$
m	The number of days that the futures contracts are rolled from the "Primary Contract" to the "Secondary Contract". For this Index the number of roll days contemplated is 4 days. $m \in I \mid m \in [4\ ]$
$q_n(t,a)$	The percentage of the Index explained by futures contract "n" on day "t" at timestep "a". The sum of the percentages "$q_n(t,a)$" for all "n" must equal one. As we have only two futures contracts, we can describe it thusly: <u>Before the first day of the roll period we have the following</u>: $q_0(t,0) = 1$ and $q_1(t,0) = 0$ $q_0(t,1) = 1$ and $q_1(t,1) = 0$ <u>For the first day of the roll period:</u> $q_0(t,0) = 1$ and $q_1(t,0) = 0$ $q_0(t,1) = q_0(t,0)$ less $1/m$, and $q_1(t,1) = q_1(t,0)$ plus $1/m$ <u>For each of the "m" days during the roll period:</u> $q_0(t,0) = q_0(t\text{-}1,1)$ and $q_1(t,0) = q_1(t\text{-}1,1)$ $q_0(t,1) = q_0(t,0)$ less $1/m$, and $q_1(t,1) = q_1(t,0)$ plus $1/m$ <u>On the last day of the roll period, we have the following:</u> $q_0(t,0) = q_0(t\text{-}1,1)$ and $q_1(t,0) = q_1(t\text{-}1,1)$ $q_0(t,1) = 0$ and $q_1(t,1) = 1$ <u>After the roll period has ended, we have the following for the remainder of the month:</u> $q_0(t,0) = 0$ and $q_1(t,0) = 1$ $q_0(t,1) = 0$ and $q_1(t,1) = 1$
$v_n(t,a)$	The quantity of futures that would be invested in futures contract "n" if it were solely invested in that contract. For this Index we have the following: On the first day the Index is calculated: $v_n(0,1) \in R \mid v_n(0,1) = U(0,1) / C_n(0)$; $t = 0$ On the second and all subsequent days we have the following: $v_n(t,0) \in R \mid v_n(t,0) = v_n(t\text{-}1,1)$; $t > 0$

	$v_n(t,1) \in R \mid v_n(t,1) = U(t,1) / C_n(t)$; $t > 0$ This value is rounded to 8 decimal places.
$C_n(t)$	The settlement price of the listed futures contract "n" on day "t" as observed on the market the futures contract trades on.
U(t,a)	The value of the Index on day "t" at time step "a". Please note that the value of the Index, as measured at the settlement price of the underlying contracts, is unchanged for a given day "t" for either of the two time steps to observe conservation of value. The Index is rounded to 2 decimal places.

Excess Return Index Formula

The initial conditions of the Index are as follows:

$U(0,0) = 10{,}000.00$ and $U(0,1) = 10{,}000.00$

The closing level of the Index is calculated at the settlement price of the contracts as follows:

$$U(t,0) = q_0(t,0) \times v_0(t,0) \times C_0(t) + q_1(t,0) \times v_1(t,0) \times C_1(t)$$

As we have defined above, U(t,1) = U(t,0) at settlement. Hence, we calculate the following values:

$$v_0(t,1) = U(t,1) / C_0(t)$$
$$v_1(t,1) = U(t,1) / C_1(t)$$

Using the contract roll period weights $q_0(t,1)$ and $q_1(t,1)$, we have the post-rolled Index:

$$U(t,1) = q_0(t,1) \times v_0(t,1) \times C_0(t) + q_1(t,1) \times v_1(t,1) \times C_1(t)$$

Total Return Index

The index is calculated based on the daily returns of the Excess Return Index and the US Federal Funds Effective Rate.

t	The increment of time for measurement of sequential Trading Days for purposes of this Index. The first day the Index is calculated is for t=0.
TD(t)	Trade Date "t" of the Index. Each successive Trade Date must be a good trading day on the TSX, ICE, and a day where both CAD and USD can settle.
SD(t)	The Settlement Date for Trade Date "TD(t)". This is the day that is one settlement cycle for Trade Date "t", and potentially adjusted to the next good day where (i) the ICE is open, and (ii) both CAD and USD can settle.
NTD(t)	The Next Trade Date for the Index after Trade Date "TD(t)".
NSD(t)	The Settlement Date for the Next Trade Date "NTD(t)".
CSD(t)	The Change in Settlement Days for Trade Date "TD(t)", and is equal to: NSD(t) – SD(t)
USD.DayCount	360 days
USD.FED(t)	The US Federal Funds Effective Rate for Trade Date "TD(t)".
EOD.MKT.PX(t)	The closing price of CMDYHXEE for Trade Date "TD(t)". This value is rounded to two (2) decimal places.
FP(t)	The Index value on day t. Value is rounded to two (2) decimal places and is valued in USD (US Dollars).
USD.FUND(t)	The value of 1 USD including accrued interest at the applicable US Federal Funds Effective Rate for the number or calendar days from Settlement Date "SD(t)" to Next Settlement Date "NSD(t)", and is equal to: 1 + (USD.FED(t) * CSD(t)) / USD.DayCount This value is rounded to twelve (12) decimal places.

Total Return Index Formula

The value of the Index on its first day, FP(0), is defined as:

10,000.00

The formula to determine the Index for any day t greater than 0, FP(t), is as follows:

FP(t) = FP (t-1) * [(EOD.MKT.PX(t) / EOD.MKT.PX(t-1)) + (USD.FUND(t-1) – 1)]

and rounded to two (2) decimal places.

Changes to the Index

This methodology was created by Horizons ETFs to achieve the aforementioned objective of measuring the underlying interest of each index governed by this methodology document. Any changes to or deviations from this methodology are made in the sole judgment and discretion of Horizons ETFs so that the index continues to achieve its objective, assuming it is reasonably practicable to continue to achieve such objective. In addition, Horizons ETFs reserves the right to make exceptions when applying the methodology if the need arises. This includes, but is not limited to, discretion to change the Primary Contract, Secondary Contract and Roll Methodology of the Index in response to the then current market conditions.

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