



# Focus on: Foreign Exchange Benchmarks

## What is an FX Benchmark?

As a result of the truly global nature of the foreign exchange (FX) market, which operates around the world, around the clock, across a variety of trading venues and methods, FX benchmarks (also referred to as “fixings”) provide a validated and standard exchange rate for market participants (typically pension funds and fund managers) to consistently assess the value of their international portfolios at set times of the day.

With the growth in index-based investing, fund managers (and others) have increasingly gravitated toward trading their FX requirements at the WM/Reuters London 4pm Fix. During a five-minute window on either side of 4pm London time (the fixing opens at 15:57:30 and closes at 16:02:30 GMT), WM takes snapshots of order and trade rates to create a bid and offer and mid-rate for that snapshot and then calculates the fixing rate accordingly (see box for a more detailed description of the WM methodology).

To trade at the WMR Fix, clients typically submit orders to their banks at least 15 minutes ahead of the rate setting. Many banks have created a structure that separates fixing operations from the institution’s day-to-day principal trading businesses. This segregated process nets their clients’ orders internally before seeking to further net with other banks in an anonymous, independently managed external liquidity pool. At the open of the window, the segregated process risk manages the residue balances using dedicated algorithms that typically place bids and offers in the market seeking to achieve a match for the residue, but may execute aggressively to ensure the trade is complete within the five-minute window.

Once the mid-rate is published, a spread is then applied and all trades submitted for the Fix are executed between bank and end-customer. Customers have the choice of executing their trades at the WMR bid/offer rate or at the WMR mid-rate plus a pre-agreed commission. Generally speaking, the latter option is more cost effective.

## Executive Summary

The use of FX benchmarks has grown in recent years as international investors and corporations have responded to demands for greater transparency around market risk and more clearly defined metrics measuring execution quality. Increased interest in index investing on the part of individual and institutional investors has also seen the use of FX benchmarks evolve from a valuation tool to a trading mechanism.

With this evolution, however, have come questions about the behavior of certain FX market participants at some major banks and how the benchmarking/fixing is accomplished, including allegations of market manipulation. These concerns have led to multiple investigations into both dealer behavior around the WMR 4pm London Benchmark Fix and the methodology used to calculate all WMR fixes.

This paper focuses on the most widely used fixes provided by the WM Company in association with Thomson Reuters. However, other fix mechanisms are available, most commonly those provided by several central banks, whose methodologies vary slightly. Additional fix mechanisms are being developed and promoted by independent technology providers.

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While the investigation into individual dealer behavior is still proceeding in several jurisdictions around the world, a major study of the methodology of the WMR Fix has been conducted by International Organization of Securities Commissions (IOSCO) and the Foreign Exchange Benchmark Group (FXBG), a sub-committee established by the Financial Stability Board (FSB). The FSB's membership includes more than 60 global financial regulatory agencies, including major central banks, the U.S. Federal Reserve, Securities and Exchange Commission, and Treasury Department.

The FXBG study resulted in several recommendations to improve the calculation of the Fix aimed at improving market structure<sup>1</sup>, which have been widely adopted by the foreign exchange industry.

## Why FX Benchmarks are Different from Other Financial Benchmarks

Unlike traditional interest rate benchmarks such as the London Interbank Offered Rate (LIBOR), WMR benchmarks are created from actual trades in liquid currencies and by order submissions in non-liquid markets. This means the data is collated from real trades and submissions of intention to trade, as opposed to LIBOR and other interest rate benchmarks, which were traditionally created based upon indicative rates submitted by traders expressing their views of where the market is at any given time.

Foreign exchange benchmarks initially differed from interest rate benchmarks, because they were used as a valuation tool and not to establish rates on specific financial instruments such as mortgages. In their current format, FX benchmarks are still used to value portfolios; however, they are also used to value a small proportion of FX options products.

The majority of the FX market relies on over-the-counter (OTC) methods of trading. This means that achieving a globally consolidated "tape" of all trades executed in the market, similar to that offered in US equity markets through the National Best Bid/Offer (NBBO), would be a very difficult achievement.

It is estimated that more than 80 multi-participant/brokerage platforms exist to service retail and institutional clients. Given that most global and regional banks offer a trading platform in some shape or form, the likelihood is that trading is taking place at numerous venues around the world at any given minute.

## The Evolution of Foreign Exchange Benchmarks<sup>2</sup>

In the early 1990s, the WM Company needed to have a single exchange rate standard to use in order to value the international portfolios of its pension fund clients. Until that time, most people used a "closing rate" that was published each day (the following morning) by the Financial Times.

WM approached Reuters with an idea to create a carefully defined, cleaned and screened benchmark using Reuters' rates feeds. From here, the WM Reuters partnership was born. Over time, WM has progressively improved its process, eliminating outlier rates, using traded rates where possible, and extending the sample to rates from other FX sources to achieve the broadest possible sample. In addition, they have created hourly fixing rates, although most usage is still centered on the single London 4pm Fix.

From the outset, the major index providers began to use the WMR rates as a single standard for valuation purposes. At the core of almost all of this is the need for a standardized, ubiquitous exchange rate for valuation purposes. Without a standard, there can be no comparative analysis for measuring fund performance, making life impossible for pension funds (or any other cross border investment vehicle), their trustees, custodians and investors.

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1 Foreign Exchange Benchmark Group press release, September 30, 2014. Available [http://www.financialstabilityboard.org/2014/09/pr\\_140930/](http://www.financialstabilityboard.org/2014/09/pr_140930/)

2 The Evolution of Foreign Exchange Benchmarks section was written by Simon Wilson-Taylor, CEO, Molton Markets, "Fixing the Fix," published in Profit & Loss, February 2014. Available at <http://magazine.profit-loss.com/february-2014/index.html>

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Fund managers (and others) have increasingly gravitated to trading their FX requirements at the London 4pm Fix, for these reasons:

- Many fund managers want to eliminate any tracking error against their performance measurement benchmark (usually an Index) for any component that is not generating incremental return. Typically, this is an equities fund manager that chooses to leave currency unhedged.
- Pension fund consultants and external Transaction Cost Analysis (TCA) providers use the WMR rates as the only standardized reference point.
- As best execution rules have tightened, fund managers have needed to demonstrate transparency around their execution, and many more have gravitated to trading at the 4pm Fix as a perceived effect solution.

Currently, the only standard reference rate in the FX market is the WMR Fix. In US equities, the NBBO creates a standardized price, at which trades are executed. TCA in equities is therefore relatively straightforward, as you only have one set of reference prices to capture in order to fully understand the liquidity landscape.

In the FX market, however, every user can see different prices. Their access to markets and their settlement costs vary in unique ways, as liquidity providers offer different spreads and different credit mark-ups to each user for each currency, tenor and size band. Credit and settlement costs vary by liquidity provider, or prime broker, and trade-away fees from custodians impact the overall cost of trading. Additional factors such as the credit quality of the counterparty, their settlement efficiency (or lack of it), and credit concentration risk also need to be factored into a comprehensive decision-support model based on TCA.

## Need to Reform FX Benchmark Practices; Allegations of Fix Manipulation

FX benchmark fixes have been popular with asset managers because they offer a transparent, easily validated rates at which they can execute trades. Another benefit has been the concentration of orders, especially around the 4pm London Fix, which would not only bring more liquidity and robust and competitive pricing, but would also provide operational efficiency by bringing netting benefits and allowing opposite interests to match off. FXBG analysis indicated that volume through the foreign exchange market during the (previous) one-minute 4pm London Fix was “at least” 10 times higher for each currency than the one-minute mean throughout the day.” (As a result of the FXBG’s recommendations, the WMR Fix window was widened to five minutes in February 2015.)

Generally for banks, executing Fix business has historically not been profitable. Not only do banks pay the WM Company a fee to license the rates, but typically foreign exchange customers are not charged brokerage fees by the banks; instead, the banks capture value through the application of the bid-offer spread. The high-level of competition for asset manager business meant the banks agreed to execute Fix business for their customers at the mid-rate, thus foregoing the spread<sup>3</sup>.

This model most acutely impacted dealing banks, where traders would find themselves with a potentially large position and only one minute to execute it if they were to achieve the desired rate. To achieve a profitable outcome from this business, the traders had to “beat” the mid-rate published by WMR. This would mean not “crossing the spread” to trade at a less advantageous price, something that was very difficult to achieve in such a short period of time. In the FX market, a bid-offer spread is quoted, indicating at which levels the price maker (or liquidity provider) is willing to buy and sell the base (or “quote”) currency. Crossing the spread is the term used when a market taker (or liquidity consumer), agrees to deal at the price maker’s level, which is disadvantageous to the market taker.

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3 Historically, banks used to charge customers “mid-rate-plus” where a spread was added onto the mid-rate to adequately price the risk the banks were assuming. Competition for customer business saw one bank offer the service for free in 2004-2005, which led to other banks also dropping the “mid-rate-plus” model. Following the FXBG report, banks are now charging a fee or a spread once again.

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Inevitably, traders either had to cross the spread and lose money on the business, or they could warehouse the position after the Fix is published and trust that the market would move back in their favor. Because asset managers, especially index trackers, tend to trade in similar directions, their foreign exchange hedges are often in the same direction. This means that the residue left with the banks was potentially large, meaning the market was unlikely to move in the traders' favor until new activity was introduced in the market.

On any given day at the 4pm London Fix, estimates are that 50% of all interest is netted off<sup>4</sup>, leaving potentially large balances in the hands of the dealers at a rate that does not reflect the current market. This residue is even larger at month and quarter ends when volume through the Fix increases further.<sup>5</sup>

Anecdotally, dealers at major banks started using public chat services, predominantly those provided by Bloomberg, to try to achieve a match ahead of the Fix. This was seen as helping to take some of the volume out of the market ahead of the one minute window (the amounts to be matched were agreed ahead of time, the Fix rate was then applied to those trades when it was published), thus leaving the dealers with lower residue balances to handle.<sup>6</sup>

In 2013, it was reported<sup>7</sup> that some traders were discussing their Fix orders ahead of time, not in the interests of achieving a match, but to allow them to position themselves ahead of the one minute window, to the detriment of some clients. The impact of such action can be significant. If the Fix were to be manipulated by one pip (0.0001) on a \$1 billion portfolio of multi-currency assets, the valuation would change by \$100,000 or the equivalent in local currency.

In the last year, the U.S. Commodity Futures Trading Commission (CFTC), the UK Financial Conduct Authority (FCA), and other regulatory authorities have reached settlements with several global banks for attempted manipulation of, and for aiding and abetting other banks' attempts to manipulate, global FX benchmark rates. The banks paid multibillion dollar penalties and institute new internal controls and policies, including increased supervision, to ensure the integrity of their trading activity and the fixing of FX benchmark rates. Since November 2014, several other banks have agreed to pay similar fines to regulatory agencies, as well as to settle civil actions brought by investors (including municipalities, hedge funds and public pension funds) related to alleged FX market manipulation.

This revelation had two results: The first, a global investigation into practices around the Fix, which remains ongoing; the second, the establishment by the Financial Stability Board of the Foreign Exchange Benchmark Group, which was to report and recommend changes to the WMR Fix methodology.

Following the initial investigation in activity, the CFTC, FCA, the US Office of the Comptroller of the Currency and the Swiss Financial Market Supervisory Authority (FINMA) fined six banks a total of \$4.3 billion.<sup>8</sup>

Several banks, including but not limited to the six banks fined, also conducted internal investigations into trading and sales desk personnel activity in chat rooms – which led to the suspension or dismissal of more than 40 members of staff at banks around the world.

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4 Anecdotally, Profit & Loss magazine is told that around 50% of the order flow is matched off on any given day. The FXBG Consultation Document states that there is, “a significantly larger order imbalance, positive or negative, during the WMR 4pm London Fix window than at any other period of the day, including the time of the North American data release.”

5 FXBG Consultation Document, published July 15, 2014

6 The UK Financial Conduct Authority, in its findings against five banks, notes that the netting off of orders ahead of the Fix is not inappropriate in all circumstances. Clause 4.10. Available at <http://www.fca.org.uk/your-fca/documents/final-notice/2014/royal-bank-of-scotland> (the same statement is made in reports on the other four banks fined)

7 “Traders Said to Rig Currency Rates to Profit Off Clients” by Lisa Vaughn, Gavin Finch, and Ambereen Choudhury, Bloomberg. Available at <http://www.bloomberg.com/news/2013-06-11/traders-said-to-rig-currency-rates-to-profit-off-clients.html>

8 Bank of America Merrill Lynch was fined a total of \$250 million, Citi \$1.018 billion, HSBC \$618 million, JP Morgan \$1.012 billion, Royal Bank of Scotland \$634 million and UBS \$799 million

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# Global Regulatory Initiative Leads to FX Benchmark Reform Recommendations

Pursuant to its mandate by the FSB, the FXBG consulted with members of the FX industry<sup>9</sup> and, in late September 2014, published a series of recommendations aimed at making the process fairer and less vulnerable to manipulation.<sup>10</sup>

## The main recommendations were:

- To widen the fixing window to five minutes from one minute for major or liquid currencies;
- For the WM Company to incorporate price feeds from more than one source for each currency;
- To support foreign exchange industry initiatives to develop netting and matching solutions;
- To transparently and appropriately price fix-based transactions according to the risk transfer nature of the trades;<sup>11</sup>
- For banks to reinforce and ensure internal guidelines around behavior are adhered to, including the non-disclosure of trade information and the potential for conflicts of interest arising from managing client flow;
- To establish more detailed industry codes of conduct to deal with bad practices;
- For index providers to review whether the foreign exchange fixes they use are fit for such a purpose; and
- For asset managers, including passive index trackers, to conduct due diligence around their FX execution

Following the publication of the FXBG recommendations, the WM Company announced it would change the methodology of its calculation based on these recommendations. Initially, these changes were to be implemented in December 2014; however, the company reported that several clients were experiencing difficulties in assessing the impact of the change and, as such, adopted and implemented the recommendations in February 2015.

The goal of a wider window was to attract a broader range of activity, which would make the Fix more difficult to manipulate, because of the increase in market data. Foreign exchange rates move on supply and demand, requiring several dealers to cooperate to “build” a larger, market-moving order. Dealers would also have to effectively control the market for five minutes as opposed to one, meaning they would assume greater risk, which would be easier to identify by a regulator.

## Looking Forward: Potential Challenges for FX Benchmarks

While the WM Company has fully adopted the FXBG’s proposals, challenges remain for other participants in the market, as well as for regional and national policymakers.

Several major banks have “ring-fenced” Fix business in a separate team or by using their agency execution teams. This means that the regular trading and sales desks do not have access to information regarding Fix activity. A concern is, however, that smaller banks without the resources to build additional teams do not have the resources to support such a model.

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9 Responses to the FXBG’s industry consultation are available at [http://www.financialstabilityboard.org/2014/08/c\\_140819/](http://www.financialstabilityboard.org/2014/08/c_140819/)

10 The FXBG’s recommendations are available at [http://www.financialstabilityboard.org/2014/09/r\\_140930/](http://www.financialstabilityboard.org/2014/09/r_140930/)

11 Trades could be priced by applying a bid-offer spread or by a pre-agreed and disclosed fee structure.

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Asset manager behavior is not expected to change – active managers will likely continue to shun the Fix where possible, while passive managers, particularly index trackers, will continue to use the WM-based rates from their banks or one of the new services.<sup>12</sup> One challenge for asset managers using the Fix is that under the new regime, the spread applied by banks to the WM mid-rate may put their execution rate (their risk transfer price) outside WM published bid/ask, may add to asset manager tracking error.

Reflecting the self-regulated nature of the foreign exchange market, regulatory interest thus far has been limited to the FXBG's report and the UK's FCA issuing of a Policy Paper, which lays out its framework for the supervision and regulation of financial benchmarks, including the WMR 4pm London Fix.<sup>13</sup>

## The WM Methodology<sup>14</sup>

The WM/Reuters service is a joint venture between The WM Company and Thomson Reuters. Formed in 1994 it provides a “closing” FX rate service to facilitate the valuation of global portfolios.

When calculating the spot FX Fix for “Trade Currencies,” the WM methodology uses transactional data between buyers and sellers in that market, where that data is available and reflects sufficient liquidity. In a market where lower liquidity exists, referred to as “Non-Trade Currencies,” the benchmark may be based predominantly or exclusively on bid and offer rates, or from prior transactions.<sup>15</sup>

The primary source of data is actual trade rates taken from Thomson Reuters Matching, EBS and Currenex, the secondary source is rates placed on the order matching systems of the same providers. If neither trade nor order rates are available, bank quotes from Reuters RICs are used.

Over a five-minute Fix, for Traded Currencies, actual trades executed and bid and offer order rates from the order matching systems are captured every second from 2 minutes 30 seconds before, to 2 minutes 30 seconds after the time of the Fix. For Non-Trade Currencies, data is captured on a 15 second basis. The median bid and offer rates are independently calculated from the individual snapshots for each currency.

From each data source, a single traded rate is captured – this is identified as a bid or offer depending on whether the Trade is a buy or sell. A spread is applied to the Trade rate to calculate the opposite bid or offer. The spread applied is determined by the Order rate captured at the same time. All captured Trades are subjected to validation checks.

Valid Trades from all sources captured during the Fix period are “pooled” together. Subject to a minimum number of valid Trades being present within this pool of data – the Trade rates are used for the Fix. A median Trade bid and Trade offer are calculated independently, using data from the single pool of trades across data sources. The mid-rate is calculated from the median Trade bid and Trade offer. A minimum standard spread is applied to the mid-rate to calculate a new bid and offer.

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12 One recommendation of the FXBG was for industry-bred solutions to improve netting rates. Several firms have released services that will compete with banks offering Fix execution services. Generally, the netting models are similar and all charge a fee; however, each has a proprietary solution for the critical aspect of handling Fix business – executing the residue balance. Several organizations have released, or are in the process of developing, alternative solutions for the Fix. These companies include TruCross (under State Street Corp.), Icap's EBS, Integral Development Corp., FastMatchFX, Curex and Thomson Reuters, among others.

13 <http://www.fca.org.uk/news/firms/ps15-06-additional-benchmarks>

14 The full methodology can be found at <http://www.wmcompany.com/pdfs/WMReutersMethodology.pdf>

15 “Trade” currencies are AUD, CAD, CHF, CZK, DKK, EUR, GBP, HKD, HUF, ILS, JPY, MXN, NOK, NZD, PLN, RON, RUB, SEK, SGD, TRY and ZAR