Consultation on Potential Enhancements to the MSCI Hedged Indices

January 2009

Overview

- MSCI is consulting with investors to better understand the need for potential enhancements to the MSCI Hedged Indices methodology
- The main proposed enhancements to the MSCI Hedged Indices include the following:
  - Adopt a revised rebalancing and announcement schedule for the notional amount of FX forwards to be sold for hedging
  - Determine the notional amount of FX forwards from the aggregate free float market capitalization of the countries in the underlying MSCI equity index rather than from the currencies
  - Adopt a revised methodology for mark to market valuation of odd-day forwards for daily valuation of index using shorter term forwards
- Further, MSCI would also like to understand investors' desire for more flexibility in terms of customized hedging/rebalancing cycles, such as weekly or quarterly rebalancing, in addition to the standard monthly cycle
- Please note, this consultation may or may not lead to the adoption, in whole or in part, of the enhancements described herein and may not lead to any change to the current MSCI Hedged Indices methodology

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Background: Understanding Currency Hedging Investment Process

- How do you employ currency hedging in your international investments?
  - Is the currency hedging done by the equity manager or by a separate overlay manager?
  - What is periodicity of hedging – weekly, monthly or quarterly?
  - Do you hedge all currencies and what is your typical hedge ratio – static or dynamic?

- Do you currently use hedged equity indices?
  - If yes, do you use a daily or monthly version?
  - Why do you use the hedged index? To enhance return or to lower risk?
  - Is the strategic allocation benchmark a hedged or not?
  - Is the performance benchmark/mandate a hedged or not?

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MSCI Hedged Indices

- MSCI calculates currency hedged indices for Developed and Emerging Market countries which provide a close estimation of local equity returns after hedging the currency exposures
  - Each foreign currency in the index is hedged back to the base currency of the index by selling the foreign currency at the one-month Forward rate
  - The amount of Forwards sold represents the value (or the market capitalization) of foreign currencies of securities included in the index as of the close of the last trading day of the month i.e. reflecting changes in the composition of the index implemented as of the close of that day
  - In the daily mark to market valuation of the daily Hedged Indices, MSCI uses a linear interpolation based solely on the spot and 1-month Forwards premium(discount) to estimate the value of odd-days Forwards every day during the month

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Proposed Enhancements

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Proposal: Determining the Notional Amount of FX Forwards for Hedging

- In the current MSCI Hedged Indices each foreign currency in the Index is hedged back to the base currency of the index
  - By selling each foreign currency at the one-month Forward rate and
  - The amount of Forwards sold represents the value (or the market capitalization) of currencies of securities included in the index as of the close of the last trading day of the month i.e. reflecting changes in the composition of the index implemented as of the close of that day
- MSCI proposes to announce the notional amount of FX forwards to be sold for hedging
  - Two business days before the end of the calendar month, but taking into account any month end changes in the index constituents due to rebalancing and corporate actions
- This proposal is intended to facilitate the replicability of the index and provide sufficient time in the implementation of hedges

❖ Will it be useful to announce the notional value of FX forwards to be sold 2 business days before the end of the calendar month?

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Proposal: Determining the Notional Amount of FX Forwards for Hedging (continued)

- MSCI currently determines the notional amount of FX forwards to be sold by aggregating the free float market capitalization using the *currency* of securities included in the index (currency weights). MSCI now proposes to determine the notional amount of FX forwards to be sold by aggregating the free float market capitalization using the *country* classification of the securities included in the underlying MSCI equity index (country weights)
  - This is relevant only for a few countries like China, Russia, Israel and Peru where the MSCI equity indices includes stocks that trade in a currency different from the currency of the country

Stock Prices			
	Price (previous Month end)	Price (current Month end)	Beginning Portfolio Weight
Russian Stock A[1] (Traded locally in Rubles)	100	100	50.0%
Russian Stock A[1] (Traded as ADR in USD)	100	50	50.0%
Currency Rate and Return[2]			
Previous Month End (USD/Ruble)	1		
Current Month End (USD/Ruble)	0.5		
One Month Forward as Previous Month End (USD/Ruble)	1		
Return of USD/Rouble for the month	-50%		
Return			
	Stock A	Stock B	Portfolio
Return ("Local currency")	**0%**	**-50%**	**-25%**
Return (unhedged in USD)	-50%	-50%	-50%
Hedged Return (current methodology using currency exposures)	**0%**	**-50%**	**-25%**
Hedge Return (if using country exposures)	0%	0%	0%

[1] For illustration we have included the two line of shares of the same company which trade in the local and foreign markets.

[2] Currency rates and returns are only for illustration.

- Is the determination of notional amount for FX forwards using the country weights more appropriate than using the currency weights of the index?

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Proposal - Mark to Market of the Forwards

- Currently, in the daily mark to market valuation of the current MSCI daily Hedged Indices, MSCI uses a linear interpolation based solely on the spot and 1-month Forwards premium(discount) to estimate the value of odd-days Forwards every day during the whole month

- In the daily mark to market valuation of the MSCI daily Hedged Indices, MSCI proposes to use a linear interpolation based on the on the spot, *1-week* and1-month Forwards premium(discount) to estimate the value of odd-days Forwards every day during the whole month
  - This will improve the current linear interpolation methodology and take into account any change in swap point differential at the beginning and end of month

- Would the use of linear Interpolation of the forward based on spot, 1-week, and 1-month swap points be preferable?

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Other Proposals

- MSCI proposes to provide the flexibility to have customized hedging/rebalancing cycles apart from the standard monthly cycle, for example, weekly or quarterly rebalancing
  - Would customized rebalancing solution that allow currency hedging in weekly, quarterly or other periods be useful?

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Appendix

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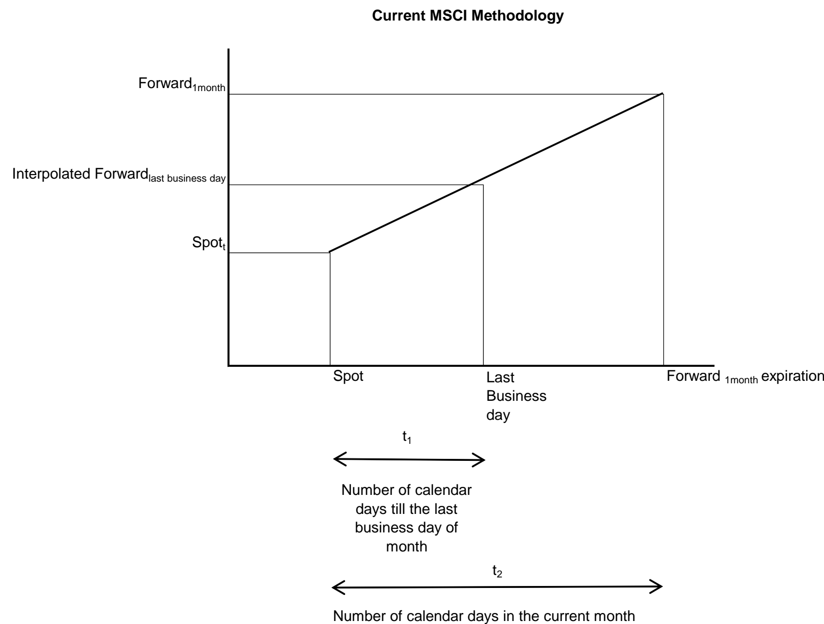
Current Methodology: Linear Interpolation of Forwards

- Current Linear Interpolation methodology



MSCI use a linear interpolation formula to compute odd-days forwards. The general formula is as follows:

$$FFRate_{odd-days_t} = FXRate_t + \left(\left(FFRate_{t(1-month)} - FXRate_t \right) * \frac{Odd-days_t}{TotalNumberOfCalendarDaysDuringMonth} \right)$$

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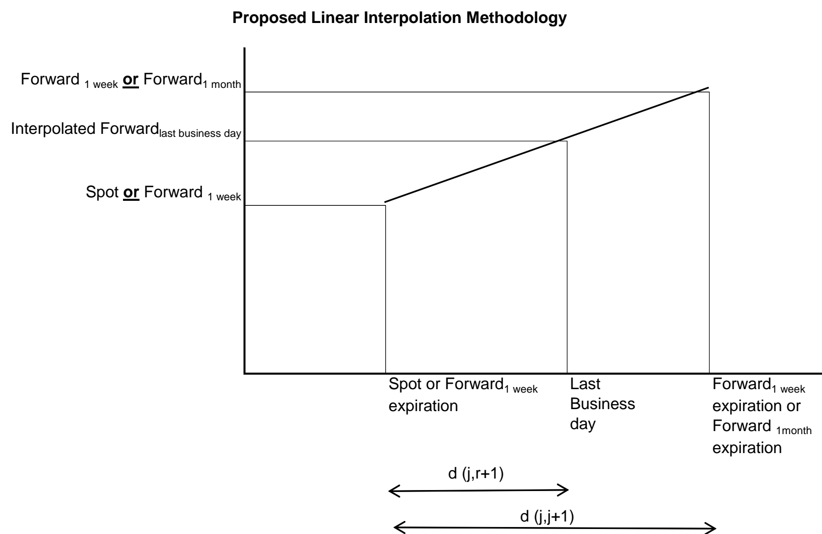
Proposed Methodology: Linear Interpolation of Forwards

- Proposed Linear Interpolation methodology



<u>Marked to Market of FX Forwards</u>

$$F_i(t) = F_i^j(t) + \left[F_i^{j+1}(t) - F_i^j(t)\right] \times \frac{d(j,r+1)}{d(j,j+1)}$$

<u>For r ≤ t ≤ r+1 (where r and r+1 are the roll dates):</u>

$F_i^j(t) =$

- 1 week market FX forward rate on date t, if 1w < r+1≤ 1month
- Market FX Spot on date t, if 0 < r+1≤ 1w

The closest available FX forward/Spot rate shorter than next roll dates to index calculation day *t* in currency *i* per USD on day. The possible chosen rates are FX Spot, and FX 1 week forward rates.

$F_i^{j+1}(t) =$

- 1 month market FX forward rate on date t, if 1w < r+1≤ 1m
- 1 week market FX forward rate on date t, if 0 < r+1≤ 1w

The next available FX forward rate after $F_i^{j+1}(t)$ on index calculation day *t* in currency per USD on day *t*. The possible chosen rates are FX 1week forward, and FX 1 month forward rates.

$d(j, r+1)$ = Number of calendar days between the expiry date of the first chosen FX forward rate $F_i^j(t)$ and the roll date (last day of business)

$d(j, j+1)$ = Number of calendar days between the expiry date of the first chosen FX forward/Spot rate $F_i^j(t)$ and the expiry date of the second chosen FX forward rate $F_i^{j+1}(t)$

= Total number of calendar days during the current month – 7 days (if the FX 1week forward and FX 1month forwards are used) or 7 days (if Spot and FX 1 week forwards are used)

$S_i(t)$ = Spot mid FX rate, in currency per USD observed on day *t*

On Roll date period $F_i(t) = S_i(t)$

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