



## Requirements for an FX overlay benchmark



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Currency risks are generally the unintended but unavoidable by-products of global investments. Institutional investors often find it advantageous to systematically control existing portfolio risks. In many cases, a central FX overlay manager is mandated to handle the currency risks according to individual customer specifications, detached from the base investment.<sup>1</sup>

To identify a suitable FX overlay manager, performance presentations have to be evaluated and compared, in addition to various due diligence topics. In the same way, an appointed manager need to report regularly within the scope of a performance review.

Institutional investors often experience complex and hardly comparable analyses, because the agreed benchmark with the FX overlay manager does not sufficiently meet present requirements and official indices are missing on the market.

### What to consider for a representative FX overlay benchmark

Certainly, the diversity of investment objectives and FX overlay strategies implies a variety of appropriate benchmarks, but the criteria for a high-quality benchmark according to Global Investment Performance Standards (GIPS®) should be followed: A benchmark must be defined in advance and should adequately represent the mandate. At the same time, it must be unmistakable, transparently measurable as well as investable in real terms.<sup>2</sup>

There are over 160 official currencies worldwide.<sup>3</sup> A global institutional investor is often invested in the G10 currencies in addition to some emerging markets currencies. This requires a granular benchmark with high availability, in order for it to classify as investable according to GIPS criteria.

An FX unhedged benchmark (i.e. non-hedging serves as a standard of comparison) certainly does not pose too much of a challenge for investors and FX overlay managers, as the spot rate of the respective currency is all it takes for the daily fix. Additionally, static hedging activities do not have to provide a performance contribution to the benchmark.

The situation is different for a FX hedged benchmark (i.e. full hedging or a percentage serves as a standard of comparison). It is necessary to define a roll methodology and a standard maturity for an increasingly popular tenor management. Due to the complex structures of a hedged benchmark, FX overlay managers usually provide the specific calculated benchmark data with each report. In many cases, a benchmark portfolio is individually simulated and maintained parallel to the actual mandate.

Dedicated investors might doubt that this benchmark is free of conflicts of interest, but currently do not have any alternatives.

To solve this, Bloomberg has launched its FX Forward Index Family, however exclusively USD-based and with a tenor of 1 month. When inquired, Bloomberg stated that there were no plans to expand the index family to a Euro basis, necessary for European investors or to extend the terms.<sup>4</sup>

### Definition of a suitable FX overlay benchmark

In order to model an investable hedged benchmark according to GIPS criteria, it is recommended to replicate the real conditions of the currency markets. The hedging instrument of choice is the FX forward, as it can be structured more granularly than an FX future or an FX option, while it offers high availability especially for emerging market currencies and allows for more flexible terms. In addition, foreign currency exposures can be depicted with nominal accuracy while not being limited to general contract sizes and the resulting performance effects through deviation bands.

When constructing a benchmark according to real conditions, it is necessary to define the terms and the roll days of the FX forward. A widely used benchmark for currencies corresponds to a term of 3 months and a roll of the forward at the end of the month.

An exact modelling of the benchmark not only allows for a fair performance comparison, but also for further measurements of the success of a tenor management and for the analysis of a deviation from the defined roll day. The term of an efficient benchmark must be individually adjustable, e.g. between 1 and 12 months, and

it should be possible to represent a roll in the middle of the month. Simulations of historical currency overlay cash flows might be part of possible analyses, e.g. for back-tests.

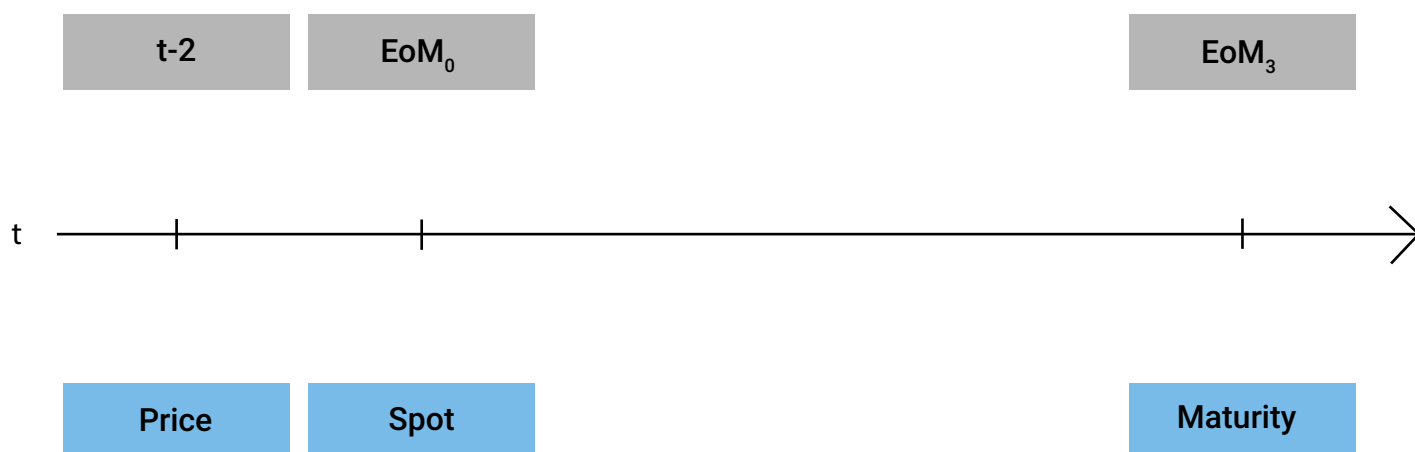
The definition of FX forward due dates and the associated spot and pricing days are subject to fixed rules that must be aligned with the respective local bank holiday calendars. A roll at the end of the month with a 3-month term implies, for example, that the forward maturity should be agreed to the last trading day in 3 months (EoM3). The corresponding spot day would therefore be the last trading day 3 months prior (EoM0) and the pricing day another 2 value days (t-2) before (see fig. 1).

A valuation is carried out between maturities using spot and forward rates. Forward rates must be interpolated linearly between the adjacent reference points. Market standard for the available reference points are spot, 1, 2, 3 weeks, 1 month, 2, 3, 4, 5, 6, 9 and 12 months.

As currency markets do not have any official closings, the daily cut-off time of 04:00 p.m. London time (GMT+1) has been established and can be determined by the WM-Reuters Fixing or the Bloomberg counterpart BFIX.

Meanwhile, the question of which of the two fixings is more suitable has become a philosophical discussion, as the difference in FX rates is marginal. In order to ensure transparency regarding the calculation methods, the BFIX is currently the better choice due to the free availability of the spot and forward rates on the Bloomberg homepage.<sup>5</sup> In order to also compare long-term back-tests with an FX benchmark, other differentiation points can provide a longer history.

**Fig. 1: Forward maturity determination**



## A proposed solution

To fill the gap resulting from the lack of a market standard for FX benchmarks, 7orca calculates a transparent FX benchmark index starting with EUR/USD in accordance with GIPS criteria. This index replicates the costs of hedging a foreign currency exposure with rolling forward exchange contracts, excluding any transaction costs.

The index is tradable and can be broken down into its constituent parts. The base value is 100 and starts on 31 December 1998.<sup>6</sup>

Accordingly, the index for the currency pair represents a virtual portfolio consisting of a defined foreign currency exposure in local currency as of December 31, 1998.<sup>6</sup> This currency exposure is hedged with a rule-based rolling FX forward.<sup>7</sup> The sum of both positions forms the basis for the index calculation. Any cash flows arising on the pricing date flow out of or into the virtual portfolio and therefore do not lead to any basis effects.<sup>8</sup> At the same time, a virtual sub-portfolio is calculated and the local foreign unhedged currency exposure is managed as a sub-index.<sup>9</sup>

Together, both index and sub-index form the basis for detailed analyses of the components of the foreign currency hedging costs for each period since 1998.

In addition to the 3-month standard, index maturities of 1 month, 2, 6 and 12 months are available daily for choosing the rolling maturities flexibly. The roll day and the corresponding maturity were defined to the end of the month as this is the general market standard. Analyses of deviating roll days are available on request. The definition of the spot and pricing days matching the FX forward maturities was realistically represented by including the respective local bank holiday calendars and counting conventions, thus ensuring the investability of the index.

In order to avoid any conflict of interest, the calculation of the index is strictly rule-based, supervised by the 7orca Index Committee and incorporating the control systems outlined in the ISAE 3402<sup>10</sup> auditing standard. 7orca is happy to provide all information on methodology, along with links to spot and forward prices from the Bloomberg data used.

## Conclusion and outlook

In order for an FX overlay benchmark to become a modern reference standard for institutional investors and a reliable source for business decisions, it must meet various requirements.

Particularly for global investments with a widely diversified currency basket and corresponding currency hedge, a broadly based index family is necessary to generate a granular mandate benchmark. Weighted blending of different indices, sub-indices and maturities enables extensive analyses of the various components that a currency hedge combines.

Currency managers today must deliver transparent reports on the success of their tenor management, the quality of their execution and the optimization of cash flow, among other things. The provision of free currency indices should give investors access to further automated currency analyses in the future.

## Sources

<sup>1</sup>Homepage: [www.7orca.com](http://www.7orca.com)

<sup>2</sup>GIPS: Guidance Statement on Benchmarks

<sup>3</sup>International Organization for Standardization (ISO): 4217

<sup>4</sup>Bloomberg: Currency investment insights - Alternative risk premia benchmarks

<sup>5</sup><https://www.bloomberg.com/professional/product/indices/bfix/>

<sup>6</sup> $L_{t_0} = 100 * S_{t_0}$  with L = FX Exposure, S = Spot Rate,  $t_0 = 31.12.1998$

<sup>7</sup> $LEG_t = -(L_{t_0}) / Ft$  with LEG = Valuation of the FX Hedge, F = Forward Rate

<sup>8</sup> $CFp = -(L_{t_0}) * P_t / (S_t)^2$  with CF = Cash Flow, P = Price

<sup>9</sup> $EXPt = L_{t_0} / S_t$  with EXP = FX Exposure in Base Currency

<sup>10</sup>International Standard on Assurance Engagements (ISAE) No. 3402

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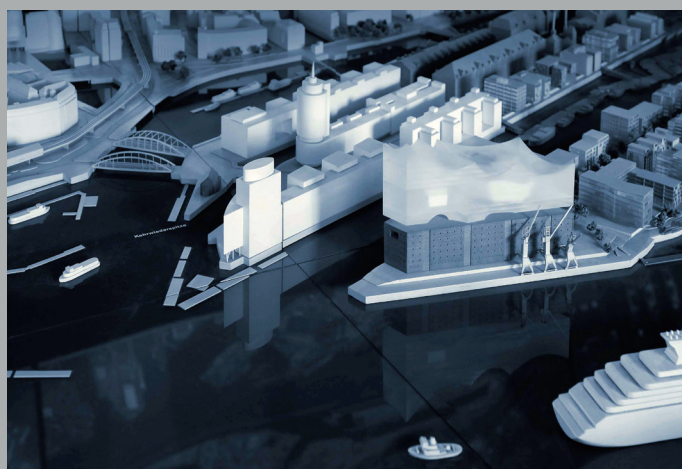
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