

30 September 2014

Foreign Exchange Benchmarks

Final Report

Content	Page
Executive Summary	1
Summary of recommendations.....	3
1. Introduction to the foreign exchange ‘fix’ problem.....	5
2. The construction of foreign exchange fixes	7
a. WM/Reuters	8
Trade Currencies	8
Non-trade Currencies	10
Forward and NDF Currencies	11
b. ECB	11
3. How the market uses foreign exchange fixes.....	12
a. Asset Managers	12
b. Non-financial corporates	14
c. Index providers.....	15
4. Observed characteristics of market price movements.....	16
Data Analysis	16
Trading Patterns during the Day	16
Trading Patterns around the WMR 4pm London Fixing Window.....	18
5. Considerations of alternative fix calculations	20
6. IOSCO assessment of implementation.....	21
7. Recommendations	23
a. Benchmark calculation.....	24
b. Recommendations from the IOSCO review.....	26
c. Foreign exchange reference rates set by central banks	26
d. Market infrastructure.....	27
e. Behaviour of Market Participants	28
Appendix 1: Alternative methods for calculating benchmark rates of market prices.....	32
Appendix 2: Members of the FSB FX Benchmark Group.....	33
Appendix 3: Review of the Implementation of IOSCO’s Principles for Financial Benchmarks by WM in respect of the WM/Reuters 4pm Closing Spot Rate	35

Executive Summary

In 2013, concerns were raised about the integrity of foreign exchange (FX) rate benchmarks. These concerns stemmed particularly from the incentives for potential market malpractice linked to the structure of trading around the benchmark fixings. As a result, the FSB Plenary formed a working group chaired by Guy Debelle of the Reserve Bank of Australia and Paul Fisher of the Bank of England¹ to focus on foreign exchange benchmarks. The mandate of the group was to undertake analysis of the FX market structure and incentives that may promote particular types of trading activity around the benchmark fixings. The group was tasked to propose possible remedies to address these adverse incentives as well as to examine whether there is a need and scope to improve the construction of the benchmarks themselves.

The work of the group was completely independent of the various conduct investigations into allegations of manipulation of FX being undertaken in different jurisdictions and the group did not have access to the evidence being considered by the relevant authorities.

The group progressed its work in part by engagement with a range of FX market participants across the globe. This included a cross-section of global and local asset and money managers, non-financial corporates and benchmark providers in FX and other markets, as well as FX trading platforms, banks and investment banks. An interim report was published in July for wider public consultation so that all market participants had a chance to submit their views and comment on the proposed course of action.²

A consistent view of market contacts is that there are two FX benchmarks which have pre-eminence in the global market. The WM/Reuters (WMR) 4pm London fix, produced by the WM Company is by far the dominant benchmark being used, not just in FX, but also as a key input in multi-currency equity, bond and credit indices. The euro foreign exchange rates set by the ECB at 2:15pm CET (henceforth the ECB's reference rates) are also used by a wide range of participants, specifically non-financial corporates, but are thought to be also important for the non-deliverable forwards market.

The group obtained transactional and quote data from the two main electronic trading platforms, EBS and Thomson Reuters Matching, which are used to calculate the WMR fixes. These data indicated that intraday turnover increases markedly at the time of the WMR London 4pm fix and to a lesser extent around the ECB's reference rates.

The WMR benchmarks are, at least for the most widely used currencies, based on actual trades, supported by transactable bids and offers extracted from electronic trading systems. In this respect they are quite different from a benchmark such as Libor which does not benefit from the same market liquidity and, prior to recent reforms, was based on panels of banks quoting their estimate of funding rates. Even for the less well traded currencies, active bids and offers are used. The issues arising are therefore quite different in nature from those relevant to Libor.

¹ See Appendix 2 for the members of the group.

² Responses to the interim report can be found at: http://www.financialstabilityboard.org/publications/c_140819.htm.

FX benchmarks are used by market participants for a variety of purposes, but most notably for valuing, transferring and rebalancing multi-currency asset portfolios. In particular, the mid-rates produced by WMR are embodied in the construction of published indices used for tracking multi-country/currency portfolios of bonds, equities or credit instruments, and hence are implicit in many investment mandates. That usage incentivises asset and other money managers – particularly those with passive mandates which aim toward the replication of an index – to ensure that their FX dealing intermediaries (usually but not always banks) execute their foreign exchange trades at the same mid-market price as recorded at the fix. That eliminates any ‘tracking error’ arising from foreign exchange, when the investor has chosen to invest in the performance of some other asset such as bonds or equities.

Other users, such as some sovereign wealth funds, or corporates (which often do not have active foreign exchange dealing desks), also tend to use the same approach of trading with their dealers at a guaranteed published fix price, in order to establish transparency of execution.

The result of this activity by their clients leads to a concentration of trading orders being transmitted to dealers, in large part shortly ahead of the fixing time. Dealers generally accept these orders and execute them in the market as principal bearing the consequent price risk, rather than executing them in the market as agent on behalf of the client. In order to manage the risk associated with this client order flow, dealers hedge by executing foreign exchange transactions in and around the calculation window, which results in the large spike in trading volume. This creates a market where the dealer is agreeing to execute these orders at an unknown price, which is established subsequently during the fixing calculation window. That price should be the clearing price which reflects the balance of supply and demand going through the market at that time and therefore prices should move as necessary, even if only temporarily, in response to these flows. In most cases, the dealer agrees to give the client the mid-rate of this (as yet unknown) fix price, whether the customer is buying or selling.

At a minimum, this market structure creates optics of dealers ‘trading ahead’ of the fix even where the activity is essentially under instruction from clients. Worse, it can create an opportunity and an incentive for dealers to try to influence the exchange rate – allegedly including by collusion or otherwise inappropriate sharing of information – to try to ensure that the market price at the fix generates a rate which ensures a profit from the fix trading.

That is, it is the incentive and opportunity for improper trading behaviour of market participants around the fix, more than the methodology for computing the fix (although the two interact), which could lead to potential adverse outcomes for clients. To help address the issues arising from this market structure, the group is proposing a number of recommendations for reform in the foreign exchange market in the following broad categories:

- a. The calculation methodology of the WMR benchmark rates
- b. Recommendations from an IOSCO review of the WM fixes.
- c. The publication of reference rates by central banks.
- d. Market infrastructure in relation to the execution of fix trades.
- e. The behaviour of market participants around the time of the major FX benchmarks (primarily the WMR 4pm London fix).

Summary of recommendations

1. The group recommends the fixing window be widened from its current width of one minute. WM should determine the appropriate width in consultation with market participants. The group notes that the median suggestion from market feedback was that a five minute calculation window centred on the hour for the major (trade) currencies could be appropriate. For less liquid (non-trade) currencies, the group recommends the window be wider than for the major currencies to incorporate an adequate number of observations.
2. The group recommends that WM should incorporate price feeds and transactions data from a broader range of sources to further increase its coverage of the FX market during the fixing window, provided it is assured that the additional sources are of sufficient quality and are representative of the market. WM should regularly assess its coverage as market structure continues to evolve. In that regard the group also proposes that in the short term, WM develop its methodology to utilise the transactional and quote information from both Thomson Reuters Matching and EBS, wherever both are available.
3. WM should expand their consultation activities to include a named user group to consider the proposed changes to the calculation methodology and to ensure it remains appropriate going forward.
4. The group supports the findings of the IOSCO review of WM and endorses the recommendations for improvement contained in that review.
5. The group considers that, where central banks publish reference rates, it is the responsibility of each to set internal procedures and they should at least take note of guidance from the IOSCO principles, especially where central bank reference rates are intended for transaction purposes.
6. The group supports the development of industry-led initiatives to create independent netting and execution facilities for transacting fix orders.
7. The group recommends that fixing transactions be priced in a manner that is transparent and is consistent with the risk borne in accepting such transactions. This may occur via applying a bid-offer spread, as is typical in FX transactions, or through a clearly communicated and documented fee structure such as a direct fee or contractually agreed price. This should occur in the context of dealers having committed to the internal process reforms and codes of behaviour detailed below.
8. The group recommends that banks establish and enforce their internal guidelines and procedures for collecting and executing fixing orders including separate processes for handling such orders.
9. Market-makers should not share information with each other about their trading positions beyond that necessary for a transaction. This covers both individual trades, and their aggregate positions.
10. Market-makers should not pass on private information to clients or other counterparties that might enable those counterparties to anticipate the flows of other clients or counterparties, including around the fix.

11. More broadly, the group recommends that banks establish and enforce their internal systems and controls to address potential conflicts of interest arising from managing customer flow.
12. Codes of conduct that describe best practices for trading foreign exchange should detail more precisely and explicitly the extent to which information sharing between market-makers is or is not allowed. They also should, where appropriate, incorporate specific provisions on the execution of foreign exchange transactions including fixing orders.
13. The group recommends stronger demonstration by market participants of compliance with the codes of the various foreign exchange committees, as well as their internal codes of conduct.
14. The group recommends that index providers should review whether the foreign exchange fixes used in their calculation of indexes are fit for purpose.
15. The group recommends that asset managers, including those passively tracking an index, should conduct appropriate due diligence around their foreign exchange execution and be able to demonstrate that to their own clients if requested. Asset managers should also reflect the importance of selecting a reference rate that is consistent with the relevant use of that rate as they conduct such due diligence.

Based on discussions with the relevant market sectors, the group believes that all the recommendations above can and will be accepted and implemented by the market groups concerned. This should deliver a substantial improvement in market structure and conduct. But investigations into alleged misconduct are ongoing across a range of markets, and it is possible that the authorities will ultimately conclude that regulatory change is needed to promote or ensure appropriate behaviours and/or to implement the recommendations of this report.³

³ On 25 September 2014, after this report was finalised, the UK government launched a consultation (based on a recommendation of the Fair and Effective Markets Review underway in the UK) proposing the inclusion of the WMR 4pm fix in a list of major benchmarks to be brought into the scope of the legislative framework that was set up to regulate LIBOR. That does not affect the analysis or recommendations in this report. More information can be found at: <http://www.bankofengland.co.uk/publications/Pages/calendar/femr.aspx>.

1. Introduction to the foreign exchange ‘fix’ problem

The foreign exchange market spans various jurisdictions, time zones, and types of market participants. Daily turnover in the market is large, with the BIS reporting global average daily turnover across foreign exchange instruments at over \$5 trillion in April 2013. Notwithstanding this, large orders pose execution challenges in the FX market, just as they do in the equity markets, where block orders have always been problematic to transact without disrupting the market.

The main intermediaries in the market are the foreign exchange dealers which are generally, though not always, banks. These dealers act as both principal and agent in the market. That is, they deal on their own account and on behalf of their customers. Most foreign exchange trading takes place via electronic platforms or via broker-dealers. Over recent years, the share of trading conducted electronically has continued to increase and by some estimates now accounts for around 90 per cent of spot foreign exchange dealing.

The foreign exchange market is primarily a quote driven market, in marked contrast to the equity market which can be characterised as an order driven market. The FX market has a number of other important unique characteristics compared with other large markets. One reason for this is in the nature of the underlying product being traded. In the FX market, money is traded for money, and the price is relative, whereas in the equity market, the price is an absolute price with money being exchanged for equities. Also, there is “real economy” demand in the foreign exchange market. That is, foreign exchange is traded not only as an asset in itself, but also because of underlying global trade and capital flows.

In addition, the FX market is a geographically dispersed, decentralised and, except for futures and options, primarily an OTC market. There is not a single market place, and much of the market is not subject to formal regulation, although individual participants are often bound by the securities and commodities trading conduct laws of their local jurisdictions. For comparison, equities are primarily traded on regulated exchanges in most jurisdictions, although there is also a large OTC market in some jurisdictions.

Reflecting this, the foreign exchange market is global and cross-border, with regular wholesale market trading occurring continuously from 5am Sydney time on a Monday morning until 5pm New York time the following Friday. In contrast, equity markets are country-specific with a fixed (and finite) trading day. Hence there is no equivalent concept in the foreign exchange market to the closing price in the equity market. The FX market continues to trade through and after the main 4pm London fixing window, even though the 4pm rate is often referred to as a ‘closing’ rate.

Further, there is no single market place for foreign exchange as there is no dominant venue. Rather, prices are quoted on many different trading platforms. The potential for arbitrage between these platforms helps to ensure that any pricing discrepancies that may arise are short-lived. In recent years, technological improvements have enabled customers to “stream”

(access) multi-pricing sources simultaneously rather than rely on single quotes from their dealers.⁴ This has contributed to the increased share of electronic trades in the market.

Foreign exchange benchmarks are typically, but not always, based on trades and bid and offer quotes extracted from electronic trading systems and methodologies can differ based on currency market liquidity. They are calculated from a fixed time window around a set reference time. These benchmarks – particularly the dominant WM/Reuters (WMR) 4pm London fix created by the WM Company (WM) – are used by a broad set of market participants for a variety of purposes, but notably for valuing, transferring and rebalancing multi-currency asset portfolios. In particular, the mid-rates produced by WMR are used in the construction of published indices used for portfolios tracking multi-country benchmarks of bonds, equities or credit instruments, and hence are implicit in many investment mandates. As this report explains, that usage incentivises asset managers – particularly those with passive mandates which require replicating an asset index – to ensure that their dealers execute their foreign exchange trades at the same mid-market price recorded at the fix. This eliminates any ‘tracking error’ arising from foreign exchange in the investor’s international asset portfolios. That is valued by some investors who believe it improves their ability to choose and manage which financial risks they are exposed to.

Other users – such as some corporates who do not have active foreign exchange dealing desks – also use the same approach of trading with their dealers at guaranteed fix prices, in order to establish transparency of execution. It is important to stress that trading at the fix price, even at the mid-rate, is not necessarily going to give best execution for a customer in the sense of the best possible price. In fact, trading at the fix leaves the client exposed to the price movements arising from the net order flow taking place at that point in time. While this was widely understood by the market participants the group spoke to, many end customers placed priority instead on the transparency around the fix price and/or the need to minimise tracking error, as well as the perception of the wide use of such rates. Those who place more weight on best execution in the sense of getting the best possible price generally used other methods, including algorithmic execution facilities provided by their dealers and/or by spreading transactions out across the day.

The result of the fix usage by their clients leads to a concentration of trading by dealers before and during the calculation window. It also creates a market where the dealer is agreeing ahead of the fixing time to execute at an unknown price, which is established subsequently during the fixing window as the clearing price reflecting the balance of those fixing transactions and other transactions undertaken in the calculation window. In many cases, the dealer agrees to give the client the mid-rate of this (as yet unknown) fix price, rather than applying a spread, whether they are buying or selling. Dealers generally accept these client orders and execute them in the market as principal bearing the consequent price risk, rather than executing them in the market as agent on behalf of the client. Given the market structure, the dealers can be placed under strong pressure to try and offset the risks they face, given that price commitment.

⁴ Dealers traditionally include commercial banks, investment banks and, increasingly, non-banks. Voice brokers can also be an important venue for trading, particularly during the fix. Further details can be found in the BIS triennial survey of the foreign exchange market, which can be found here: <http://www.bis.org/publ/rpfx13.htm>

At a minimum, this creates optics of dealers ‘trading ahead’ of the fix even if the dealer is managing the risk in relation to their client orders. Worse, it can also create an opportunity and an incentive for dealers to manipulate the market to make it more likely that the market price at the fix generates a rate which results in a profit from their fix trading. Further, the concentration of large volumes around the fixing window, and the need for dealers to execute potentially large orders (as well as to manage the risk associated with these transactions if needed) in a short time span, has the potential to create increased volatility and price movements that may be disadvantageous to end users. As we show in this report, the evidence over the sample period used does not suggest that the increased volumes do in fact lead to much change in volatility relative to market activity on most days.

Recent concerns about the integrity of trading around the setting of FX benchmarks were first aired publicly in June 2013.⁵ This was followed by increased media interest and the launch of investigations by a number of regulators into alleged misconduct in the FX market. In early 2014, the FSB established a group to incorporate a globally coordinated assessment of FX benchmarks alongside its ongoing programme of interest rate benchmark analysis. In this report the group presents greater detail on this market structure and makes recommendations which it believes would reduce the incentives to manipulation.

In making these recommendations, it should be noted that the work of the group was completely independent of the various conduct investigations being undertaken and the group did not have access to the evidence that is being considered by those investigations.

2. The construction of foreign exchange fixes

The WMR fix was launched in 1994 and aimed to provide a clear single independent reference rate for the foreign exchange market. It sought to address previous problems perceived in the pricing of FX trades by custodian banks. A number of central banks have also historically published FX reference rates for a range of other purposes. The ECB, for example, introduced a set of euro foreign exchange reference rates in 1999, which were initially intended for the use of the European Commission, which publishes these rates in the Official Journal of the European Union.

Data from the market indicates that turnover is notably increased at the time of the WMR London 4pm fixing and the ECB 2.15pm CET reference rates. Although there are other possible explanations for this occurrence, a wide variety of market contacts support the assertion that these are the two most frequently used FX benchmarks globally, by some distance. In particular, the WMR 4pm London fix is now by far the most common FX reference rate used in the market. This arises in part as a result of its use in the MSCI equity indices, and most bond and credit indices. The ECB 2.15pm CET reference rates are used by a wide range of economic agents, particularly European corporates. Their use was reported to have increased following the recent enquiries into FX benchmarks.

⁵ Bloomberg article [‘Traders said to rig currency rates to profit from clients’](#), 12 June 2013.

Most of the FX dealers surveyed in producing this report indicated that the service offering to transact against specific FX benchmarks is not usually profitable, but is offered on account of client demand and competitive pressures.

The precise methodologies used by WM and the ECB are outlined below. In the case of WMR it is based on published material, but expanded for clarity.

a. WM/Reuters

WMR provides spot, forward and non-deliverable forward benchmark rates at fixed points daily. WMR provide spot fix rates for 160 currencies, forward rates for 82 currencies and non-deliverable forward rates for 12. Given its significance, and to limit repetition, the following information refers to the spot methodology only. The methodology for forwards is broadly similar to that used for the non-trade currencies. WMR splits currencies into 2 groups: 21 trade currencies⁶ and 139 non-trade currencies⁷ depending on their underlying liquidity. The methodology differs for each group.

Trade Currencies

Trade currency rates are set every half hour between the hours of 6am (Hong Kong/Singapore time) on Monday to 10pm (United Kingdom time) the following Friday. A single bid order rate, single offer order rate and single executed trade are taken every second over a one minute window from $-/+$ 30 seconds either side of the specified fix time from a single trading platform. The output is a published median mid-rate and calculated bid and offer rates around that mid-rate.

Trade currency methodology

1. WMR captures the rates for single executed trades and orders. Data are taken from Thomson Reuters Matching⁸ or EBS⁹ (with Currenex used as secondary source, subject to liquidity). The majority of trade currencies do not use a secondary source; seventeen trade currencies use Thomson Reuters Matching as a single data source and the Russian rouble uses EBS as a single data source. The rates are calculated separately by data source. Secondary sources are used where trade data is insufficient on the primary platform or for validation purposes. Ultimately, the choice of rate used for any particular currency lies with WM on the basis of which is most appropriate to represent the market.
2. 61 single snapshots of trade and order rates are taken over the minute from 30 seconds before to 30 seconds after the fix time. The snap from Thomson Reuters Matching takes the current/last trade and current/last best order rates as at the capture

⁶ AUD, CAD, CHF, CZK, DKK, EUR, GBP, HKD, HUF, ILS, JPY, MXN, NOK, NZD, PLN, RON, RUB, SEK, SGD, TRY, ZAR.

⁷ Additional currencies can be suggested by clients and will be moved to trade currencies depending on liquidity and subject to a full review and research by WMR.

⁸ AUD, CAD, CZK, DKK, GBP, HKD, HUF, ILS, MXN, NOK, NZD, PLN, RON, SEK, SGD, TRY, ZAR.

⁹ CHF, EUR, JPY, RUB.

time. The EBS snap gives either the best bid or the best offer trade and the best bid and best offer orders that second.

3. A trade is identified as being on one side of the market ('sell' or 'buy') depending on whether it is hitting a 'bid' or lifting an 'offer'. The best bid and best offer rates are captured simultaneously. Only executed prices or quotes are captured, no volume or counterparty information is identified.
4. The bid/offer spreads are calculated from the difference between the best bid and best offer for each valid snap. This spread is then applied to the captured trade data in that particular second to establish the opposite side of the market. The result is a bid and offer rate for each trade, one from the traded rate, the other inferred.
5. A validation process identifies whether trade data should be excluded from the calculation. This process is fully automated. This can either be because there are no new trade data since the last snap time or because the trade falls outside of the best bid and best offer data (outliers).¹⁰ Data from these one second time intervals is excluded from the calculation. Given that, and the normal randomness of when trades are conducted, the calculation often does not include trade data from every second, i.e. there are often fewer than 61 data points, even at the 4pm fix. This can happen even for the most traded foreign exchange pair (EUR/USD).
6. The tolerance checks are performed both at the time the fix data is sourced and after the benchmark has been calculated. Decisions are verified and quality assured by a third party within the WMR fix team. Validation is supported by a round the clock capture process which snaps spot rates every 15 seconds to help identify currency issues or outliers.
7. Once the data has been verified, the median bid and median offer are averaged to calculate the market mid-rate. A spread is calculated from the average of the order spreads observed, subject to pre-set maxima and minima. This spread is then applied to the mid-rate to generate a published bid and offer rate to 4 decimal places. The methodology chosen seeks to reflect spreads consistent with normal market volatility.¹¹

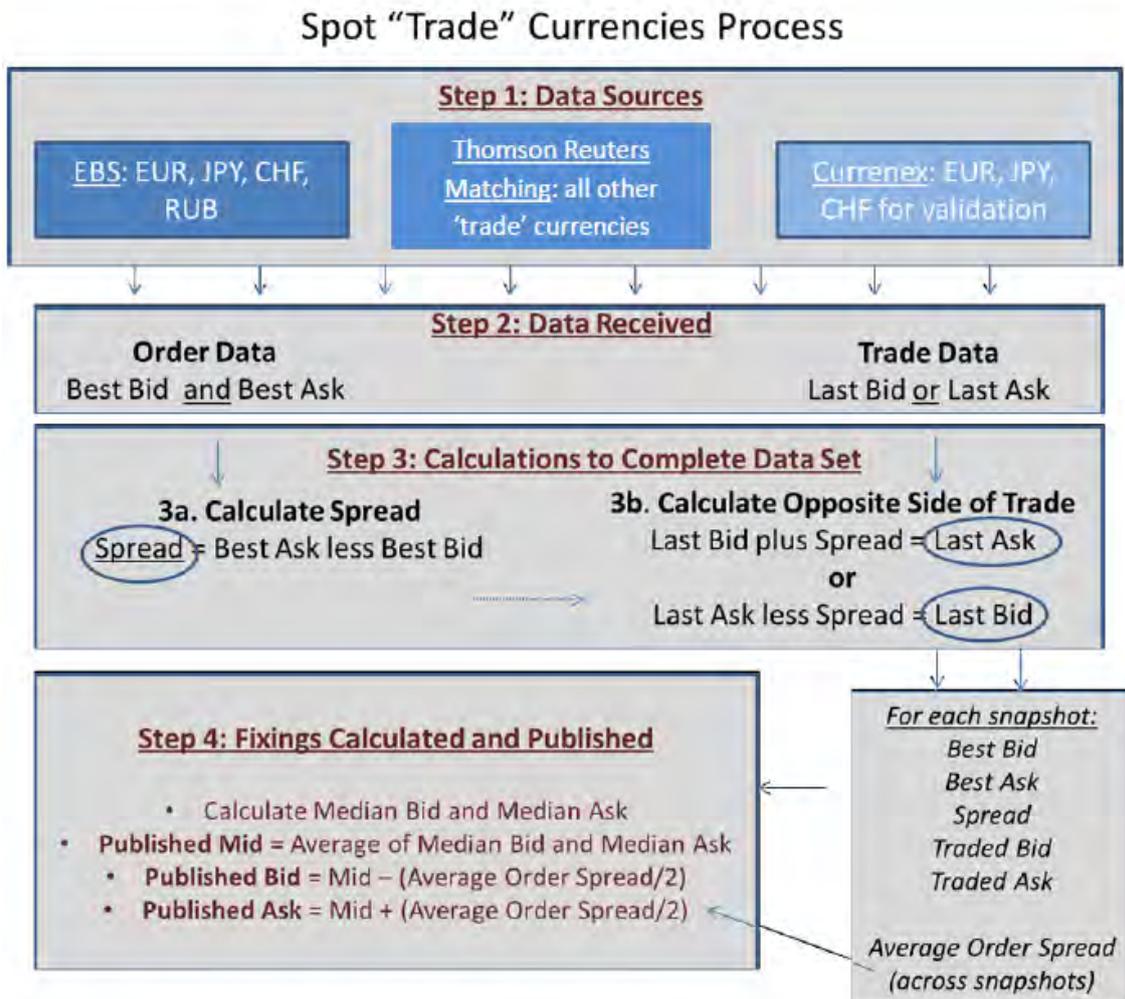
If there is insufficient data, the order rates provide an alternative methodology for calculating the rates to be published. If neither trade rates nor order rates are available, the indicative quotes from Thomson Reuters are used.

A graphical representation of the key steps in this process is presented in Figure 1. As noted, WM utilises data from three transaction systems and uses four key data points to publish the fixing rates – best bid, best ask, last traded bid, and last traded ask.

¹⁰ A trade can fall outside the best bid and offer price due to the counterparty not having the credit to transact with the dealer posting the best bid or offer.

¹¹ If Average Order Spread < Minimum, apply Minimum. If Minimum < Average Order Spread < Maximum, apply Average Order Spread. If Maximum < Average Order Spread, apply Maximum.

Figure 1



Non-trade Currencies

Non-trade currency rates are set on the hour between 6am (Hong Kong/Singapore time) on Monday to 10pm (United Kingdom time) on the following Friday. Snapshots of 'quoted rates' are taken over a two minute window ± 1 minute either side of the fix from a single indicative quote platform. The median rate is calculated independently for bid and offer quotes for each currency and averaged to calculate a median mid-rate. These are the published rates.

Non-trade currency methodology

1. WMR captures the rates for single quotes. 9 single snapshots of quoted rates (bid and offer rates) are taken every 15 seconds from 1 minute before to 1 minute after the fix. The snap takes the last quote that happened in that 15 second window.
2. Data are taken in the form of indicative quotes from Thomson Reuters information service. The financial institutions that provide these captured rates are not anonymous.

3. There is a systematic process on the captured data to identify where quote data should be flagged for validation. This process is run both round the clock and prior to publication of the calculated fix rates. In addition to the standard checks, operation specialists who oversee the fix can identify certain institutions that repeatedly miss the tolerance threshold, by providing rates that are different to those in the market, and, where the institution quotes for a particular currency, add them to a Quality Watchlist. Operations specialists can confirm a rate as accurate and include it in the fix, or confirm it as inaccurate and replace the rate.
4. The mid-rate is calculated from the average of the median bid and median offer. Decisions are verified and quality assured by a third party within the WMR fix team. The bid and offer rates are published to 4 decimal places and the mid-rate is published to 5 decimal places.

If there is little or no market, the central bank official reference rate can be used.

Forward and NDF Currencies

Forward and NDF rates are calculated in a similar manner to the non-trade currencies but a single snapshot is taken during the window rather than multiple snaps.

b. ECB

The ECB owns and administers euro foreign exchange reference rates for 32 different currencies on a daily basis.¹² The rates are published for currency pairs that are actively traded against the euro, accounting for newly acceded countries and also reflecting public demand. The reference exchange rates against the euro published by the ECB are released for reference purposes only.

ECB Methodology

The ECB reference rates are based on a daily concertation procedure between central banks within and outside the European System of Central Banks (ESCB), which normally takes place at 2.15pm CET.

1. Only one reference exchange rate (the mid-rate) is published for each currency. The ECB uses the ‘certain’ methodology, i.e. that 1 EUR = x foreign currency units.
2. The ECB pays due attention to ensuring that the published exchange rates reflect the market conditions prevailing at the time of the daily concertation procedure. Since the exchange rates of the above currencies against the euro are averages of buying and selling rates, they do not necessarily reflect the rates at which actual market transactions have been made.
3. The reference exchange rates are published both by electronic market information providers and on the ECB’s website shortly after the concertation procedure has been completed.

¹² For more information, see: <http://www.ecb.europa.eu/stats/exchange/eurofxref/html/index.en.html>.

3. How the market uses foreign exchange fixes

From the working group's discussions with a wide range of market participants on both the buy and the sell-side, most of the trading at the fix relates to orders from asset managers, including ETFs, or corporate end users.

a. Asset Managers

Asset managers execute their FX transactions either indirectly via their custodians or directly via their own FX desk if they have one. They use a range of methodologies in relation to FX benchmarks. In general, there is a clear separation in the market between actively and passively managed funds.

Actively managed funds tend to execute as exposures arise, rather than seeking to replicate fix prices. Execution is often carried out in competition, with a range of counterparties providing quotes for orders. In a number of cases, transactions are put through a third-party platform to monitor and ensure best execution. A number of asset managers state that they purposefully avoid transacting at the fix and the resulting volume peaks in the market, for example in relation to share class hedging. Others noted that transacting at the most liquid time of day in the market does not necessarily guarantee best price.

Passively managed funds, including ETFs, are more likely to use the WMR fix to minimise index tracking error and meet mandate transfer requirements, because it is believed to transfer execution risk to the brokers and that the price is a reasonable representation of the market. Many asset managers noted that they had progressed to using the fix because of previous concerns about the non-transparency of bilateral pricing by custodian banks. In some cases, the portfolio manager is given limited discretion to transact ahead of, say, the month-end rebalance. However, even in these cases it is very much dictated by the mandate with the end-client.

A further use of the fix comes about through novation trades or mandate transitions when a portfolio is shifted from one asset manager to another. These transactions are, by construction, directly offsetting and should have no effect on the market price. The WMR fix is often used for such transactions. These transactions tend to be of much greater size than index rebalancing transactions.

Trading at the WMR fix has also been viewed as a convenient execution method because it is set at the end of the London trading day when the market is liquid, and allows managers to aggregate their orders over the course of the day, and if possible, take advantage of internal netting opportunities. The WMR fix is also seen to have a significant cost advantage as it is easily replicable¹³ and provides a mid-rate, while offering a wide pool of liquidity since large fix orders are concentrated around that time. However, some asset managers realise that executing FX transactions at the fix did not guarantee the very best execution, in particular when compared to, say, a time weighted average price over a longer time period. The most sophisticated asset managers (especially those having a centralised FX desk) more generally

¹³ There are sufficient information and data provided to be able to transact as close as possible to the exchange rate used in the index calculation.

execute their trades throughout the day, possibly using a range of facilities (e.g. direct execution, algorithms, etc.).

Our discussions with market participants indicated that asset managers responsible for equity, bond or global mandates focus primarily on security selection to track or exceed the performance of their benchmarks. Currency exposure is considered as a residual risk they try to mitigate to the largest extent in order to minimise their tracking error. Currency risk emerges in the event of in/outflows from clients, transactions between their portfolios or asset classes and the rebalancing of benchmark indices to reflect movements in the underlying prices. Most investment mandates are benchmarked against global equity indices (e.g. MSCI), bond indices (e.g. Barclays, BAML, Citi, JP Morgan) or credit indices (Markit) that use the WMR 4pm London fixing for FX valuation and transaction purposes. Moreover, given the tendency for most passive managers to execute their foreign exchange at the same time and hence the same rate, differences in fund performance because of foreign exchange rates are minimised. So minimising tracking error is important to the asset managers as it is a relative performance metric. But it can also be important to the end investor who is choosing to be exposed to particular market risks, and choosing which of those they want actively or passively managed, or may ultimately want to hedge out.

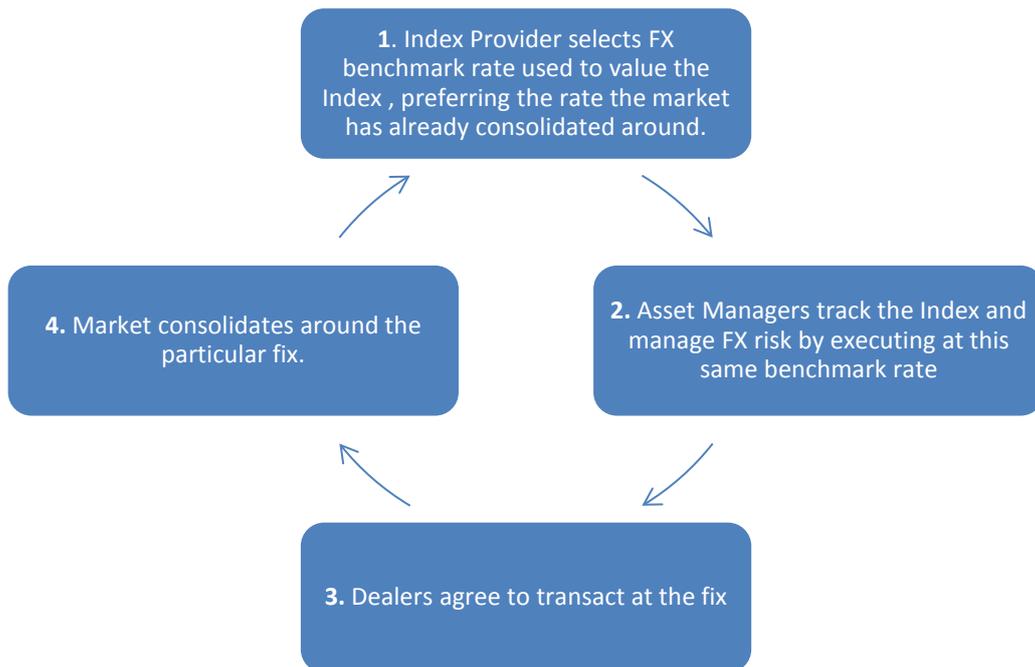
As a result, there is a self-reinforcing dynamic whereby indices are benchmarked versus these fixes, investors tracking those indices seek to minimise their FX risk by transacting directly at those same fixes. This builds a strong base of demand for the fixes and attracts further activity accordingly (Figure 2).

There was slightly more concern about the fix from passive index trackers, reflecting recent publicity. While active users of the indices would be seeking to outperform the benchmark, passive index trackers were trying to match the indices precisely. As a result, passive users were seeking to replicate the fix and their clients were most likely to be exposed to volatility in the rate, while noting that the volatility was also incorporated in the index being tracked.

The dominant use of the WMR fix is a global phenomenon, given the widespread use of international indices for a range of assets. Our discussions have found very similar responses in the UK, the euro area, Australia, Singapore, Canada and the US. But there are some regional variations. For example, the use of the WMR fix for transaction purposes is less prevalent for those currencies where there are restrictions on access (such as capital controls).

Japanese asset managers operate somewhat differently in this regard and can be classified broadly into two major categories. One type is called “management type trusts” where trust banks act as an asset manager investing on behalf of clients such as pension funds who entrust their assets to the trust banks. The other type is called “investment based trusts”, where a third party asset manager gives instructions to investment trust banks, which in turn act as an agent (or custodian). While management type pension trusts commonly reference the WMR 4pm London fix to execute FX transactions, investment trusts tend to conduct transactions following the judgment of fund managers without referencing FX benchmarks. Although the structure of the asset manager industry is different, the motivations for using a fix or not are very similar to those in other jurisdictions.

Figure 2



Overall, most of the asset managers surveyed, across all jurisdictions, noted that they have not and do not currently plan to change their usage of the WMR benchmark for valuation or transaction purposes. For passive funds, options are very limited, given that the indices that they track generally use the WMR 4 pm London fix and building internal FX trading capabilities is not considered cost effective. Those asset managers who had not done much due diligence on the costs of their FX management were more likely to be doing so now.

b. Non-financial corporates

Non-financial corporate usage of the WMR fix is mixed. Some corporations execute their FX transactions as exposures arrive and do not transact around the fix. Others use the WMR fix for certain currency pairs (particularly smaller pairs) or where their relevant time zone is not when the FX market in that currency pair is most active. A number of corporates use execution algorithmic trading (through facilities provided by their dealers) for particular currency pairs or larger orders, and there is appetite in the market to increase their usage. The WMR fix was generally viewed to be independent and transparent.

Fix usage has grown over the past decade and, as with asset managers, was routinely attributed to a dissatisfaction with the service previously provided by their banks. Increased visibility of the FX market for participants had led to corporates seeking more transparent execution arrangements and pricing structures.

Those corporates that do use the fix, cite the same motivations as the asset managers: the rates are seen to be widely used, they are set at relatively liquid times in the market, and in some cases execution at this rate minimises FX risk given valuation practices. However, since corporates are less likely to operate under restrictive mandates, using the fix is more likely to

be used for a subset of their transactions, particularly those in which the business is small, with other trades being done at market prices.

Some non-financial corporates may seek to transact at the fix to help enhance efficiency. For example, some dealers offer fixing services whereby a client can send orders during the day which would be netted off, with the residual executed at the fix price via an automated, straight-through process. Other non-financial corporates may choose to transact at the fix for other reasons, for example to fund their forecasted currency needs for the month ahead and to minimise the FX volatility associated with currency positions which may be valued at the same fixing rates.

As with asset managers there are regional and time zone differences. In Australia, some large corporates with extensive foreign exchange needs do not transact around the fix. They are more likely to execute on a best endeavours basis throughout the course of the trading day. Given liquidity is generally greatest in the Australian dollar during the London trading day, for a number of corporates, the bulk of their transactions will occur during that time.

Throughout Asia there is also a mixture in the usage of FX benchmarks across corporates. Corporates rely on FX benchmarks for valuations, to benchmark hedge effectiveness and for merger and acquisitions transactions. In general, the WMR benchmark is not frequently used. Instead the use of benchmarks published by central banks is preferred given the need to utilise a transparent rate which can be verified by auditors. In terms of FX transactions, this is more likely to be carried out through dealers at prevailing market prices during Asian hours.

In the euro area, corporates mostly rely on the ECB's reference rates for valuation, but also hedging purposes, as they are perceived as providing a transparent and independent reference.

c. Index providers

Many index providers use the WMR 4pm London fix to aggregate indices into a common currency. Forward rates are used to provide hedged versions of some indices, but the majority of clients who track an index use unhedged versions which take that 4pm spot rate. The level of due diligence around the fix calculation conducted by these providers varied considerably, but there was a general sense that the rates were selected based on their prevalent use with a reliance on the FX rate providers to have carried out sufficient checks.

Neither the bond index providers nor their clients had noted any concerns with the fix calculation. Any queries on calculation accuracy tended to be focused around bond prices rather than FX rates. Bond prices were generally taken at local market close for each respective jurisdiction, creating a discrepancy between the timing of the bond prices and the fix. But this was not thought to be important by the index providers: they cited market convention and the difficulty of changing to a different benchmark.

In contrast, a large equity index provider had conducted thorough due diligence of the WMR rate and had a good understanding of the methodology. Nonetheless, they did not note any concerns about the calculations. One other index provider indicated that their data is provided via automated feeds and data checks are performed to determine whether the currency value is sensible (for example, does not have a misplaced decimal) and that the daily move is consistent with the broader market moves in that currency for that day. If not they would check with WM.

Nonetheless, there was little appetite in the market to move to alternative FX benchmarks. Index providers generally seek to choose a rate around which the market has naturally coalesced. It was noted that all index providers aimed to make their indices investable, easily accessible and replicable, which results in clients further favouring a common rate such as the WMR 4pm London fix. Other than being the most widely used in the market it was felt that no other benchmark with similar properties existed, and that the WMR fix has a historical track record of providing credible and robust data. Furthermore, replacing the WMR fix would present substantial logistical challenges.

Contacts amongst the index providers said they had not seen any increase in clients querying benchmark calculation methods following allegations of front-running and benchmark manipulation. Overall, like other market participants, index producers agreed that any issues around benchmark accuracy would be centred on the possibility of market manipulation around the fix, rather than the current calculation methodology.

4. Observed characteristics of market price movements

Data Analysis

The group analysed the general daily trading patterns of seven currencies against the US dollar¹⁴, using high-frequency transactional data from the EBS and Thomson Reuters Matching trading platforms (the main data sources for WMR fixes) over the April to September 2013 period. These venues are the two key electronic trading platforms used to execute interdealer foreign exchange trades. The goal of the exercise was to better understand the average behaviour of exchange rates and of trading activity on these two platforms around the WMR 4pm fix and to put this in the context of the observed behaviour over the rest of the day.¹⁵ While the data analysis provided reasonably similar patterns for all the currencies, including for the 90th percentile, it did not focus on analysing outliers. We report aggregate market behaviour; the data used in our analysis does not contain information on the identity of individual market participants.

Trading Patterns during the Day

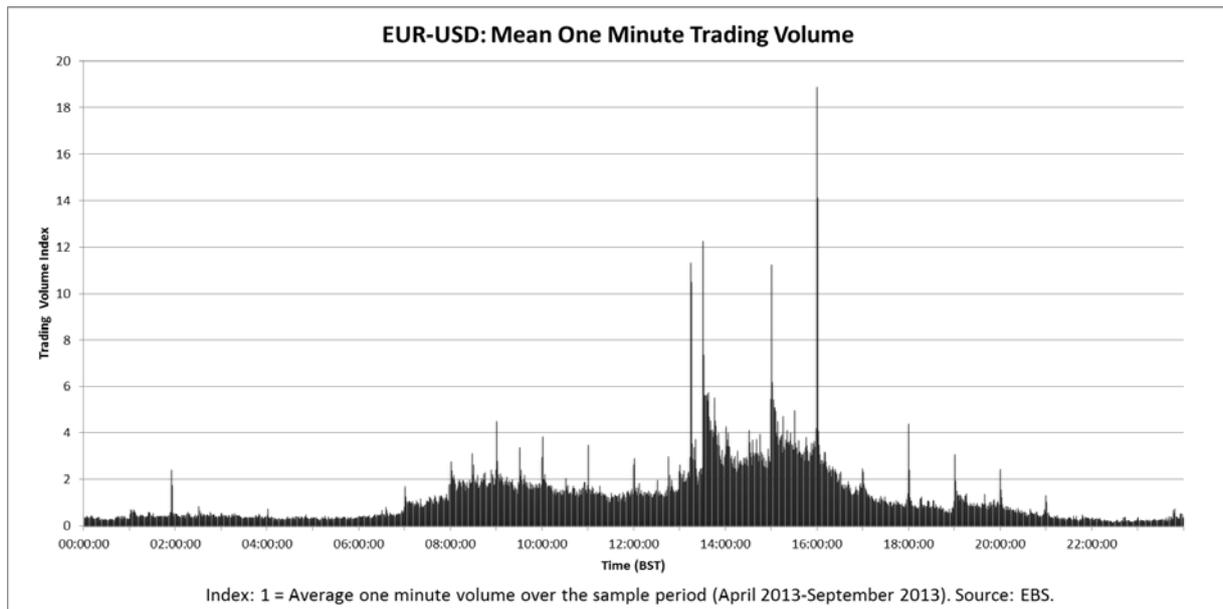
All currencies exhibit sharp spikes in trading volume at certain times of the day, with the timing of some spikes common to all currencies and the timing of other spikes dependent on the specific currency (Chart 1).¹⁶ For all the currencies we analyse, when using a 1 minute window over which to measure trading volume, the WMR 4pm London fix generates the highest average volume spike of the day, in most cases being at least 10 times greater than the

¹⁴ The seven currencies are: EUR, JPY, GBP, CAD, AUD, CHF, MXN. We thank EBS and Thomson Reuters for the data.

¹⁵ We note that a large share of the trading activity around the time of the WMR 4pm fix also occurs on other venues, such as directly with dealers (much of it “internalised” by those dealers) and voice brokers.

¹⁶ We only show graphs describing the behaviour of EUR-USD in the report as they are broadly representative of the behaviour exhibited by the other six currencies.

Chart 1



1 minute mean trading volume for that currency.¹⁷ The other common significant peaks in volume include the North American data releases at 8:30am ET and the 10am ET North American option expiration time.¹⁸ Trading volume can also be high during a specific currency's local fixing window, such as for the euro at the time of the ECB's reference rates at 14:15 CET, and for the yen in Tokyo at 9:55am local time¹⁹, or during their specific data release times. In general over the day, trading volume rises during London daytime hours and is highest when both London and New York are actively trading. The volume spikes associated with the WMR 4pm fix tend to be largest at month ends and quarter ends, likely reflecting larger portfolio rebalancing needs at those times.

Our analysis, which measures "volatility" as absolute price changes²⁰, shows that, on average over the days of our sample (April–September 2013), the large spike in trading volume at the time of the WMR 4pm London fix is not associated with a correspondingly large spike in volatility at that time (Chart 2). In fact, for all currencies, the highest average volatility experienced during the day in a 1 minute trading window is associated with the 8:30am ET North American data release, a time when important macroeconomic information is incorporated into asset prices. The 10am ET option expiration time is also associated with

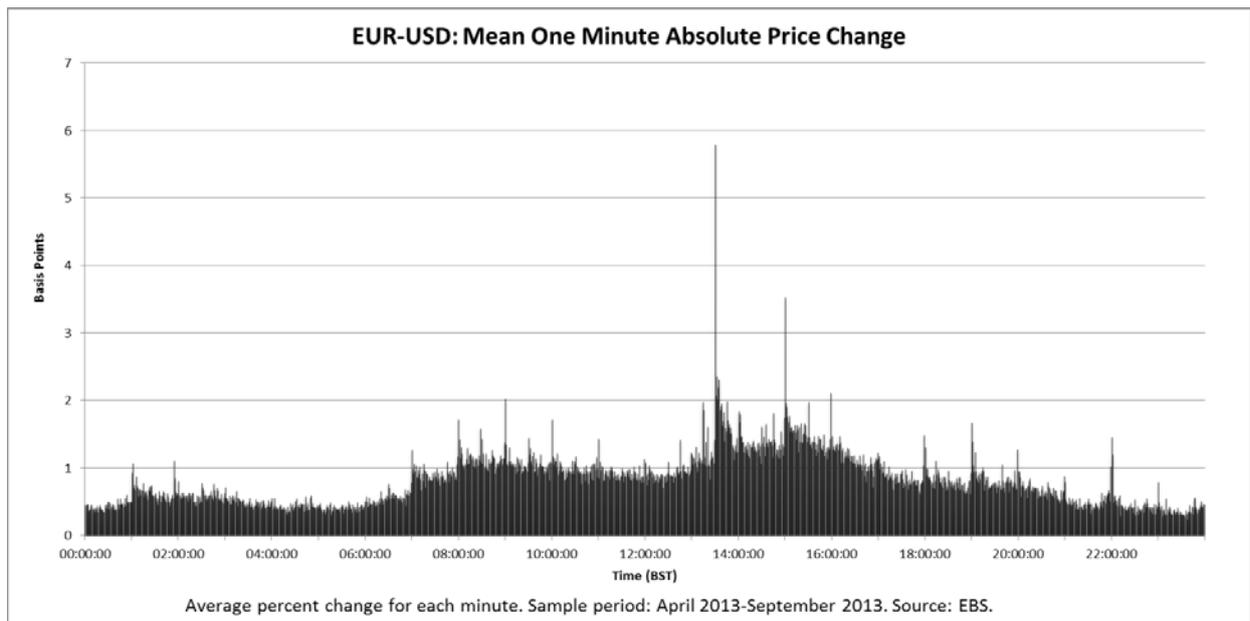
¹⁷ For several currencies, there are a few days when the 1 minute WMR 4pm London trading window can account for over 10% of the platform's daily trading volume.

¹⁸ Data can also be released at 10am ET.

¹⁹ Each financial institution aggregates clients' orders on a daily basis and executes them around 9:55am Tokyo time at a single price applicable to all orders. The prices are determined by individual financial institutions and in many cases differ from each other.

²⁰ We measure volatility as the absolute value of the difference over a given time interval in the natural log of the mid-price of the quotes. Thus it is essentially the absolute percent change in the mid-price over that interval.

Chart 2



higher average price volatility than the WMR 4pm London fix. Average volatility during the 4pm fix rises relative to the minutes before and after the fix, but the increase is not especially large, particularly when taking into account the high volume of trades and the order imbalance at that time. The 90th percentile of price movements at the time of the fix is a bit larger but still moderate in the sample we study. We note, however, that market participants have reported in past years instances of higher volatility around the time of the 4pm fix, particularly at month ends and quarter ends.

We measure the order imbalance in our data as the net of trades done at the ask price and of trades done at the bid price over a given period of time.²¹ On average, 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. The size and the direction of this order imbalance does not have an obvious predictable pattern from day to day, with a notable exception: for most currencies, similar to what we observe for trading volume, the imbalance tends to be larger at month ends and quarter ends (Chart 3).

Trading Patterns around the WMR 4pm London Fixing Window

Trading around the 1 minute fixing window for the WMR 4pm London fix is very concentrated for all seven currencies (Chart 4). Based on analysis of the EBS and Thomson Reuters trading data, it appears that, on those platforms, traders often do not begin to execute their fixing-related trades until they are very close to the start of the 1 minute calculation window. This likely reflects the fact that dealers are trying to minimise their tracking or

²¹ This is equivalent to netting the buying and selling actions of the aggressors (takers) in the market. We used trading volume for the EBS currencies, and number of trades for the Thomson Reuters currencies.

Chart 3

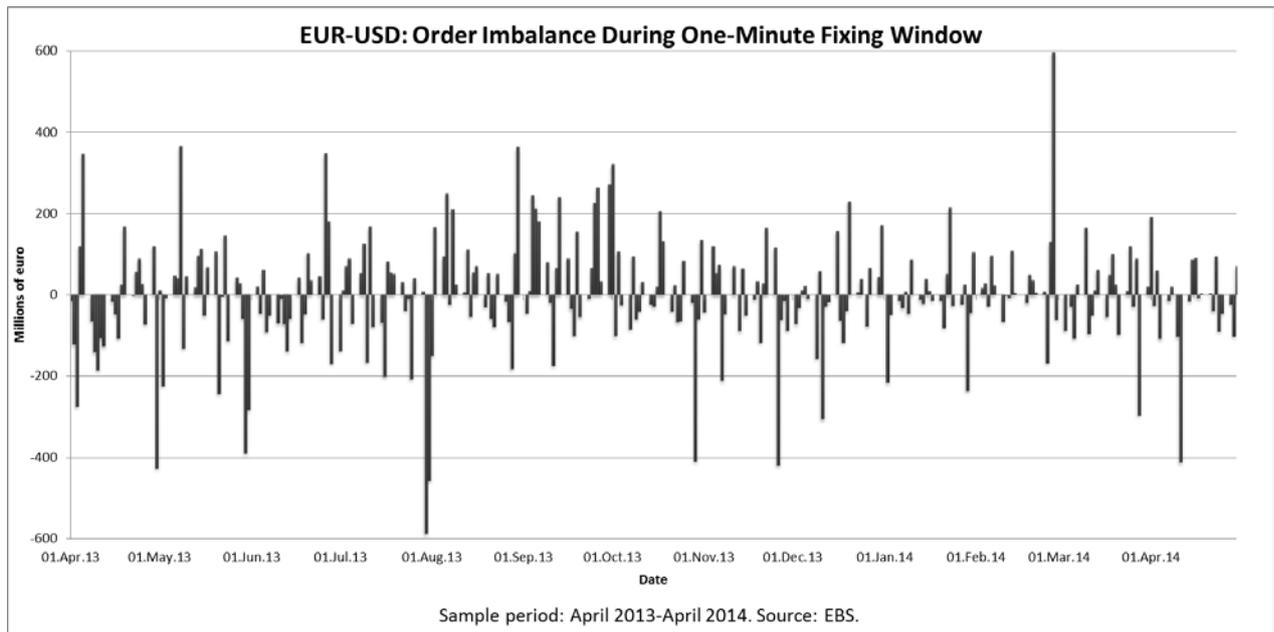
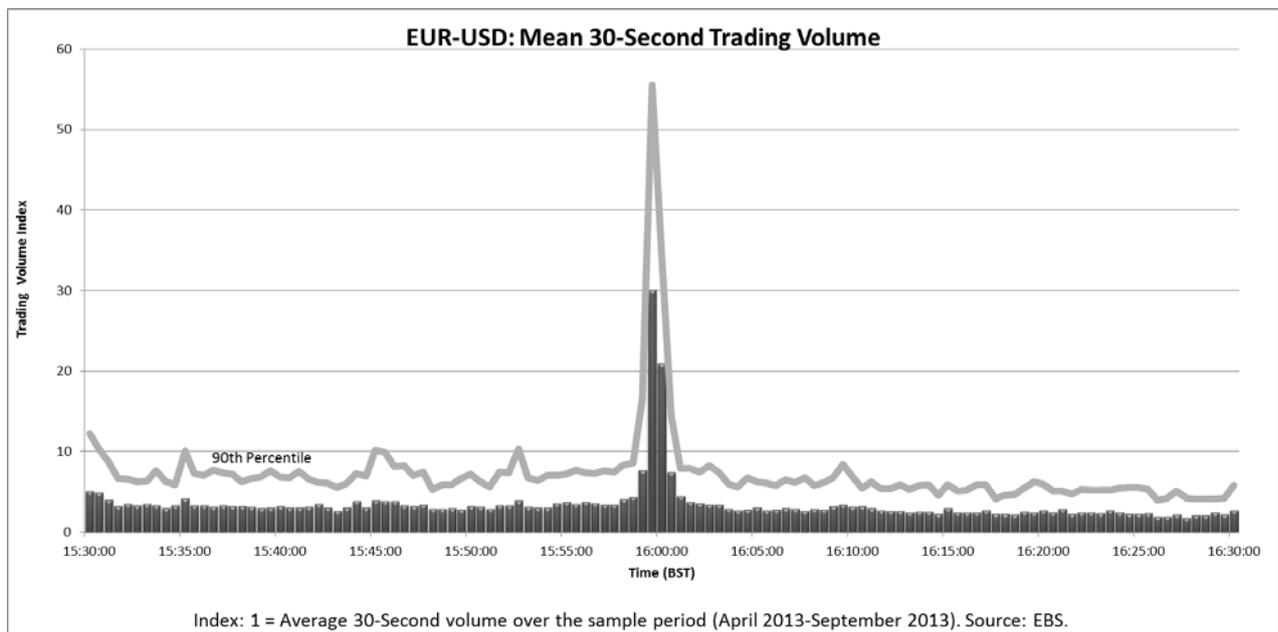
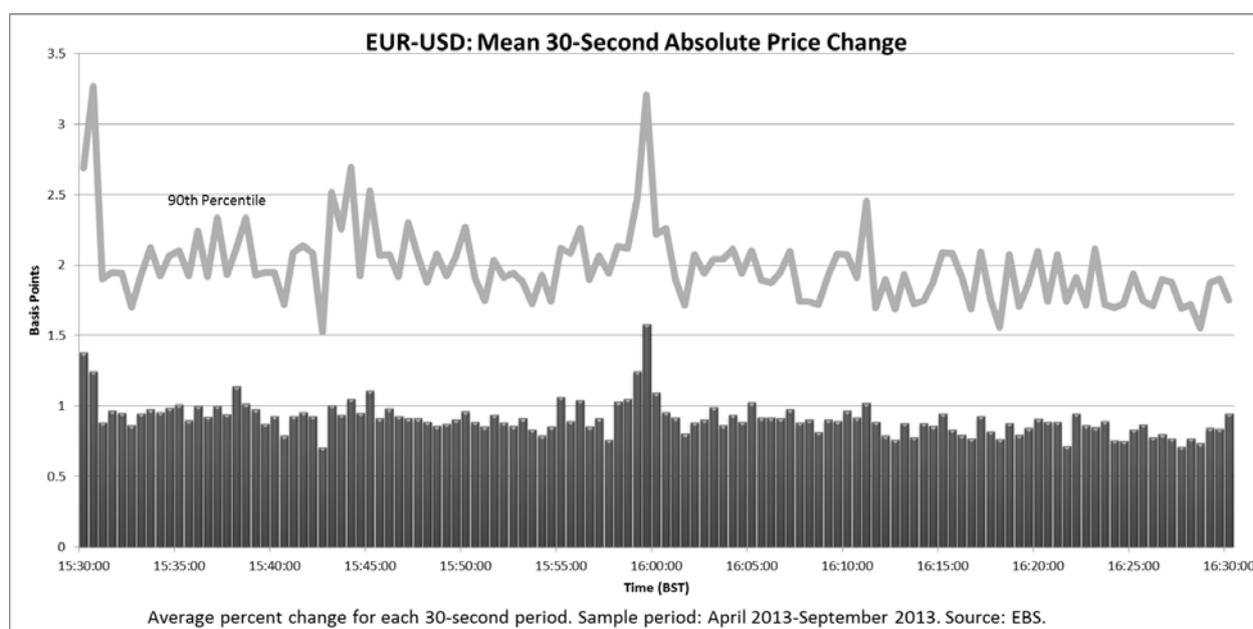


Chart 4



pricing error relative to the fixing price they guarantee their customers. Generally, only the prior 30 seconds show any noticeable rise in trading volume, and in all cases the vast majority of the trading takes place during the actual 1 minute calculation window. Studying second-by-second data, we see that the trading volume rises substantially as the fixing window opens and then often gradually declines as the fixing period proceeds. Trading activity then falls off quickly after the fixing window closes.

Chart 5



The moderate price volatility experienced on average during the fixing window (Chart 5) is probably due in great part to the high market liquidity present at that time. In fact, for most currencies, and despite the uptick in volatility, average bid-offer spreads during the 1 minute window remain at or drop to their lowest levels of the trading day. This could reflect the fact that some traders attempt to fill their currency needs at the fix by posting very aggressive limit orders, instead of crossing the spread to complete their transaction, thereby limiting their execution cost relative to the mid-rate guaranteed to their customers. The average size of individual trades rises during the fixing window, also reflecting the high liquidity during that time interval.

In response to questions on the role of high-frequency trading (HFT) at the time of the WMR 4pm London fix, we studied EBS euro-dollar data which breaks down trading volume into activity by three broad groups of traders: dealers trading manually, dealers trading algorithmically, and prime-brokered customers trading algorithmically. HFT activity accounts for a majority of the third group's trading volume. Our analysis shows that, at the time of the fix, trading volume increases for all three groups. However, the share of overall trading volume accounted for by the HFT group declines sharply, while the share of trading volume accounted for by the manual group rises sharply. The large increase in trading volume on EBS at the time of the WMR fix therefore owes primarily to an increase in the activity of dealers trading manually.

5. Considerations of alternative fix calculations

The IOSCO Principles (Principle 6) emphasise that benchmarks 'seek to achieve, and result in an accurate and reliable representation of the economic realities of the interest it seeks to measure, and eliminate factors that might result in a distortion of the price, rate, index or value of the Benchmark'. There are many different ways of calculating a benchmark rate from

a given data set. In this section of the report we briefly examine the different methods that can be adopted and their merits. Appendix 1 details some of the methods which include the median approach used by WMR and various forms of averaging, including volume weightings. There can be a general conflict between those methods which represent the best statistical representation of the central tendency of a data set and those which are least open to manipulation. That arises because the best statistical measure will usually be the one which makes most use of all the information available – but manipulation can operate precisely by providing such information to influence the fix, which does not represent the true market.

In choosing a preferred fixing method there are several other opposing considerations. First the users wish the fix to be replicable in the sense of being able to carry out their rebalancing transactions at the fix rate. In the case of executing dealers, replicability reduces the risk they are incurring. In the case of the asset managers, replicability minimises (or eliminates) their, and their clients', tracking error from foreign exchange.

Second, the rate should not be easy to manipulate. That could be used to argue for more complex calculations, longer periods and for being unpredictable. Third, the rate should be resilient to changes in trading patterns, particularly in times of market distress. Fourth, one might take into account that a 'market price' is a moment in time – the price fluctuates along with news such that a long period of data would average across many different market clearing prices reflecting different information sets. Fifth, there is a question of whether the market is best served by being concentrated at fix times or more spread out. In general more concentration would give better liquidity. But it can also create greater risks (generating incentives for inappropriate behaviour) as the net trade flows are likely to be larger. Many of these considerations are more prevalent for non-trade currencies where the markets are smaller and more vulnerable to shocks. Non-trade currencies are therefore potentially easier to manipulate, but the same considerations of less trading mean that the incentive will also be less.

The median calculation method favoured by WMR, seems at least as defensible a way of dealing with these trade-offs as any other, such as a volume weighted or time weighted price. It is more difficult to ensure that any given trade will or could affect the median outcome than, say, a mean rate. To be certain to influence the median, the extra trade or trades would have to be such as to hold the whole market close to the desired outcome throughout a large part of the fixing window, with the effect that sufficient trades in the fixing calculation would be close to the median desired. Nevertheless, our recommendations include some suggestions in which the fix calculation might be made more robust to manipulation without sacrificing the desired replicability.

6. IOSCO assessment of implementation

Earlier this year IOSCO completed an assessment of the implementation by the WM Company of the IOSCO Principles in respect of the WM/Reuters 4pm fix. The full findings are included in Appendix 3 and a summary of the main recommendations are reported below.

Background

The FXBG requested IOSCO to undertake a formal review of the WM/Reuters 4pm Closing Spot Rate against the IOSCO Principles (the Principles). Following IOSCO Board approval, a team comprised of members from the IOSCO Task Force on Financial Benchmarks and the IOSCO Assessment Committee was constituted for the purpose of completing the Review.

Purpose and process

The IOSCO Review covered the degree of implementation by WM of the Principles up until 2 May 2014. It is therefore based on the implemented (rather than planned) practices and policies of WM as of that date. The Review was based on WM's response to an Assessment Methodology designed and developed by the Review Team to facilitate the self-assessment of the degree of implementation of the Principles. The Review was undertaken as a desk-based exercise, using those responses. The Methodology was sent to WM on 16 April 2014 with the completed Self-Assessment Template returned to the Review Team on 2 May 2014.

The Review Team notes that the Review was conducted under a tight schedule that limited the opportunity to exchange views with WM on its policies and practices.

While WM applied a rating to each of the 19 Principles, the Review Team used these ratings as a guide only to the development of its assessment. This Report does not contain any ratings of WM given the limited time which was available.

Key findings

The Review Team found that while WM had demonstrated implementation of some Principles, they needed to do substantial work to implement many of them.

On governance and transparency, WM's oversight and control structure with respect to the determination process for the Closing Spot Rate was informal and insufficiently tailored to its benchmark determination business.

To implement the Principles on governance, the Review Team suggested WM should put in place an oversight function that has the purpose of ensuring the integrity of the Closing Spot Rate. The nature, operation and structure of the current oversight function needs to be clear and specifically tailored to meet the governance requirements of the Principles. WM should also adopt a conflicts of interest policy that addresses the risks of the determination process for the Closing Spot Rate.

At the time of the review WM had not published the information and many of the policies that the Principles recommend be made public. This included formalising and publishing the policies (or elements thereof) that the Principles suggest should be made available to stakeholders together with the information required by Principle 9. WM should address these matters as a matter of urgency. To assist WM in complying with Principle 9, the Review Team drew WM's attention to Annex C of IOSCO's *Final Report: Principles for Financial*

*Benchmarks.*²² This Annex details how administrators can comply with the requirements of Principle 9.

On benchmark quality, WM demonstrated some compliance with Principle 7 in that its benchmark is sourced from observable transactions. Additionally, WM largely complied with Principle 8 in providing a clear hierarchy of data inputs to the benchmark.

WM provided some evidence that it considered how its benchmark design resulted in an accurate and reliable representation of the interest it seeks to measure. However the Review Team encouraged WM to continue analysing the benchmark design and in particular whether the chosen sampling period, number and identity of platform sources and rate design are appropriate on an ongoing basis.

WM evidenced that it conducts some due diligence on the controls and market surveillance of the platforms it uses to source data. Its own validation processes and controls also helped to maintain the robustness of the data. The Review Team suggested that WM should continue working with data providers to ensure that the transactions used to determine the Closing Spot Rate are ‘bona fide’ (i.e. executed at arm’s length). It should also adopt a definition of ‘active market’ that meets the expectations of the Principles.

On benchmark methodology, the Review Team found that WM had a clear methodology that is publicly available. Some of its terms should be clarified and expanded upon in order to be fully compliant with the Principles. WM should also amend its procedures to change the methodology and ensure that it has robust contingency and transition plans.

On accountability, WM had largely implemented the principles by having an internal audit conducted of its operations, retaining records as required and cooperating with regulators when requested.

Recommendations

The Review Team made specific recommendations in the Report for certain of the Principles where the recommended action would strengthen the implementation of the Principles by WM.

In light of the above findings and subsequent recommended actions, the Review Team is likely to recommend a further review.

We acknowledge WM plans to make changes and has published a statement of compliance with IOSCO principles.

7. Recommendations

The FX benchmark allegations led a number of institutions to conduct independent research into how and why benchmarks could be manipulated. Conclusions differ slightly but it is clear that it is the incentive and opportunity for improper trading behaviour of market participants

²² IOSCO, *Principles for Financial Benchmarks, Final Report* (July 2013). Available at: <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf>.

around the fix, more than the methodology for computing the fix (although the two interact), which could lead to potential adverse outcomes for clients.

Several banks informed the group that they have already sought to address concerns about trading behaviour and manipulation through revisions to their internal guidelines and procedures for executing orders at the fix. In parallel, there is a growing demand from the asset management industry to request these changes. In what follows we make a series of recommendations which we believe would lead to improved governance and controls in banks or other institutions trading FX.

The recommendations for reform of benchmark rates in the foreign exchange market can be divided into the following broad categories:

- a. The calculation methodology of the WMR benchmark rates.
- b. Recommendations stemming from the IOSCO review of the WMR fixes.
- c. The publication of reference rates by central banks.
- d. Market infrastructure to support the execution of fix trades.
- e. The behaviour of market participants around the time of the major FX benchmarks (primarily the WMR 4pm London fix).

a. Benchmark calculation

- 1) **The group recommends the fixing window be widened from its current width of one minute.** The group notes that market feedback suggested a range between two and thirty minutes with the median response supporting a five minute window centred on the hour (as is currently the case) for the major currencies. The group's view is that extending the width of the window to 5 minutes strikes a balance between reducing incentives for manipulation while at the same time still ensuring the fix is fit for purpose by generating a replicable market price. For less liquid (non-trade) currencies, the group recommends the window be wider than for the major currencies to incorporate an adequate number of observations. But the size of the window should not be fixed for all time nor, ideally, dictated by the authorities. **The appropriate width of the window should be determined, and regularly reviewed, by WM in consultation with market participants** (see recommendation 3). In particular, the group expects that trading patterns will evolve if the changes recommended in this document are implemented which may affect the appropriate width of the window.

Many buy-side contacts have suggested that a longer fixing window would allow the market 'greater time to digest the flow of fixing related trades'. Since the fix is based on the median rate, not the mean over the window, it is not clear that the width of the window should affect when market participants choose to trade in quite the way this comment suggests. There are, however clear benefits to having a wider window: more data points would be available to help fix the rate, and up to a point, that could make it harder to manipulate. That reflects both the fact that it would be harder to influence prices over a more sustained period and unusual price movements around the fix would be more visible. And to the extent that participants do use the whole of the window for fixing-related trades, it could have the effect of reducing

volatility. It won't affect the ability of market participants to manipulate the market ahead of the window and it is not anticipated that changing the fix methodology would solve the manipulation issue on its own.

While these arguments could be extended to advocate an ever-wider fixing window (e.g. an all-day average), the wider the window, the less useful the fix rate as a market price at a point in time. In particular it would be more difficult to replicate the fix rate and risk would be increased for those users trying to match benchmark index rates. For example, the wider the window the more the rate could be affected by emerging news causing uncertainty about where and when the median rate would fall (this is less of an issue if an average rather than a median were used for calculation over a wider window). Most participants and the submissions on the draft report in the main welcomed a wider window, but the precise span varied. Nevertheless the weight of opinion suggests that a 5 minute window might best achieve the desired outcomes.

A flexible approach with different length time windows for less liquid and non-trade currencies instead of a standard one-for-all should be considered, as quotes for less liquid currencies can be less frequent and therefore the trading activity for such currency may not be sufficiently captured in the standard time window. In general, one would expect the window for the non-trade currencies and NDFs to be wider than the trade currencies and the recommendation reflects that expectation. The group sought feedback from market participants as to whether there is a need for alternative benchmark calculations such as a volume weighted or time weighted benchmark price calculated over longer time periods up to and including 24 hours (see section 5 and Appendix 1). Such alternative benchmarks may be more fit for purpose for specific uses (e.g. valuation). A number of submissions addressed this issue, with some participants expressing a desire for a VWAP or TWAP calculation, while others noted potential shortcomings with such measures, resulting from, *inter alia*, data sufficiency. The group notes that where demand for such alternative calculations exists, the market should be well-placed to meet that demand.

In light of the feedback received on the draft report, the group is comfortable that the fixing windows should continue to be centred exactly on the hour (half hour) rather than close or start on the hour. But this, and other potential changes should be kept under review by WM, in consultation with their users (see recommendation 3).

2) The group recommends that WM should incorporate price feeds and transactions data from a broader range of sources to further increase its coverage of the FX market during the fixing window, provided it is assured that the additional sources are of sufficient quality and are representative of the market. WM should regularly assess its coverage as market structure continues to evolve. In that regard the group also proposes that in the short term, WM develop its methodology to utilise the transactional and quote information from both Thomson Reuters and EBS, wherever both are available.

Currently, WMR utilise a single primary data source for the calculation of the fixing rate for each currency pair, with the source varying depending on which platform most trading in the currency pair is traditionally based. However, it receives data feeds from three different platforms, in some cases using the others as back-up when the primary source is insufficient. The core electronic platforms of Thomson Reuters Matching and EBS are particularly

important for price discovery, because they are where the dealers typically manage their risk. But in many of the currency pairs, the single feed covers a small share of overall market activity.

While in principle, arbitrage across FX platforms should ensure the conformity of the pricing available on each platform, including the trades executed on a wider range of platforms should ensure that the fix calculation best represents the market during the fixing window. The more data sources that are utilised, the more representative and resilient the fix will be. Individual FX trading platforms may not always cover the full range of currencies, but rather specialise on certain currencies, so to cover the whole spectrum, feeds from several platforms are needed. It should also reduce the scope, at the margin, for fixing rates to be manipulated. In order to identify which sources should be incorporated, and precisely how such feeds should be incorporated, consideration should be taken as to how representative different platforms are of the market as a whole, including particularly, at the time of the 4pm London fix. That should reflect the size of trades on each platform, and the type of participant, as well as volumes. It should also consider the trading rules that apply on each platform to ensure they are of appropriate standard. With the electronic market place continuing to evolve, the selected platforms should be reviewed on a regular basis in consultation with a user group (see below), subject to keeping some stability in the computation methodology. Such changes to the methodology should be clearly communicated.

- 3) WM should expand their consultation activities to include a named user group to consider proposed changes to the calculation methodology and to ensure it remains appropriate going forward.**

Very few market participants we spoke to fully understood the methodology used in the WMR fixes. Nor did they have any contact with the WM company. The group believes that the quality of the fix benchmarks and the market's confidence in them would benefit from more structured feedback between WM and the major users of the fixes, including the major benchmarks in other markets. This is in addition to the various governance reforms recommended by IOSCO.

b. Recommendations from the IOSCO review

- 4) The group supports the findings of the IOSCO review of WM and endorses the recommendations for improvement contained in that review. The main findings are summarised in Section 6 above and the full report is included as Appendix 3.**

Based on consultation with WM, the group expects these recommendations to be accepted and implemented, and for the WMR fixes to be IOSCO compliant.

c. Foreign exchange reference rates set by central banks

Central banks compute and publish indicative foreign exchange reference rates for public policy purposes. Central bank reference rates are computed according to different methodologies, published at various frequencies and used by a wide range of economic agents for diverse purposes: mostly in legal contacts, valuation of foreign exchange denominated assets and liabilities, and, to some extent, execution of foreign exchange transactions.

Reference rates set by central banks do not fall under IOSCO principles for financial benchmarks since “Benchmark Administration by a National Authority used for public policy purposes (e.g., labour, economic activity, inflation or consumer price indices) is not within the scope of the Principles”.

- 5) **The group considers that, where central banks publish reference rates, it is the responsibility of each to set internal procedures.** Central banks should at least take note of guidance from the IOSCO principles, especially where central bank reference rates are intended for transaction purposes. In that respect, transparency in governance and computation methodology would meet expected public demand and reinforce the credibility of the relevant reference rates.

d. Market infrastructure

As noted above, there is a significant demand amongst various types of market participants to transact at the fixing price. This results in dealers having advanced information about flows as well as having to manage risk around a particular rate which is unknown at the time they take the order. In turn, this creates a potential incentive to (a) manage their risk by finding offsetting market flows amongst other dealers and (b) move market prices beyond that determined solely by demand and supply so as to generate a profit.

One approach would be to seek to prevent dealers from agreeing to trade at a yet-to-be-determined price altogether unless dealers are properly and transparently compensated for the risk. To be effective, an outright ban on fix trading would require legislation or direct regulatory action, which is beyond the scope of this report. And given the current demand for transactions at the fix, it could have unforeseen consequences as asset managers sought alternative ways to reduce their risks. The recommendations in this section of the report are therefore designed to permit such trading activities but to minimise their scope and the potential and incentives for manipulation. This issue may need to be revisited in the light of any future discussions around market regulation.

A number of market initiatives have recently been proposed to address these issues. Most of these have the form of maximising the netting opportunities of fixing orders and then executing the order in a way that clearly delineates the separation between the dealer acting as principal (that is trading on its own account) and acting as agent (that is, transacting solely on behalf of the customer).

- 6) **The group supports the development of industry-led initiatives to create independent netting and execution facilities for transacting fix orders.**

In the draft report, the group sought feedback from market participants on the development of a global/central utility for order-matching to facilitate fixing orders from any market participants. In contrast to the individual market initiatives, a central utility would have the potential to maximise netting opportunities and reduce the need to provide advance information on customer flow to a dealer. The group was aware of the various complex issues that the creation of such a utility could raise, including whether it should be regulated. A number of the responses to the draft report highlighted these complexities, particularly around the execution of the residual trades after the netting process to determine the fixing price. Taking account of the feedback, the group is of the view that such a utility would warrant

further consideration if the industry-led initiatives fail to achieve the necessary improvements in execution of fixing orders, but that much would be learned from allowing those private sector initiatives a chance to succeed.

e. Behaviour of Market Participants

To further address the issues of risk management and incentives to manipulate, the group proposes the following principles and guidelines for participants in the foreign exchange market, both in terms of fixing business and more generally. To be legally enforceable, such principles and guidelines may require legislation or direct regulatory action, which is beyond the scope of this report. However, the group has some confidence that the dealers in particular would accept these measures, if enshrined in the existing codes of conduct. That said, it is important that there is stronger enforcement and demonstration of compliance with these codes than has been the case in the past.

Foreign exchange dealers

Foreign exchange dealers currently receive instructions to trade, often well in advance of the fix, at a price which will be determined by the outcome of their collective trading. As noted earlier in the report, this structure creates incentives and the opportunity to manipulate the fix for example by colluding and moving the market price so as to result in favourable outcomes.

Dealers are also often agreeing to trade at mid-market rates, rather than at the bid or ask. This has a number of implications: customers are not being passed the cost of transactions in the traditional, direct manner (i.e. through the bid-ask spread) – adding to the pressure on dealers to make a return from the price movements. The dealer also faces the risk that the market in fact moves strongly against them before the fix, resulting in a potential for large losses.

In producing this report, questions have arisen about the sharing of information between dealers. In an OTC market, some information is always given up by dealing with a counterparty, but more general sharing of trade information, price or quantity, between market-makers risks inappropriate collusive behaviour.

Existing codes of conduct already describe practices for restricting the sharing of information. For example, section 3 of the NIPS code and section 10 of the ACI Model Code state that that *“Principals or brokers should not, without explicit permission, disclose or discuss, or supply pressure on others to disclose or discuss, any information relating to specific deals which have been transacted, or are in process of being arranged, except to or with the counterparties involved (and, if necessary, their advisors) ... All relevant personnel should be made aware of, and observe, this fundamental principle.”* However, recent allegations of misconduct in the FX market suggest that this principle has not always been followed by all market participants.

The next set of recommendations relate to removing the incentive for dealers to manipulate the price (note that price movements will always occur in the fixing window to reflect the net balance of supply and demand in the market):

- 7) The group recommends that fixing transactions be priced in a manner that is transparent and is consistent with the risk borne in accepting such transactions. This may occur via applying a bid-offer spread, as is typical in FX transactions,**

or through a clearly communicated and documented fee structure such as a direct fee or contractually agreed price. This will help to provide greater clarity and transparency around the transaction cost borne by the customer and the risk borne by the dealer in accepting such a transaction at a yet-to-be-agreed price. **This should occur in the context of dealers having committed to the internal process reforms and codes of behaviour detailed in the recommendations below.**

- 8) **The group recommends that banks (and other FX dealing intermediaries) establish and enforce their internal guidelines and procedures for collecting and executing fixing orders including separate processes for handling such orders.** Such guidelines could for instance specify a time frame for accepting orders as well as thresholds beyond which compliance offices should be informed and/or fixing orders approved by management. Firms should establish distinct and separate processes for managing fixing flows as part of their effort to ensure that customer and flow information is appropriately protected. The group is aware that such reforms are not costless. It is also aware that this may reduce the capacity of banks to absorb the risk from such transactions. Notwithstanding this, the group is of the view that these concerns do not outweigh the potential improvements resulting from this recommendation.
- 9) **Market-makers should not share information with each other about their trading positions beyond that necessary for a transaction. This covers both individual trades, and their aggregate positions.** This should apply at all times, not just in relation to fix orders and, at a minimum, be enforced through audited internal procedures and robust disciplinary procedures. It is not intended that this restriction should prevent information flowing from normal, bilateral OTC trading. But only the minimum amount of information should be provided during the course of such transactions.

More generally, it is understood that market-makers are expected to advise clients on the state of the market. But this should not contain information about individual trades of other customers, nor should it include information of positioning around the fix (that would allow other parties to anticipate fix flows).

- 10) **Market-makers should not pass on private information to clients or other counterparties that might enable those counterparties to anticipate the flows of other clients or counterparties, including around the fix.** Only the information necessary for a transaction should be provided.
- 11) **More broadly, the group recommends that banks establish and enforce their internal systems and controls to address potential conflicts of interest arising from managing customer flow.** The group was told that a number of institutions are initiating changes in this regard.
- 12) **Codes of conduct that describe best practices for trading foreign exchange should detail more precisely and explicitly the extent to which information sharing between market-makers is or is not allowed. They also should, where appropriate, incorporate specific provisions on the execution of foreign exchange transactions including fixing orders.**

In many jurisdictions, the existing codes already contain some of these elements, but they should be reviewed in light of these recommendations. In particular, such a review should focus on the ways in which these codes are implemented, monitored and enforced.

- 13) The Group recommends stronger demonstration by market participants of compliance with the codes of the various foreign exchange committees, as well as their internal codes of conduct.** We would expect well-run organisations to have in place systems and controls appropriate to their business. Market participants should demonstrate that policies, procedures, and controls are in place and that they are operating effectively, including processes for enforcement and monitoring by them so they may be able to evaluate compliance in these areas. Stronger demonstration of compliance could also take the form of yearly reconfirmation of the codes (both internal and external) by sales and traders through specific trainings and regular exams. We would expect more public endorsement of the codes by the various foreign exchange committees and their member banks.

There are a number of voluntary codes of conduct in major FX centres, and the ACI model code is used in many jurisdictions. These codes often reflect the different legal and regulatory systems in the different centres. Nevertheless, the codes often share a common heritage and there has been extensive coordination between those who maintain them, to ensure as much consistency as possible. **The group is aware that the main FX committees are already discussing a process in which the recommendations of our group would be reflected in the relevant codes, including in the ACI model code.**²³

Index providers

The behaviour of the FX market is driven in part by the way that index providers – whether bond, equities, credit or other international indices – use FX rates to construct their indices. For example, by using the mid-rate in an index, passive trackers are motivated to similarly demand a mid-price from their market-maker.

- 14) The group recommends that index providers in other markets should review whether the foreign exchange fixes used in their calculation of indexes are fit for purpose.** The mid-rate may be appropriate if the index is used purely for valuation purposes, although in some index calculations, a benchmark calculated over a longer period may be a more appropriate valuation metric, given the underlying bond or equity markets being aggregated are closing over the course of the trading day. Alternatively, if the index is intended to be used for execution, a bid or offer variation may be more appropriate. FX bids and offers are already available from the WM process. We encourage index providers that use WMR to maintain a dialogue to help inform future changes to the FX fixes.

²³ See <http://www.rba.gov.au/AFXC/meetings/gfxc/2014/gfxc-minutes-20140411.html>.

Asset managers

Asset managers provide a steady demand for transactions at the fix due in part to the use of that fix by the indices they are tracking. In addition, many asset managers appear to have migrated to using fix prices in order to gain more transparency and better prices than other, less formal, arrangements with custodians previously provided. While the use of these fixes may meet those particular demands, there appears to be a tendency, to provide relatively less consideration of the FX risk they face in their investment activity in comparison to other the other types of market risk they face in their investment activity. That is, even if managing a bond or equity portfolio, managers should not ignore the importance of the FX component.

- 15) **The group recommends that asset managers, including those passively tracking an index, should conduct appropriate due diligence around their foreign exchange execution and be able to demonstrate that to their own clients if requested. Asset managers should also reflect the importance of selecting a reference rate that is consistent with the relevant use of that rate as they conduct such due diligence.** They should provide comfort that their foreign exchange transactions are being executed in the best fiduciary interest of their clients and giving due regard to their mandates. Considerations should include whether foreign exchange transactions should be conducted at the WMR 4pm London fix or whether best execution could be achieved at other times of the trading day. Where dealers are given discretionary mandates, the asset manager should ensure that transparency of dealing rates is available e.g. through time stamps. Many of the firms we spoke to already undertake such analysis. This recommendation should be considered as part of ‘best practice’ within the industry and should be regarded as consistent with asset managers’ existing fiduciary responsibility to their clients rather than imposing a separate, new responsibility.

Appendix 1: Alternative methods for calculating benchmark rates of market prices

1. Time Weighted Average Price (TWAP)

A TWAP is the average price over a predefined window, sampled at a regular frequency. The time window can be set to any length to capture a representative view of trade activity.

An advantage of the TWAP is that it is relatively easy to hedge, since the snapshot times are known in advance. A disadvantage is that it can be biased by a single snapshot taken at an illiquid point in time.

2. Volume Weighted Average Price (VWAP)

VWAP calculation takes the weighted average price of trades over a given timeframe, where the weight of each trade is determined by its volume. As a result larger trades have a larger influence on the price.

This methodology is representative since it reflects actually traded prices and volumes in a given time span. In principle, it is difficult to manipulate, since a market participant would need to execute relatively large volumes in one direction to significantly move the VWAP.

The calculation would, however, require the centralised collection of trade data to avoid incentivising the use of particular trading platforms for large trades. It is also not able to be accurately hedged as a fix since the trade information used in the calculation is only available *ex post*.

3. Stylised Volume Weighted Average Price (SVWAP)

A SVWAP calculation takes the weighted average price of trades over a given timeframe but the weights are derived from an exchange rate's liquidity cycle over a typical trade day. The SVWAP divides the fixing period into a large number of point-in-time samples and takes trades from each. More weight is given to the more liquid times of the day. This is beneficial in markets where it is hard to capture trades throughout the day.

The SVWAP shares similarities with the VWAP but is less reliant on a large volume of actual transaction data so can be calculated during times of stress and, because the fixed volume-weights are known in advance, is more easily replicable in the market.

There is added complexity to a standard VWAP as the weights need to be calculated and maintained to accurately reflect the liquidity cycle.

4. Auction

An auction process would collect all fixing orders and determine a single fixing price that minimises the order imbalance. The advantage of an auction is that the resulting price is a good reflection of demand and supply and that it mitigates the problem of timing mismatches between orders. Moreover, all the executed orders actually trade at the same price; hence a dealer that agreed to execute a trade at the fixing price does not run the risk of not attaining the fixing price in the market.

However, an auction process necessitates the creation of a centralised facility. Moreover, the design of the auction process can be important to insure against market manipulation. In particular it requires a non-partisan auctioneer to conduct the process.

Appendix 2: Members of the FSB FX Benchmark Group

Co-Chairs

Guy Debelle

Assistant Governor Financial Markets
Reserve Bank of Australia

Paul Fisher²⁴

Executive Director, Markets
Bank of England

Australia

James Whitelaw

Chief Representative in Europe
Reserve Bank of Australia

Canada

Harri Vikstedt

Director, Financial Markets Department
Bank of Canada

Germany

Jakobus Feldkamp

Senior Policy Officer
Bundesanstalt für Finanzdienstleistungsaufsicht

France

Elie Lewi

Head, Forex and Market Analysis Division
Banque de France

India

Vijaya Bhaskar Pedamallu

Executive Director, Financial Markets Department
Reserve Bank of India

Japan

Yuko Kawai

Head, Foreign Exchange Division
Bank of Japan

Naruki Mori

Assistant Commissioner, International Affairs
Japan Financial Services Agency

Mexico

Jaime José Cortina Morfin

General Director, Central Banking Operations
Banco de México

²⁴ Supported by Emilie Jensert and Mary Williamson.

Singapore	Cindy Mok Deputy Director, Money and Domestic Markets Management Monetary Authority of Singapore
Switzerland	Martin Schlegel Head, FX and Gold Swiss National Bank
UK	Mike Cross Head, Foreign Exchange Division and Reserves Management Bank of England
	Alison Barker Head of Department, Trading Firms and Markets Risk UK Financial Conduct Authority
US	Anna Nordstrom Director, International Markets Federal Reserve Bank of New York
	Alain Chaboud Senior Economist Federal Reserve Board
ECB	Christophe Beuve Head, International Markets Section Directorate General Market Operations
IOSCO	Steven Bardy (Australian Securities and Investments Commission)
FSB Secretariat	Nigel Jenkinson Irina Leonova

Appendix 3: Review of the Implementation of IOSCO's Principles for Financial Benchmarks by WM in respect of the WM/Reuters 4pm Closing Spot Rate

**Review of the Implementation of IOSCO’s Principles
for Financial Benchmarks by WM in respect of the
WM/Reuters 4.p.m Closing Spot Rate**



OICU-IOSCO

**THE BOARD
OF THE
INTERNATIONAL ORGANIZATION OF SECURITIES COMMISSIONS**

FR07/2014	SEPTEMBER 2014
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Contents

1. Introduction 3

2. Review..... 7

1. Introduction

This report sets out the findings of the review (**Review**) by the International Organisation of Securities Commissions (**IOSCO**) of the implementation of IOSCO's Principles for Financial Benchmarks (**Principles**) by The World Markets Company PLC (**WM**) as administrator of the WM/Reuters 4 p.m. London closing spot rate (**Closing Spot Rate**).¹

This report was prepared by a **Review Team** constituted by IOSCO members. The membership of the Review Team is set out below.

Background

At its 24 June 2013 meeting, the Financial Stability Board (**FSB**) Plenary established an Official Sector Steering Group (**OSSG**) of regulators and central banks on interest rate benchmark reform.² As part of this work, the OSSG is to recommend global standards for reference rate benchmarks and review them against these standards. It is to also oversee work on exploring additional reference rates and transition strategies to these rates.

At its February 2014 meeting, the FSB Plenary agreed to extend its work on financial benchmarks to cover global foreign exchange benchmarks.

The Foreign Exchange Benchmarks Group (**FXBG**) was created as a new OSSG subgroup to undertake a review of major foreign exchange benchmarks, including their definitions, construction and governance, as well as an analysis of market characteristics around benchmark fixings. The FXBG will report to the OSSG, who in turn will report to the FSB Board.

After an initial stocktaking exercise, the FXBG agreed to undertake a formal review of the Closing Spot Rate against the Principles.

In April 2014, the co-chairs of the FXBG formally requested, and the IOSCO Board agreed, for IOSCO to conduct a formal review of the Closing Spot Rate and provide the results to the FXBG by 1 July 2014.

Following IOSCO Board approval, a Review Team comprised of members from the IOSCO Task Force on Financial Benchmarks and the IOSCO Assessment Committee was constituted for the purpose of completing the Review.

¹ IOSCO, *Principles for Financial Benchmarks, Final Report* (July 2013). Available at: <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf>.

² See Financial Stability Board, *Progress report on the oversight and governance framework for financial benchmark reform: Report to G20 Finance Ministers and Central Bank Governors* (29 August 2013) for more detail on the OSSG and its work program. Available at: http://www.financialstabilityboard.org/publications/r_130829f.pdf.

Purpose of the Review

Consistent with the FXBG's request, the objective of this Review has been to identify the degree of implementation of the Principles by WM in respect of the Closing Spot Rate.

Currency pairs reviewed

The Review covers the following currency pairs for the Closing Spot Rate:

- USD/CAD (**Trade Pair 1**) and EUR/CHF (**Trade Pair 2**) (together, **Trade Pairs**); and
- USD/IDR (**Quote Pair**).

These three pairs were selected as examples of the major differences in the fixing determination methods that WM employs. Specifically, the Trade Pairs both rely on data concerning concluded transactions but each draws the data from different trading platforms. In contrast, the Quote Pair relies on quotation data that is drawn from a trading platform. The determination techniques for all three currency pairs are set out below.

The Principles

The Principles were published in July 2013. The IOSCO Board intended the Principles to create an overarching framework for benchmarks used in financial markets.

Specifically, they are intended to promote the reliability of benchmark determinations. They addressed benchmark governance, benchmark and methodology quality and accountability mechanisms.

- On **governance**, the Principles are intended to ensure that administrators have appropriate governance arrangements in place to protect the integrity of the benchmark determination process and to address conflicts of interest.
- On **benchmark quality**, the Principles are intended to promote the quality and integrity of benchmark determinations through the application of design factors that result in a benchmark that reflects a credible market for an interest measured by that benchmark. The Principles also clarify that a variety of data may be appropriately used to construct a benchmark, as long as Principle 7 on data sufficiency is met (in particular that the benchmark is based on an active market).
- On **methodology quality**, the Principles are intended to promote the quality and integrity of methodologies by setting out minimum information that should be addressed within a methodology. The Principles require that information be published or made available so that stakeholders may understand and make their own judgments concerning the overall credibility of a benchmark. They also require that the methodology should address the need for procedures that when material changes are planned, alert stakeholders of changes that might affect their positions, financial instruments or contracts.

- The Principles also establish that administrators should have credible policies in case a benchmark ceases to exist or stakeholders need to transition to another benchmark. These policies are intended to encourage administrators and stakeholders to plan prospectively for the possible cessation of a benchmark.
- These Principles also addressed vulnerabilities in the submission process (e.g., conflicts of interest, improper communication between submitters and administrators, selective submission of data) by outlining the responsibilities that should be undertaken by submitters.
- On **accountability**, the Principles required that administrators establish complaints processes, documentation standards and audit reviews intended to provide evidence of compliance by the administrator with its quality standards, as defined by these Principles and its own policies. The Principles also addressed making the foregoing information available to relevant market authorities

The Principles are to be understood as a set of recommended practices that should be implemented by benchmark administrators and submitters.

Content of this report

This report sets out:

- The Methodology used to conduct the Review (**Annex 1**);
- A discussion of the implementation of each of the Principles by WM (with distinctions drawn between the currency pairs where relevant); and
- Where a Principle is yet to be fully implemented:
 - The key reasons why this is the case;
 - A description of WM's plans (if any) to fully implement the Principle (including the timetable for those plans); and
 - Recommended actions for WM to follow in order to fully implement the Principle.

Review Team

The Review Team is constituted by staff from the Financial Conduct Authority (United Kingdom) (Co-Chair), the Australian Securities and Investments Commission (Co-Chair), the Federal Financial Supervisory Authority (Germany), the Financial Services Agency of Japan and the Financial Services Board (South Africa).

The authorities of the Review Team are members of IOSCO's Assessment Committee or Task Force on Financial Market Benchmarks (**Task Force**). The Assessment Committee conducts

assessments of IOSCO's members against IOSCO principles and standards. The Task Force developed the Principles.

Members of the IOSCO Secretariat provided administrative support to the Review Team.

Methodology

The Review was undertaken as a desk-based exercise, using responses provided by WM to the Methodology designed and developed by the Review Team.

The Methodology was developed to facilitate the self-assessment of the degree of implementation by WM of the Principles.

The Methodology was also designed as a means for identifying any potential gaps, inconsistencies, weaknesses and areas for action by WM that may be necessary.

The Methodology includes a self-assessment template (**Self-Assessment Template**) that sets out fields for:

- WM to summarize its relevant policies and practices;
- The Key Indicia of the implementation of each relevant Principle;
- The analysis of whether WM's policies and practices meet each specific Key Indicia (i.e. whether the relevant Principle has been implemented);
- WM to conclude what rating (as set out in the Methodology) should apply to each Principle; and
- WM to describe any plans for further policies and practices that are relevant to the implementation of the Principles.

The Methodology was sent to WM on 16 April 2014 with the completed Self-Assessment Template returned to the Review Team on 2 May 2014.

Assessment process

The Review Team considered the completed Self-Assessment Template and used this to assess whether WM had implemented each of the Principles.

The veracity of WM's responses was not checked other than against the policy and working documents that WM supplied voluntarily and at the Review Team's request. Accordingly, the Review Team has not observed directly the practices which WM asserts that it follows in the determination process.

While WM applied a rating to each of the 19 Principles, the Review Team used these ratings as a guide only to the development of its assessment. This Report does not contain any ratings of WM. This is because of the limited time which was available to the Review Team

to prepare this report.

WM was given the opportunity to check the accuracy of the descriptions of their policies, practices and plans prepared by the Review Team.

Approach to planned policies and procedures

A key part of this report is the description of the status of any plans for WM to fully implement (or to ensure a greater degree of implementation of) the Principles. The report does not assess these plans; it simply describes them.

Approach to assessment or interpretation of the Principles

The Review Team concluded that the Principles (or elements thereof) that concern submissions (chiefly Principle 14) are not applicable to WM.

This is because the determination of the Closing Spot Rate for the currency pairs reviewed relies on data being fed automatically through from specified trading platforms. The data is not submitted by market participants (as is the case, for example, with the determination process for various interbank offered rates that measure funding costs).

2. Review

2.1 Introduction

WM is the administrator of the WM/Reuters foreign exchange benchmark rates. As administrator, it has primary responsibility for all aspects of the benchmark determination process.

While WM does not outsource any activities relating to the benchmark administration process, it does source trade, order, and quote data from certain third party platform operators, such as Reuters Limited (**Reuters**) and EBS, pursuant to licensing agreements.

As Reuters supplies underlying data, the licensing agreement with Reuters grants it joint ownership of the intellectual property rights over the WM/Reuters benchmarks. WM also relies on the Reuters to distribute benchmarks to certain clients.

The WM/Reuters Closing Spot Rate Service was launched in 1994.

WM/Reuters Spot Rates are published 24 hours a day from Monday 6am (Sydney time) until Friday 10pm (UK time). The WM/Reuters forward and non-deliverable forward rates are published daily from 6am – 9pm (UK time); with additional fixes at 10.00am & 4.00pm Sydney time, 2.00pm New Zealand time, 11.00am Singapore time and 5:00pm New York time.

WM is a wholly owned subsidiary of State Street Corporation (**State Street**). WM is headquartered in Edinburgh, Scotland.

WM is not currently subject to regulatory oversight.

2.2 Overview of assessment and recommended actions

Overall assessment

The Principles were released in July 2013 and all benchmark administrators covered by the Principles were asked to publically disclose the extent of their compliance with them within 12 months (i.e. July 2014).

The Review Team assessed WM's policies and practices as of 2 May 2014. As of this date, WM has demonstrated implementation of some Principles but still needs to do substantial work to implement many of them.

As noted below, however, WM has started to work on reforms to its current policies and practices with a view to better implementing the Principles. It is working towards implementing the Principles by July 2014 (the original point in time by which IOSCO expected implementation to have occurred).

The Review Team has also identified recommended actions that WM could take to improve its implementation of the Principles. The Review Team notes that many of the recommended actions are already covered by reforms in the process of being implemented by WM. The Review Team also notes that the Review was conducted under a tight schedule that limited the opportunity for the Review Team and WM to exchange views on its policies and practices. In particular, the Review Team was not able to take up WM's proposition of a site visit for this Review. The Review Team acknowledges that further communications could have led to the provision of additional documents and explanations by WM to support its response.

Therefore, as recommended below, a subsequent review would be an opportunity to consider the implementation of the Principles in a more in-depth fashion.

On governance and transparency, WM's oversight and control structure with respect to the determination process for the Closing Spot Rate is informal and insufficiently tailored to its benchmark determination business.

To implement the Principles on governance, WM should put in place an oversight function that has the purpose of ensuring the integrity of the Closing Spot Rate. The nature, operation and structure of the current oversight function needs to be clear and specifically tailored to meet the governance requirements of the Principles.

WM should also adopt a conflicts of interest policy that addresses the risks of the determination process for the Closing Spot Rate. Currently, WM relies on the policy of its corporate parent, State Street, which is not sufficiently specific to the WM's determination of the Closing Spot Rate.

WM has not published the information and many of the policies that the Principles recommend be made public. This includes formalising and publishing the policies (or elements thereof) that the Principles suggest should be made available to stakeholders together with the information required by Principle 9. WM should address these matters as a matter of urgency. To assist WM in complying with Principle 9, the Review Team would draw WM's attention to Annex C of IOSCO's *Final Report Principles for Financial Benchmarks*.³ This Annex details how administrators can comply with the requirements of Principle 9.

On benchmark quality, WM demonstrates some compliance with Principle 7 in that its benchmark is sourced from observable transactions. Additionally, WM largely complies with Principle 8 in providing a clear hierarchy of data inputs to the benchmark.

WM has provided some evidence that it is considering how its benchmark design results in an accurate and reliable representation of the interest it seeks to measure. However the Review Team encourages WM to continue analysing the benchmark design and in particular whether the chosen sampling period, number and identity of platform sources and rate design are appropriate on an ongoing basis.

WM has evidenced that it conducts some due diligence on the controls and market surveillance of the platforms it uses to source data. Its own validation processes and controls also help to maintain the robustness of the data. However, WM should continue working with data providers to ensure that the transactions used to determine the Closing Spot Rate are 'bona-fide' (i.e. executed at arm's length). It should also adopt a definition of 'active market' that meets the expectations of the Principles.

On benchmark methodology, WM has a clear methodology that is publicly available. Some of its terms should be clarified and expanded upon in order to be fully compliant with the Principles. WM should also amend its procedures to change the methodology and ensure that it has robust contingency and transition plans.

On accountability, WM has largely implemented the Principles by having an internal audit conducted of its operations, retaining records as required and cooperating with regulators when requested.

³ IOSCO, above n 1.

Summary table of assessments

No	Principle	Summary of assessment and recommended actions
Governance		
1.	Overall responsibility of the administrator	<p>Further work needed to fully implement the Principle</p> <p>While WM has overall responsibility for the Closing Spot Rate, it lacks a formal oversight function that is accountable for the development, issuance and operation of the Closing Spot Rate.</p> <p>WM should put in place a formal oversight function with an identifiable structure and appropriate membership.</p>
2.	Oversight of third parties	<p>Further work needed to fully implement the Principle</p> <p>WM evidences some implementation of Principle 2 but it currently lacks all required policies with respect to the oversight and monitoring of third parties involved in the benchmark determination process.</p> <p>These policies should be adopted.</p>
3.	Conflicts of interest for administrators	<p>Further work needed to fully implement the Principle</p> <p>WM currently relies on State Street’s conflicts of interest policy. This is not tailored to WM’s benchmark determination process.</p> <p>WM should ensure that its conflicts of interest policy is specific to its business, has identified potential risks and conflicts, is appropriately detailed and contains the relevant information. The policy should be updated periodically.</p> <p>WM should also ensure that its conflicts of interest framework otherwise complies fully with the requirements of Principle 3.</p> <p>WM should address the requirements of Principle 3 as a matter of priority.</p>
4.	Control framework for administrators	<p>Further work needed to fully implement the Principle</p> <p>WM lacks a formal oversight function which means it falls below the expectations of this Principle.</p> <p>WM should adopt and publish a control framework that is adapted to its processes.</p>

No	Principle	Summary of assessment and recommended actions
5.	Internal oversight	<p>Further work needed to fully implement the Principle</p> <p>WM lacks a formal oversight function which means it falls below the expectations of this Principle.</p> <p>While WM's informal Oversight Working Group has started to look at the methodology and related issues such as research and governance, the appropriateness and composition of the group's membership is not clear.</p> <p>Further, its independence could be called into question as one member of staff has sole discretion over the appointment of members to the group. This could affect the robustness of the governance and challenge process.</p> <p>WM should put in place a formal internal oversight function.</p>
Quality of the benchmark		
6.	Benchmark design	<p>Further work needed to fully implement the Principle</p> <p>WM has shown some evidence that it uses liquid platforms for its rate determination process and that it adapts and changes its data sources in reaction to market developments.</p> <p>WM has also shown evidence that it is considering enhancements to its methodology to make the benchmark design more robust and more representative.</p> <p>WM should consider the benchmark design process, including the choice of trading platform, sampling period and calculation method, to satisfy itself that the Closing Spot Rate results in an accurate and reliable representation of the interest it seeks to represent. WM should also consider using data from a wider range of sources.</p>
7.	Data sufficiency	<p>Further work needed to fully implement the Principle</p> <p>WM relies on data drawn from observable transactions sourced from platforms which show a high level of liquidity. However WM should satisfy itself that its definition of an 'active market' takes into account the factors set out in Principle 7.</p> <p>In order to control for the bona-fide nature of the input data WM relies on the controls, surveillance and governance framework of the platforms it used. In order to do so, it performs regular due diligence on these controls. However WM needs to formalise its draft due diligence policies.</p> <p>The Review Team notes that WM has been reviewing further enhancements to further minimise the impact of attempted manipulation in the underlying</p>

No	Principle	Summary of assessment and recommended actions
		<p>markets.</p> <p>WM should consider further steps it could take to better ensure that the transactions on which it relies for the determination of the Closing Spot Rate are 'bona fide'. This could be, for example, by seeking undertakings from the providers of the pricing.</p>
8.	Hierarchy of data inputs	<p>Principle broadly implemented, but some actions recommended</p> <p>WM has a policy on the hierarchy of data used in the determination process.</p> <p>WM, however, should clearly provide for a hierarchy of alternative data for the Quote Pair.</p>
9.	Transparency of benchmark determinations	<p>Further work needed to fully implement the Principle</p> <p>WM discloses inputs to the benchmark through its methodology or an email alert if inputs change.</p> <p>The disclosure of change inputs, however, appears to be conducted on an ad hoc basis and there is no policy giving comfort that WM will always be this transparent. Further, it does not disclose a summary of the data inputs used in each determination of the Closing Spot Rate.</p> <p>Because of this, WM should adopt procedures to ensure the disclosures required by Principle 9 concerning inputs are made on a consistent basis.</p>
10.	Periodic review	Principle implemented
Quality of the methodology		
11.	Content of the methodology	<p>Further work needed to fully implement the Principle</p> <p>The methodology used by WM for the Closing Spot Rate does not cover a number of topics outlined in Principle 11. In particular, it fails to address what would happen in times of market stress, including if the platforms relied upon do not evidence any trading at all.</p> <p>WM should revise its methodology to address these deficiencies.</p>
12.	Changes to the methodology	<p>Further work needed to fully implement the Principle</p> <p>While WM has a policy concerning changes to its Closing Spot Rate methodology, it is not clear how any proposed changes are overseen within WM or how such changes are consulted upon.</p> <p>WM should adopt a policy on changes to its methodology in line with</p>

No	Principle	Summary of assessment and recommended actions
		Principle 12.
13.	Transition	<p>Further work needed to fully implement the Principle</p> <p>WM has not taken steps to encourage users of the Closing Spot Rate to have fallback provisions nor has it sufficiently provided for the engagement with those users in its cessation procedures.</p> <p>WM should adopt more specific cessation procedures and encourage its users to have fallback contingencies if the Closing Spot Rate is not published.</p>
14.	Submitter code of conduct	Not applicable
15.	Internal controls over data collection	<p>Further work needed to fully implement the Principle</p> <p>WM has a detailed process to select data sources, including a due diligence check on their controls and procedures. It currently lacks, however, contractual arrangements with Currenex and should adopt these.</p>
Accountability		
16.	Complaints procedures	<p>Further work needed to fully implement the Principle</p> <p>WM's complaints policy is not publicly available.</p> <p>WM should make the policy publicly available.</p>
17.	Audits	<p>Principle implemented, but some actions recommended</p> <p>WM has undertaken appropriate internal audit.</p> <p>WM should assess the need for an external audit.</p>
18.	Audit trail	<p>Principle implemented, but some actions recommended</p> <p>WM has a practice of generally retaining records for five years.</p> <p>WM should consider adopting a policy concerning record retention.</p>
19.	Cooperation with regulatory authorities	<p>Principle implemented</p> <p>WM appears to cooperate with regulatory authorities.</p>

Commentary on implementation plans

WM has indicated that it is in the process of making changes to its policies and procedures to

better implement the Principles.

WM states that it is in the process of enhancing its methodology, which, if amended as indicated by WM, should address some (but not all) of the identified shortcomings.

Furthermore, WM has identified the need to put in place a formal oversight function that meets the Principles. The Review Team understands that WM is currently working on developing this oversight function.

The Review Team notes these plans favourably but is not yet in a position to comment on whether they will be effective in bringing WM's policies and practices into line with the Principles.

2.3 Recommendation to FXBG

As WM has further work to do to implement a number of Principles, the Review Team recommends that a further review of WM in respect of the Closing Spot Rate be carried out in mid-2015 by IOSCO.

2.4 Principle-by-principle analysis

A. Principles relating to governance

Principle 1 – Overall responsibility of the Administrator

Description of implemented policies and practices

WM is the administrator of the Closing Spot Rate. The Closing Spot Rate includes the Trade Pairs and the Quote Pair.

As the administrator of the Closing Spot Rate, WM is responsible for all aspects of the determination and administration processes applicable to the Closing Spot Rate.

This includes the development, determination, and distribution of the Closing Spot Rate and establishing credible and transparent governance, oversight, business continuity, and accountability procedures.

WM has a publicly available methodology (**Methodology**). This provides that WM, under the agreement with Reuters, owns the Methodology and is responsible for the development, determination, operation and governance of the Closing Spot Rate.

WM has an informal Oversight Working Group (**OWG**) which performs an oversight function over the determination process. WM states that the OWG is comprised of members and advisers with risk, audit, legal and index-specific experience.

WM's board of directors exercises high-level oversight over the determination and publication of the Closing Spot Rate.

WM has internal controls that seek to support the quality of the Closing Spot Rate determination and distribution processes.

WM is also subject to the State Street's corporate risk framework and subject to onsite audits by State Street's corporate audit team.

WM states that it does not outsource any activities relating to the Closing Spot Rate determination and administration processes.

It does, however, source trade, order, and quote data from Reuters and EBS pursuant to licensing agreements with Reuters and EBS and, in certain limited circumstances, Currenex, Inc. (**Currenex**). There is currently no licence agreement with Currenex.

WM also relies on Thomson Reuters to distribute the Closing Spot Rate to certain subscribers.

Assessment of implementation of Principle

WM's practices demonstrate some responsibility (as defined by Principle 1) for the determination process

for the Closing Spot Rate. This responsibility is seen in WM's control of the Methodology and internal procedures to ensure the quality of the Closing Spot Rate.

Despite this, WM lacks an identifiable, documented and coherent oversight function that is accountable for the development, issuance and operation of the Closing Spot Rate.

The OWG is presently informal and lacks clear accountability for the development and issuance and operation of the Closing Spot Rate. Specifically, its remit, precise scope and governance arrangements are not yet finalized.

The Review Team has seen evidence that the OWG has started to look at methodology and related issues such as research and governance. The appropriateness and composition of the group's membership is not clear as the designations of most of the membership are not given and the group's independence could be called into question as one member of staff has sole discretion over the appointment of members to the group. This could affect the robustness of the governance and challenge process.

These points mean that WM has further work to do to implement Principle 1.

Description of planned policies and practices (including timelines)

WM is in the process of amending its Methodology to more explicitly describe how it complies with the Principles. A draft has been prepared and is now subject to internal review and approval.

WM also states that it is introducing more rigour into the OWG as part of the governance enhancements. The formal scoping documentation for the OWG is currently subject to further refinement. WM states that this refinement would cover the remit, precise scope and governance arrangements of the oversight function. WM envisage the process being complete by July 2014.

WM states that it is currently considering the appropriate overall structure and governance arrangements of its benchmarks determination process, including whether it might be more appropriate to retain the OWG as a technical review group and instead to enhance its board composition and governance in order for the WM board to perform the "oversight function" required by the Principles.

Recommended action

WM should:

- Put in place and document an identifiable and formalised oversight function to ensure transparency in governance (e.g. terms of reference, membership remit, and minutes of meetings).
- Consider documenting, and publishing where appropriate, the decision making process and the parameters of discretion affecting the compilation and determination of the Closing Spot Rate.

Principle 2 – Oversight of third parties

Description of implemented policies and practices

WM performs most of the activities involved in the Closing Spot Rate determination process. It does not outsource any determination functions or employ external calculation agents.

WM does, however, source trade, order and quote data from third party platform operators pursuant to licensing agreements with Reuters and EBS. In certain circumstances, WM relies on the technology and infrastructure of these third party platform operators to source the relevant data.

WM also relies on the Reuters' RMDS system to distribute the Closing Spot Rate rates to certain subscribers.

WM maintains some oversight over the platform operators. WM has contractual agreements with Reuters and EBS which clearly define their roles and obligations. WM monitors compliance with these arrangements through, among other things, legal reviews of the agreements and diligence discussions. WM maintains a diligence response matrix on Thomson Reuters and EBS. The Review Team has seen evidence of the due diligence response matrixes.

WM's internal operational procedures provide for data input monitoring and verification based on pre-defined system tolerances. It does not, however, have written policies concerning the oversight of third parties, other than the licensing agreements.

The publicly available Methodology specifies the role that the relevant platform operators have in the calculation of the Closing Spot Rate.

Assessment of implementation of Principle

WM evidences some implementation of Principle 2 but has further work to do to evidence full implementation of the Principle. This is because although it has contractual arrangements with Reuters and EBS and has made the role of third parties clear in the published Methodology, WM does not have a contractual arrangement with Currenex.

While the matrixes provide evidence of third party monitoring, WM does not have a formal monitoring policy that sets out how and when it monitors third party contracts and agreements.

Description of planned policies and practices (including timelines)

WM is in the process of putting in place a formal contract with Currenex.

WM intends to complete a due diligence report on Currenex by July 2014.

WM is working on greater collaboration with Reuters and EBS with regards to information sharing. Non-disclosure agreements are in place to facilitate the sharing of information required by WM to assist it in its

oversight of the Closing Spot Rate.

Recommended action

WM should:

- Adopt and follow a policy to systematically oversee the performance of third parties and their compliance with the contracted standards.

Principle 3 – Conflict of interest for Administrators

Description of implemented policies and practices

WM's employees are subject to State Street's **Standard of Conduct**.

This sets out State Street's minimum requirements on the identification, disclosure, management, mitigation and avoidance of conflicts of interest.

It covers, among other things, limitations on non-work activities that may create conflicts of interest and procedures for requesting approval to participate in certain activities (such as serving on the board of directors of any organization). WM's employees are also required to complete annual training with respect to the Standard of Conduct and business conflicts policy. These policies and procedures are reviewed and updated by the State Street Group annually.

WM has 17 employees each with defined roles and reporting lines and subject to a defined escalation process. Personnel with approval responsibilities are specifically identified and segregated from determination duties (e.g. operations manager).

WM states that it has not disclosed any material conflicts of interests to its users and any relevant regulatory authority because it has not had any material conflicts of interest but will disclose to subscribers as appropriate.

WM states that it currently follows certain practices that are relevant to Principle 3:

- There are internal procedures and oversight functions in place to manage existing and potential conflicts of interest in the Closing Spot Rate determination process.
- Personal interests and connections or business connections are monitored to not compromise WM's functions.
- There is physical segregation of WM's personnel from State Street's Global Markets Division and

other front office staff, procedures to manage employee communications with third parties, procedures to ensure WM and employees have no vested interest in the outcome of the Closing Spot Rate (or other WM/Reuters benchmark rates), and employee declarations of personal financial holdings.

- WM is organizationally segregated from State Street's front office functions including the State Street FX principal trading business. This trading business is in the State Street Global Markets division, established in a separate location and is treated by WM in the same manner as any other subscriber.
- WM's employment contracts do not mention that the value or levels of the Benchmark Rates are not taken into account when determining remuneration.

The Review Team has not seen evidence to substantiate many of these points.

Conversely, the Review Team has been able to evidence that there is clear supervision and sign-off processes prior to releasing Benchmark Rate determinations. The Review Team evidenced that there are sign off processes in place in WM's forms and procedural documents in relation to benchmark determinations.

Finally, WM is subject to routine internal audits by State Street's corporate audit team which monitors and reviews any potential and actual conflicts of interest.

Assessment of implementation of Principle

WM is currently following practices of its corporate parent, State Street, that address many of the expectations of Principle 3.

The Review Team did not evidence a number of the requirements of Principle 3 and WM should address these as a matter of priority.

Also, the initial draft conflicts of interest policy seen by the Review Team would benefit from some clarification. For example:

- The definition of conflicts in the document is not specific to WM's business or to the benchmarks determination process.
- The policy does not give examples of actual or potential conflicts of interest.
- The policy does not make reference to the conflicts of interest procedures document that WM intends to develop.
- The policy documents do not make reference to the use of expert judgement and how conflicts in this regard should be managed.

- The document does not include an approval or revision date to signal that the document is current.

Description of planned policies and practices (including timelines)

WM is in the process of drafting a conflicts of interest policy and disclosure document. Both of these will apply specifically to WM as a benchmark administrator. Drafts have been prepared but are still subject to internal review and approval. WM aims to finalise and implement them by July 2014.

Once this policy is finalized, WM currently intends to develop internal conflicts of interest procedures to provide guidance on the policy. WM also intends to require its employees to participate in periodic conflicts training and certification.

WM also currently plans to complete an external audit in the year 2014.

Recommended action

WM should:

- Ensure that its conflicts of interest policy is specific to its business, has identified potential risks and conflicts, is appropriately detailed and contains the relevant information.
- Ensure that the policy is updated periodically.
- Otherwise, ensure that its conflicts of interest framework complies fully with the requirements of Principle 3.

Principle 4 – Control framework for Administrators

Description of implemented policies and practices

WM's control framework appears constituted by the practices described in connection with Principle 1 and its risk framework.

The oversight of the risks inherent in the WM business is governed by the State Street Corporate Risk Framework. This uses a ‘three lines of defence’ model. The three lines are:

- 1) Business controls: The business owns and is responsible for managing risks within its business;
- 2) Corporate functions oversight: Control partners (risk, compliance, legal) provide independent oversight delivered through corporate, business aligned and regional personnel; and
- 3) Corporate audit: Corporate audit provides independent assessment of the effectiveness of the first and second lines of defense in carrying out their responsibilities.

First Line of Defence – Business Management

WM periodically reviews the potential and actual risks associated with the determination and distribution of the benchmark rates and tailors its control framework to address material concerns.

The main document is the WM Controls Matrix, which summarises the controls performed on each fix and on a daily, weekly, monthly and ad hoc basis.

WM performs periodic due diligence over Closing Spot Rate inputs and third party platform operators.

The Review Team was provided with a training program for staff of a certain grade. However, WM has not supplied evidence of a training program encompassing all staff grades to the Review Team although some materials supplied evidence supervision of the development of staff competencies. This program includes close supervision of staff until they achieve pre-determined competence levels. In order to support ongoing standards, this training program is augmented by periodic coaching and professional development.

WM has put in place management reporting to monitor, escalate and manage risks, including training of new staff.

WM’s states that its personnel are included in State Street corporate training. To supplement this formal training, WM’s practice is to provide more targeted training and an operational internal procedures document to personnel, which is reviewed annually (at a minimum).

Second Line of Defence – Risk, Compliance, Legal

WM’s control framework includes the State Street Corporate Risk Framework, the current Methodology, the Standard of Conduct (including the appropriate conflicts sections) and a corporate whistleblowing policy to facilitate early awareness of potential misconduct. State Street’s Enterprise Risk Management function provides risk oversight, support and coordination to ensure consistent identification, measurement and management of the risks in providing products and services to WM’s subscribers.

WM states that oversight is achieved through three key components:

- Governance structures ensure there is discussion and review at the appropriate level and set the tone for escalation and transparency;
- Risk policies are in place to clearly set out risk limits, standards and expectations of behaviour

and;

- Tools and programs are employed to identify, manage and report risk.

As part of this risk management, WM reports key risks on a weekly and monthly basis and also maintains a monthly operational risk report.

WM personnel are included in State Street Corporate training programs, including AML, Ethics and BCP.

Third Line of Defence (Internal Audit)

State Street's corporate audit team provides periodical independent oversight over all units in State Street, including WM, based on an audit methodology that drives the frequency of the audit work and the process to be employed. WM audits are currently performed regularly. The most recent audit (an integrated business and technology scoped audit) report of WM was finalized in February 2014.

Also, WM's controls matrix lists the controls performed on each fix and on a daily, weekly, monthly and ad hoc basis.

Assessment of implementation of Principle

WM appears to have a control framework in practice, particularly with respect to the verification of individual Closing Spot Rate determinations.

However, WM has further work to do to implement Principle 4 as it currently lacks a formal oversight function (as described in connection with Principle 1) and its conflicts of interest policy is not yet adequate (as described in connection with Principle 3).

Furthermore, a summary of WM's current control framework is not published or made available to stakeholders.

Lastly, WM has not supplied evidence that would allow the Review Team to understand how well the controls that WM does have in place are working.

Description of planned policies and practices (including timelines)

As noted above, WM is currently amending its Methodology and is in the process of drafting a conflicts of interest policy and a conflicts of interest disclosure document, both of which will apply specifically to WM and be tailored to its role as a benchmark administrator. Drafts have been prepared but both of these documents are still subject to internal review and approval. WM aims to finalise and implement them by July 2014.

Recommended action

WM should:

- Adopt and publish (or make available) a control framework (both policies and practices – in summary form if applicable) that is specific to WM’s benchmark determination process.
- Follow any recommended actions for Principles 6, 7, 9, 11, 13 and 15.

Principle 5 – Internal oversight

Description of implemented policies and practices

As noted in connection with Principle 1, WM has an informal OWG comprised of members and advisors with risk, audit, legal and index-specific experience that reviews and provides challenges on all aspects of the benchmark determination process. While the OWG has been established, there is ongoing work to refine its scope, remit and governance arrangements. The Review Team has seen evidence that the informal OWG has started to look at methodology and related issues such as research and governance. However, the appropriateness and composition of the group’s membership is not clear and the group’s independence could be called into question as one member of staff has sole discretion over the appointment of members to the group. This could affect the robustness of the governance and challenge process.

WM state that under the interim Oversight Working Group Scoping Document, the OWG is comprised of members and advisors with risk, audit, legal and index-specific experience and offers advice, recommendations, feedback and challenge to all aspects of the WM determination process. The group is also supposed to provide periodic oversight of the integrity of determination and the design processes and consider and approve changes and alterations to existing benchmark products and services and the development of new benchmark products against reviewing underlying market and other changes.

The interim document sets out the roles, responsibilities, expectations and composition of the group as well as meeting criteria and frequency.

WM states that the OWG may submit findings and recommendations to WM’s board of directors. The OWG may also engage outside advisors to provide expertise and recommendations as appropriate. One example of the OWG’s recent activities included reviewing whether to cease offering the Argentinian Spot Week Forward rate in light of concerns around the liquidity and number of contributors for the relevant currency pair.

WM’s board of directors exercises high-level oversight over the Benchmark Rates determination business.

Details of WM’s oversight functions are not currently made available to subscribers to the service or to the public.

Assessment of implementation of Principle

Similar to the assessment of the implementation of Principle 1, while WM has some internal oversight arrangements, these appear to be informal, undocumented or in documents that are interim and unpublished at this stage. Moreover, WM has not yet determined what the appropriate oversight function and governance arrangements for its benchmarks determination process should be.

Accordingly, WM has further work to do to implement Principle 5.

Description of planned policies and practices (including timelines)

As noted above, WM is currently amending its Methodology and is finalising the scope, remit and governance arrangements for its OWG, including finalising and implementing a formal charter, which WM aims to finalise and implement by July 2014. WM is also in the process of determining what its overall oversight and governance arrangements should be for its benchmark determination process.

Recommended action

WM should:

- Adopt a formal internal oversight function in line with Principle 5.
- Document, and publish where appropriate, terms of reference, minutes of meetings and decisions of oversight functions for transparency.

B. Principles relating to quality of the Benchmark

Principle 6 – Benchmark design

WM states that the data sourced and the Methodology used for the Closing Spot Rate aim to:

- (i) Calculate benchmark rates that are reflective of the market at a specific point in time; and
- (ii) Provide an accurate and reliable representation of the economic realities of each trade and non-trade currency.

Trade Pairs

The Trade Pairs are determined using actual rates captured each second over a one minute fix period, beginning 30 seconds before to 30 seconds after the fix time, for a total of up to 61 captures or “snaps”. The rate captured at each second is the rate of a single executed trade. The trade rates are captured anonymously.

For Trade Pairs, order data (i.e., best bid and offer) from the same order matching system is captured at the same time as actual rate data to provide an alternate methodology for calculating the benchmark fix rate when there is insufficient actual trade data.

Trade Pair 1 is determined using data sourced from Reuters Dealing 3000. This is one of the two largest global trading platforms and is the dominant platform for USD/CAD. Market participants trading on this platform are anonymous.

Trade Pair 2 is determined using data sourced from EBS. This is one of the two largest global trading platforms and is the dominant platform for EUR/CHF. Currenex data is captured for this currency pair as a dual validation source.

Quote Pair

The Quote Pair uses indicative quoted rates from multiple financial institutions sourced from the Thomson Reuters indicative quote platform. They are set on the hour from Monday 6:00 a.m. Hong Kong time to Friday 10:00 p.m. United Kingdom time. Rates are set over a two minute fix period, with snapshots of “quoted” rates – meaning the bid and offer rate at that time – taken every 15 seconds, from one minute before the fix time to one minute after the fix time, for a total of up to nine captures or “snaps”.

The Quote Pair is currently sourced from 20 different market participants. The participants are not anonymous.

WM maintains a quality watch list of certain financial institutions in order to validate the spot rate.

An operations specialist can add an institution to this quality watch list if that institution is frequently breaking tolerances by providing rates that are inconsistent with the rates that the operations specialist is observing in the market for a particular currency.

Consequently every time the institution provides a quote for that currency and time period and the quote is captured in an actual snap, it is flagged on the application for the operations specialist to validate using standard procedures. The operations specialist can confirm the rate as accurate and include it in the fix, or confirm it as inaccurate and replace the rate.

The Quote Pair can also be subject to additional restrictions affecting liquidity such as when being limited to when markets are open and trading.

In addition to the captures made around the fix times, WM captures spot rates every 15 seconds. This approach is intended to help the WM’s operations specialists identify currency issues and outliers in advance of the fix calculation period.

Generally

All captured rates and fix rates are subject to a number of tolerance checks to help ensure that WM publishes accurate and valid rates. WM performs tolerance checks at the time the data is sourced and again after the calculation of the benchmark is complete. This may result in some captured data (i.e., actual trade data or order rates) being excluded from the fix calculation.

WM states that the Methodology takes into account the following:

- The adequacy of the sample used to represent the interest for all types of data;
- The size and liquidity of the relevant market for global trading platforms for the currency pair when determining which data source to use in the rate determination process;
- A validation process which requires a minimum number of unique executed trades captured before they will be used as the data in the calculation of benchmarks. If there is an insufficient number of trades, the calculation will automatically select to use the captured order rates; and
- Monitoring of market news/conditions/economics, market effects on the validation processes results and annual currency reviews.

WM has provided the Review Team with some metrics that demonstrate that the trading on the platforms from which it sources data is liquid. WM has also shown that it adapts and changes its data sources in reaction to market developments.

In order to satisfy itself of the robustness of its input data, WM has undertaken discussions with each of its data providers to understand the controls, processes and procedures they have in place to try to address market conduct issues. Both major data sources have provided confirmation that they employ market surveillance and monitoring programs and have provided WM with insight to these practices. These discussions are recorded.

Additionally WM's validation processes and methodology (which, in brief, captures data every 1 second, checks for off market rates; calculates a two-sided trade price, applies a standardised spread mechanism and applies validation checks) reduce opportunities for parties to unduly influence the benchmark level.

Finally, WM provided internal procedure documents which detail the benchmark determination process and related verification processes and oversight risk reports summarising assessments of the benchmarks against market metrics.

Assessment of implementation of Principle

While WM has evidenced a benchmark design and validation process that considers the liquidity of the platforms, it has not evidenced to the Review Team why the particular benchmark design that it is currently using is optimal.

For example, WM has not articulated why a certain window is the most appropriate space of time for computing the Closing Spot Rate or why data from a wider set of platforms cannot be considered in the

benchmark design.

Also, there do not seem to be any liquidity thresholds for the platforms WM selects; nor are there periodic reviews into the platforms activities to ensure they are still representative.

Overall, WM has not articulated how its determination processes seeks to achieve and result in an accurate and reliable representation of the interest it seeks to represent.

Because of these points, WM has not yet fully implemented Principle 6.

In noting this, however, the Review Team does not offer an opinion on the quality or effectiveness of the current benchmark design.

Description of planned policies and practices (including timelines)

WM is considering enhancements to its methodology to make it more robust and result in a more representative benchmark. WM is also looking to formalise its due diligence policies for the selection of data sources.

Recommended action

WM should:

- Review the design of the Methodology, including the choice of trading platform, sampling period and calculation method, to satisfy itself that the Closing Spot Rate results in an accurate and reliable representation of the interest it seeks to represent.
- As part of this review, collect and analyse quantitative data to allow verification that the Closing Spot Rate determination process accurately reflects the underlying FX market that it seeks to represent
- Consider using sourcing data from a wider range of sources.

Principle 7 – Data sufficiency

Description of implemented policies and practices

Trade Pairs

The trading platforms used for the Trade Pairs involve parties entering into observable transactions on an arm's length basis. WM does not rely on a solicitation process, and the parties using these platforms do not provide the data to WM specifically for the purpose of benchmark determination. Instead, they use

these platforms in their ordinary course of business.

Furthermore, Reuters and EBS from which WM accesses data do not trade in the foreign exchange markets and their role is limited to providing the necessary technology infrastructure.

WM selects its data sources based on a number of criteria, including, but not limited to the overall liquidity of any currency pair on a given platform as well as reputation of the platform operator.

For the Trade Pairs, WM validation process requires a minimum number of unique executed trades to be captured before they will be used as the data in the calculation of the WM benchmark rates. If there is an insufficient number of trades captured the WMX application will automatically select to use the captured order rates.

The primary source of data for the Trade Pairs is “executed” trades which have been executed in the competitive FX trading market. The secondary source of data is the “executable” orders which have been offered in the competitive FX trading market.

Quote Pair

For the Quote Pair, there is insufficient liquidity on the trading platforms for such platforms to be considered as a data source. Instead, quotes are assessed as they are received from identifiable market participants. WM has an internal monitoring process which monitors and reviews the quantity and quality of such quotes being captured and the WM system includes parameters for data sufficiency prior to calculation of the Quote Pair.

Active market definition

WM defines an “active market” as follows:

WM recognises that to enable the publication of a meaningful benchmark a market in each currency pair represented by the benchmark must genuinely exist, and that market must be active. However, the economic realities of each applicable currency market will dictate the relative meaning of what ‘active’ means, as market liquidity can vary greatly from a liquid major currency, to an extremely illiquid exotic currency for example, and at particular times of the day. In certain cases, the WM Company defines an active market as having only a ‘single source’.

WM currently plans to publish this definition in an updated version of its Methodology.

Controls on input data

WM performs due diligence checks on the platforms it uses to sources data. In particular it examines their policies in relation to conflicts of interest, surveillance and market conduct. For instance EBS dealing

rules refers to the ACI Model Code and the NIPs code; whilst both Thomson Reuters and EBS have policies relating to conduct and market abuse. Currently this due diligence is not framed by a formal policy, although the Review Team notes that WM is formalising such a policy.

WM has conducted studies on potential changes to its design to better ensure that the transactions relied upon are bona fide.

Assessment of implementation of Principle

WM relies on data drawn from observable transactions sourced from platforms which show a high level of liquidity. In order to control for the bona-fide nature of the input data, WM relies on the controls, surveillance and governance framework of the platforms it uses and conducts due diligence on these frameworks. These factors evidence some implementation of Principle 7.

WM has not, however, provided a definition of an ‘active market’ that takes into account the factors that should be considered (see footnote 21 of the Final Report setting out the Principles⁴). Without this definition, it is difficult to conclude that the Closing Spot Rates are anchored in an ‘active market’ (as required by Principle 7).

Further, WM relies heavily on the platform providers’ assurances and systems concerning the bona fide nature of the transactions that occur on those platforms. This may not be sufficient to meet Principle 7’s standard that the Closing Spot Rate should function as a credible indicator of prices (particularly in light of allegations concerning misconduct in the market for spot foreign exchange).

Because of these points, WM has not yet fully implemented Principle 7.

Description of planned policies and practices (including timelines)

Internal review and approval for external distribution is ongoing for the revised Methodology, and this will clarify explicitly what an ‘active market’ is. The current publicly available Methodology document implies a definition, but does not use the terminology present in this Principle.

Review of Methodology to reduce the impact of manipulation.

WM is reviewing methods and enhancements to reduce the impact of potential manipulation.

Recommended action

WM should:

- Consider what further steps it could take to better ensure that the transactions on which it relies for the determination of the Closing Spot Rate are ‘bona-fide’ so that the Closing Spot Rate functions

⁴ IOSCO, above n 1.

as a credible indicate of prices.

- WM should satisfy itself that its definition of an ‘active market’ takes into account the factors set out in Principle 7.

Principle 8 – Hierarchy of data inputs

Description of implemented policies and practices

WM has guidelines regarding the hierarchy of data inputs and the exercise of expert judgment used during the calculation of the Closing Spot Rate. The hierarchy of data and use of expert judgment is generally disclosed in the publically available Methodology. The aim of these guidelines is to help ensure the quality, integrity, continuity, and reliability of the Closing Spot Rate determination process.

In general, these guidelines stipulate that WM’s primary source of data for trade currency fixes such as the Trade Pairs is executed trade rates. If the number of trades for a given currency pair during the fix period does not satisfy the minimum number of trades required by WM’s validation guidelines, then WM uses executable order rates. Finally, WM may use indicative quote rates for validation checks and as a back-up data source for the Closing Spot Rate determination process.

WM uses its proprietary technology to systematically calculate the Benchmark Rates. As the data is captured through the fix window, the application runs automatic tolerance checks on the data for each currency pair. WM’s operations specialists apply their judgment during the validation processes if a particular trade or order breaches a pre-determined tolerance. All tolerances are pre-determined by WM’s Currency Review Group and a WM operator’s application of tolerances and other judgment is governed by standardized, internal guidelines.

Internal operational procedure documents for the Quote Pair also allow operations specialists discretion to exclude data from benchmark determinations. These procedure documents provide examples of alternative market data providers and for determining which quotes to exclude but does not specify the order of hierarchy.

WM’s internal policies require that all exceptions be validated and the judgement for these decisions must be documented in the system, including contingency measures in the event of absence of or insufficient inputs, market stress or use of secondary source data. For segregation of duties purposes, when expert judgement is used, WM applies internal guidelines and quality control procedures intended to provide consistency and oversight to this process. Output data is automatically produced and distributed from the WM proprietary application so that the same data file is distributed to all recipients at the same time. Policies and procedures are in place over the Benchmark determination and dissemination process.

Expert judgment is also used by the Currency Review Group, when its members review and establish the

tolerances referenced above, such as minimum number of trades and average standard spreads.

Assessment of implementation of Principle

WM has broadly implemented Principle 8.

Description of planned policies and practices (including timelines)

Internal review and approval for external distribution is in progress for the revised Methodology and this will clarify explicitly WM's definition of what an 'active market' is and provide further information on the use of expert judgement. The current publicly available Methodology implies a definition of an active market and identifies that validation checks are performed, but does not use the terminology present in this Principle.

Recommended action

WM should:

- Clearly provide an order of hierarchy for alternative data sources in its internal operational procedures for Quote Pairs.

Principle 9 – Transparency of benchmark determinations

Description of implemented policies and practices

WM's methodology explains how the different data types may be used as inputs in case of the unavailability of one data type. It does not however disclose a summary of the data inputs used in each determination of the Closing Spot Rate.

Nonetheless, WM discloses changes to usual inputs types (ie quotes or orders or executed trades) via an email alert. WM has not provided a policy which details how this information should be disclosed on an ongoing basis.

Assessment of implementation of Principle

WM discloses inputs to the benchmark through its methodology or an email alert if inputs change.

The disclosure of change inputs, however, appears to be conducted on an ad hoc basis and there is no

policy giving comfort that WM will always be this transparent.

Further, WM does not disclose a summary of the data inputs used in each determination of the Closing Spot Rate.

Because of this, WM has further work to do to implement Principle 9.

Description of planned policies and practices (including timelines)

Internal review and approval for external distribution is ongoing for the revised Methodology to provide further information on active markets, economic realities, data type (e.g. transactional) and the application of expert judgement.

Recommended action

WM should:

- Adopt procedures to ensure the disclosures required by Principle 9 concerning inputs are made on a consistent basis.

Principle 10 – Periodic review

Description of implemented policies and practices

WM states that it reviews the applicable market factors (including market conditions and structural changes) relating to the Closing Spot Rate on a regular and on-going basis to determine whether changes to the design of the Methodology are possible.

This includes establishing whether the consideration of certain underlying conditions in the formulation of the Closing Spot Rate remains appropriate, and may lead to the cessation of a fix in certain circumstances.

All changes are documented and retained and all material changes and supporting rationale are published to subscribers in advance (together with applicable supporting documentation).

WM's Currency Review Group monitors and reviews the conditions in the underlying currencies that the Closing Spot Rate measures to determine whether they have undergone any structural changes that might require changes to the design of the Methodology.

The terms and processes for the Currency Review Group are defined in the 2014 Currency Review

Process document, which provides for:

- Annual review for all tolerances for all currencies;
- Regular reviews of the data validation process and the outcomes of this process;
- Transparency, with all reviews stored on a database along with proposals, findings, analysis and outcomes; and
- A tiered approval process before any changes are incorporated into production.

While the Currency Review Group does not have standalone terms of reference, the purpose, structure and process of the group are defined in the 2014 Currency Review process document. The annual review of tolerances is controlled through the Currency Review Tracker (provided to the Review Team), and the process and subsequent decisions are controlled through the Currency forms, database and approval process, including MIS statistics (again provided to the Review Team).

Any diminished or non-functioning conditions are identified in the process described and WM business management determines potential candidates for cessation.

Where changes are made to currencies and deemed by the WM business management to be material – such changes to methodology, source, and currency levels – these are communicated to subscribers with the relevant supporting information.

Assessment of implementation of Principle

WM has fully implemented Principle 10.

Description of planned policies and practices (including timelines)

WM is in the process of drafting an external Cessation Policy to provide to subscribers, which is subject to internal review and approval. WM aims to finalise and implement this policy by July 2014.

Recommended action

- None

C. Principles relating to the quality of the methodology

Principle 11 – Content of the methodology

Description of implemented policies and practices

WM's current Methodology is documented and publicly available and describes the currency pair fixes determined, the sources that may be used in the determination process and the calculation method.

The Methodology contains some rationale for its design but does not explain why particular platforms are used. The Methodology also does not contain guidelines on expert judgment or procedures to govern the determination process in times of market stress or disruption (i.e. if the platforms fail to evidence any trading – the Methodology does, however, provide for fallbacks in cases where national holidays mean trading does not occur; in this case, rates from previous fixings are used). Furthermore, it does not contain any identification of the limitations of the Closing Spot Rate.

WM employs internal proprietary procedures that govern the determination process. These provide more detail on the process (including dealing with error reports and other quality control measures) but they are not publicly available to protect the integrity of the Closing Spot Rate.

Assessment of implementation of Principle

While WM has a publicly available Methodology, it has further work to do to implement Principle 11.

This is because key requirements of Principle 11 (namely the use of expert judgement, procedures that apply in times of market stress, rationales for the use of particular source trading platforms and limitations of the Closing Spot Rate) are not made clear in the Methodology. The Methodology also lacks sufficient information on when and how stakeholder consultation will occur.

Description of planned policies and practices (including timelines)

WM is in the process of drafting an external Cessation Policy and Republication of Rates Policy to provide to subscribers, which are both subject to internal review and approval. WM aims to finalise and implement these documents by July 2014.

The enhanced Methodology document is still under development and will include a glossary of key terms and detail a sufficient level of information enabling subscribers to understand the on-going development of the Closing Spot Rate including the quantitative and qualitative factors in the determination process, and any applicable limitations in accordance with the Principles.

This will include information about necessary and sufficient criteria for deriving the Closing Spot Rate and covers the kinds of events that may influence a decision to use expert judgment and/or modelling. Review processes and procedures for addressing errors and affecting revisions will also be covered together with an explanation of when and how subscribers can expect communications.

Recommended action

WM should revise the Methodology to ensure it covers (among the other requirements of Principle 11):

- The rationale for all aspects of the Methodology.
- The limitations of the Closing Spot Rate.
- Procedures that will apply in times of market stress, including when the platforms relied upon do not evidence any trading.
- The use and application of expert judgment.
- Procedures for stakeholder consultation.
- Information on the reviews of the Methodology.

Principle 12 – Changes to the methodology

Description of implemented policies and practices

WM has a short, internal and documented policy concerning changes to the Methodology and service. This defines a ‘material methodology change’ as one that alters the process by which a benchmark rate is calculated. It also covers how users will be notified and consulted in relation to changes to the Methodology.

As a matter of practice, WM notifies subscribers of material changes to its Methodology prior to making them. As evidence of this, WM provided correspondence that it had sent to users concerning the change in time at which it would start to publish currency pair fixings each week. This correspondence explained the reason for the change.

Procedures covering the development of the Methodology are also covered in an internal development procedure document including the consultation and commenting process. These indicate that the OWG needs to approve proposed changes (while the OWG’s record of actions shows discussion of methodology changes, it is not clear from same how the OWG performs such reviews).

Assessment of implementation of Principle

While WM has an internal policy that sets out procedures for making material changes to the Methodology, these procedures are currently at a very high level and lack elaboration on key points.

Specifically, it is not clear how the OWG scrutinises proposed material changes to the Methodology. Furthermore, it is not clear how the consultation process works in practice and the process does not appear to provide for the summarising of stakeholder comments and the provision of that summary back to all stakeholders (as required by Principle 12).

These points mean that WM has further work to do to implement Principle 12.

Description of planned policies and practices (including timelines)

As noted above, WM is making changes to its Methodology and these changes are subject to internal review and approval.

Recommended action

WM should:

- Formalise and document internal revision practices so that it is clear how WM's oversight function scrutinises proposed changes to the Methodology.
- Develop and publish procedures for stakeholder consultation and communication in the event of changes to the Methodology.

Principle 13 – Transition

Description of implemented policies and practices

WM maintains internal written policies and procedures covering circumstances where it may be necessary to affect a cessation of a benchmark rate.

Where circumstances arise which may result in the cessation of a rate, WM has internal procedures to investigate such circumstances and consider viable alternative solutions, including, when a cessation happens, taking certain steps to ensure an orderly transition for subscribers.

The policy allows for (but does not require) that consultation with stakeholders will occur prior the cessation. WM's policy provides that they will seek to provide 90 days' notice of any cessation, although it is possible that less notice will be given.

WM states that it currently informally encourages subscribers to the Benchmarks in the Methodology to maintain robust contingency plans in circumstances where cessation of a Benchmark may result.

When practicable, upon client request, WM states that it will consider the provision of a parallel

benchmark to accommodate an orderly transition.

Assessment of implementation of Principle

While WM has a cessation policy, it does not yet fully meet the requirements of Principle 13.

Specifically, the policy is not available to stakeholders and does not provide that WM will always take stakeholder views into account when deciding whether to cease publication of a currency fix (there is a carve-out from consultation for expediency purposes).

Furthermore, WM has not taken any action or adopted any policies to encourage users of the Closing Spot Rate to have robust fallback provisions in the event of changes to or cessation of the Closing Spot Rate.

WM has indicated it does not believe that this would be reasonable or appropriate that its written policies address Key Indicia 13.5(a) due to the diversity of subscribers and their use of the data.

Description of planned policies and practices (including timelines)

Internal review and approval for external distribution is in progress for the revised Methodology.

WM expects that the benchmark cessation procedures will be referenced and published in the enhanced Methodology document which has yet to be approved. WM's OWG Scoping document should also cover the implementation of any decisions arising from stakeholder consultation.

The enhancements to the current Methodology referred to above will include a recommendation that contracts and other financial instruments that reference a benchmark have robust contingency provisions in the event of material changes to, or cessation of, the referenced benchmark.

WM is in the process of preparing an external version of its Cessation Policy which is still subject to internal review and approval.

Recommended action

WM should:

- Develop and publish procedures that govern the transition or cessation of the Closing Spot Rate.
- Encourage users to plan for possible changes or cessation of the Closing Spot Rate.

Principle 14 – Submitter Code of Conduct

Description of implemented policies and practices

WM does not have any submitters in respect of the Closing Spot Rate.

Assessment of implementation of Principle

Principle 14 is not applicable to WM in respect of the Closing Spot Rate.

Description of planned policies and practices (including timelines)

None specifically contemplated at this point.

Recommended action

None

Principle 15 – Internal controls over data collection

Description of implemented policies and practices

WM sources trade, order, and quote data from the third party platform operators Reuters and EBS pursuant to licensing agreements with Reuters and EBS. In certain circumstances, it also sources data from Currenex.

WM states that it has technology-based internal controls over its data collection and transmission processes which address the process for selecting the source, collecting the data and protecting the integrity and confidentiality of the data. The Review Team has not seen evidence of these controls however.

As mentioned above, WM performs due diligence on the controls and surveillance mechanisms of the third party platform operators.

WM further states that it sources corroborating data from alternative sources covering information in respect of trades, orders, and quotes and selects data sources based on liquidity of the currency on the available platforms and the integrity and reputation of such sources.

WM has access controls to limit access to the WM applications and all captured data to authorised personnel only.

WM does not receive data directly from any front office function.

Assessment of implementation of Principle

Whilst WM appears to have controls around the data received from the Thomson Reuters and EBS platforms, it currently lacks contractual arrangements with Currenex to govern the sourcing of data from that platform provider.

This latter point means that WM has further work to do to implement Principle 15.

Description of planned policies and practices (including timelines)

None specifically contemplated at this point.

Recommended action

WM should:

- Put in place a contractual arrangement with Currenex.

D. Principles related to accountability

Principle 16 – Complaints procedures

Description of implemented policies and practices

WM has an internal price challenge and complaints policy. This sets out the internal process for complaints handling and price challenges and/or questions to be e-mailed and addressed at an appropriate level.

This policy provides that complaints will be investigated by an operations specialist who was not involved in the original determination. This involves following a price challenge checklist.

If the complainant is not satisfied with the proposed resolution of the complaint, the policy provides that the complaint is to be escalated to WM management.

WM states that it relies on the *State Street Complaints and Reportable Events Guidelines and Procedure* for processes for escalating complaints.

Price challenges and complaints are submitted to WM via email. The challenges and complaints are to be retained for a minimum period of five years.

Subsequent changes to benchmarks are published in accordance with internal Republication Policy. This provides that a ‘republication checklist’ will be followed and that subscribers will receive an advisory email on the republication process. However, no benchmark rate will be amended after the publication of the following weekday’s rate. All evidence around republication must be retained for a minimum of five years.

Assessment of implementation of Principle

While WM has an internal complaints policy that meets some of the requirements of Principle 16, WM has further work to do to implement Principle 16. Specifically, its complaints policy is not publicly available.

It is also notable that the effectiveness of the complaints policy is limited by WM’s policy that republication of a corrected rate will not occur after the publication of the following weekday’s rate. This means that complaints can only result in republication if made within 24 hours of the initial publication of the rate (with the exception of those rates published on Fridays).

Description of planned policies and practices (including timelines)

Work is ongoing to produce an external *Price Challenge and Complaints Policy* in order to make the existing WM complaints handling framework more transparent to subscribers. This policy is subject to internal review and approval.

Recommended action

WM should:

- Publish and communicate to external stakeholders the *Price Challenge and Complaints Policy*.

Principle 17 – Audits

Description of implemented policies and practices

WM relies on the State Street corporate audit program which involves onsite audits of WM every two years. This involves an audit by State Street’s independent corporate audit team.

Internal audits are currently conducted every two years (which WM sees as appropriate).

The last internal audit was completed in 2014 resulting in a ‘satisfactory’ rating.

WM states that due to the low level of existing or potential conflicts of interest, it does not consider that an external auditor is required (the level of conflicts of interest being the trigger under Principle 17 for an external audit).

Assessment of implementation of Principle

WM has implemented Principle 17.

However, having said this, WM does not have a formal policy addressing conflicts of interest (see the discussion in connection with Principle 3). Due to this, the Review Team cannot concur with WM’s assessment concerning the need for an external auditor.

Description of planned policies and practices (including timelines)

WM has engaged Ernst & Young to conduct an external audit of its operational controls in 2014.

Recommended action

WM should:

- Consider the need to have a full external audit once WM has adopted and followed a conflicts of interest policy that conforms to Principle 3.

Principle 18 – Audit trail

Description of implemented policies and practices

WM states that it generally retains written records for five years including records in connection with:

- Information material to benchmark calculations (including the exercise of expert judgment);
- Changes in or deviations from standard procedures and Methodologies;
- Identities of persons involved in producing a benchmark determination; and
- Queries, communications, complaints and responses around benchmarks.

Most records are stored as part of the fix pack documentation and all client communications detailing periods of market stress or disruption are retained for five years.

Since August 2013, WM states that it has implemented a practice of retaining market data collected from platform operators and used in the calculation of the spot fix rates. Prior to June 2013 this market data can

be sourced from platform operators if necessary.

Assessment of implementation of Principle

WM appears to have practices that evidence implementation of Principle 18. It is, however, noted that WM only ‘generally’ retains written records for five years.

In light of this, the Review Team draws attention to the lack of demonstrable policies governing record retention. Although such policies are not specifically covered by Principle 18, their absence may be a driver of the standard of WM’s current record retention practices.

Description of planned policies and practices (including timelines)

None specifically contemplated at this point.

Recommended action

WM should:

- Adopt and follow a policy that provides for the retention of relevant records for a minimum of five years.

Principle 19 – Cooperation with regulatory authorities

Description of implemented policies and practices

WM states that it complies with requests from regulators to provide documents and information.

WM is currently not subject to regulatory oversight in respect of the determination of the Benchmark Rates.

The Review Team notes that WM complied with the requests associated with this review.

Assessment of implementation of Principle

WM has implemented Principle 19.

Description of planned policies and practices (including timelines)

None identified

Recommended action

None

Annex 1 – Assessment Methodology

Assessment Methodology
IOSCO Principles for Financial Benchmarks
Foreign Exchange Benchmarks Review



OICU-IOSCO

International Organization of Securities Commissions

April 2014

Page 1 of 52

Instructions

This assessment methodology supports the review by International Organisation of Securities Commissions (**IOSCO**) of the implementation of the *IOSCO Principles for Financial Benchmarks (Principles)* by WM Reuters in respect of its 4 p.m. London fixing (**WMR London Fix**) concerning the currency pairs specified below.

We ask you to read this methodology and complete and return the self-assessment template in section III in accordance with the instructions by **2 May 2014**.

Your response should be sent to [xx] in MSWord format. You should also send any documentation and data which supports your response to this email address. Data should be submitted in either MSWord or MSEXcel format.

I. INTRODUCTION

A. Background

At its 24 June 2013 meeting, the Financial Stability Board (**FSB**) Plenary established an Official Sector Steering Group (**OSSG**) of regulators and central banks on interest rate Benchmark reform.¹ As part of this work, the OSSG is to recommend global standards for reference rate Benchmarks and review them against these standards. It is to also oversee work on exploring additional reference rates and transition strategies to these rates.

At its February 2014 meeting, the FSB Plenary agreed to extend its work on financial Benchmarks to cover global foreign exchange Benchmarks.

The Foreign Exchange Benchmarks Group (**FXBG**) was created as a new OSSG subgroup to undertake a review of major foreign exchange Benchmarks, including their definitions, construction and governance, as well as an analysis of market characteristics around Benchmark fixings. The FXBG will report to the OSSG, who in turn will report to the FSB Board.

After an initial stocktaking exercise, the FXBG has agreed to undertake a formal review of the WMR London Fix against the Principles.

In April 2014, the chairs of the FXBG formally requested, and the IOSCO Board agreed, for IOSCO to conduct a formal review of the WMR London Fix (**Review**) and provide the results to the FXBG by 1 July 2014.

Following IOSCO Board approval, a Review Team comprised of members from the IOSCO Task Force on Financial Benchmarks and the IOSCO Assessment Committee was constituted for the purpose of completing the Review.²

B. Objectives of the Review

Consistent with the FXBG Chairs' request, the objective of this Review is to identify the degree of implementation of the Principles by WM Reuters in respect of the WMR London Fix.

Currency pairs reviewed

The Review will cover the following currencies pairs:

- USD/CAD (**Trade Pair 1**) and EUR/CHF (**Trade Pair 2**) (together, **Trade Pairs**) ; and
- USD/IDR (**Order Pair**).

¹ See Financial Stability Board, *Progress report on the oversight and governance framework for financial benchmark reform: Report to G20 Finance Ministers and Central Bank Governors* (29 August 2013) for more detail on the OSSG and its work program. Available at: http://www.financialstabilityboard.org/publications/r_130829f.pdf.

² The Review Team is constituted by staff from the Financial Conduct Authority (United Kingdom) (**FCA**) (Co-Chair), the Australian Securities and Investments Commission (Co-Chair), the Federal Financial Supervisory Authority (Germany), the Financial Services Agency of Japan (**JFSA**) and the Financial Services Board (South Africa) (**SAFSB**). Members of the IOSCO Secretariat are providing administrative support to the Review Team.

C. Deliverable of the Review

The Review will deliver a report to be approved by the IOSCO Board and submitted to the FXBG (**Review Report**) setting out:

- This assessment methodology (**Assessment Methodology**);
- A qualitative discussion on the implementation of the Principles by WM Reuters taking into account their current policies and practices; and
- Where a Principle is yet to be implemented in full:
 - The key reasons why this is the case; and
 - A description of the WM Reuters' plans (if any) to fully implement the Principle (including the time table for those plans); and
 - Recommended remediation actions that should be taken by WM Reuters to fully implement the Principles.

II. THE ASSESSMENT METHODOLOGY

A. Introduction

This Assessment Methodology has been developed to facilitate the self-assessment of the degree of implementation by WM Reuters of the Principles.

The Methodology also has been designed as a means for identifying any potential gaps, inconsistencies, weaknesses and areas for remediation by WM Reuters that may be necessary.

The Assessment Methodology sets out the instructions for responding to the questionnaire. It also includes a self-assessment template in section III (**Self-Assessment Template**). This Self-Assessment Template sets out fields for:

- WM Reuters to summarize its relevant policies and practices;
- The Key Indicia of the implementation of each relevant Principle;
- The analysis of whether WM Reuters' policies and practices meet each specific Key Indicia (i.e. whether the relevant Principle has been implemented);
- WM Reuters to conclude what rating should apply to each Principle; and
- WM Reuters to describe any plans for further policies and practices that are relevant to the implementation of the Principles.

B. Key Indicia

The Key Indicia for each Principle are the minimum policies, procedures and practices that the Review Team would expect to see if WM Reuters had implemented that Principle.

They express discrete, identifiable elements of a Principle that can be used to assess the degree of implementation of a Principle by WM Reuters.

For clarity, they do not add to, or alter, the Principles: They are intended to distil the key requirements of each Principle.

C. Self-Assessment Template – How to Respond

The Self-Assessment Template has been developed to elicit a self assessment from WM Reuters on whether each of the Key Indicia for each Principle is evident in WM Reuters' policies and practices in respect of the WMR London Fix for the currency pairs identified above.

WM Reuters should complete the Self-Assessment Template once, where possible, for all currency pairs. However, for Principles 6- 9 (inclusive), WM Reuters should complete the template for each currency pair individually.

WM Reuters should respond to Principle 14 and those parts of other Principles that concern submission-based benchmarks if and where it believes such standards are applicable to it, bearing in mind the intent of the Principles overall and the specific definitions used in the Principles.

If WM Reuters believes the standards concerning submissions-based benchmarks are not applicable to it, this belief and a detail rationale for it should be provided together with the Self-Assessment Template. WM Reuters should be aware that the Review Team may take a different view as to the applicability of these standards to one or more currency pairs.

For all other Principles, WM Reuters should indicate in its self-assessment where the policies, practices and ratings differ across the currency pairs. The differences should be explained clearly, with a rationale offered as to why those differences exist.

Evidence

In addition to its self assessment responses, WM Reuters should provide sufficient evidence to allow the Review Team to verify those responses. Accordingly:

- With respect to policies and procedures, supporting documentation, as well as internet linkages to such documents, should be provided wherever possible.
 - Where documentation is provided, WM Reuters is requested to indicate in their response the relevant part of the documentation that they are relying on to evidence implementation of the Principle.
- WM Reuters should provide data, examples or other evidence to substantiate the implementation practice that they follow.

The Review Team notes that it may seek access to other relevant information and stakeholders when conducting an assessment.

D. Approach to Assessing Implemented Policies and Practices

The Review assessment will be based on WM Reuters' implemented policies and practices as of 2 May 2014.

The Review Team will form a qualitative opinion as the implementation of each Principle by WM Reuters. It will substantiate its opinions with reasoning in the Review Report. While WM Reuters' self-assessment will provide ratings for each Principle, the Review Report will not contain any formal ratings.

The assessment should note instances where implementation of a particular Principle could not be adequately assessed and explain why. For example, certain information may not have been provided or the data that is used to assess the degree of implementation may be inconclusive. Unsatisfied requests for information should be documented in writing.

E. Approach to Planned Policies and Practices

A key part of the Review Report will include describing the status of any plans for WM Reuters to fully implement (or to ensure a greater degree of implementation of) the Principles. The Review Report will not formally assess these plans; it will simply describe them.

To assist the Review Team to describe reform plans, the Self-Assessment Template asks whether WM Reuters anticipates the arrangements that they have described in their responses connected to each Principle changing in the future.

In responding to these questions, WM Reuters should ensure that it:

- 1. Describes in detail the nature of any anticipated changes, including the extent to which they have engaged in planning or designing new policies or practices and providing any available drafts or outlines of these new policies;*
- 2. Provides a timeline over which the arrangements will change;*
- 3. Identifies whether regulatory or legislative change is driving the anticipated changes; and*
- 4. Explain how it believes the new arrangements will help it implement the relevant Principle. To the extent concrete proposals have been published, responses should explicitly highlight how the relevant policies and practices would align with the specific requirements of each Principle.*

F. Confidentiality

The Review Team appreciates that responses to the Self-Assessment Template may elicit market or commercially sensitive information.

To address this issue:

- WM Reuters is requested to indicate what information is market or commercially sensitive in its response.
- WM Reuters will be afforded the opportunity to review the Review Report prior to its submission to the FXBG and OSSG by the Review Team.

G. Key Dates

The key dates for this Review are:

- **16 April 2014** – Assessment Methodology sent to the Administrator for completion
- **2 May 2014** – **Responses from WM Reuters due back to Review Team**
- **May 2014** – Review Team analyses responses and drafts Review Report
- **Early June** – Review Team to share relevant parts of draft of Review Report with WM Reuters for their comment
- **Mid-June 2014** – Review Report submitted to IOSCO Board for approval
- **1 July 2014** – Review Report submitted to OSSG

III. SELF-ASSESSMENT TEMPLATE

Instructions

The self-assessment asks you to perform four steps:

- **Step 1**

Summarise your implemented policies and practices. The template gives you a guide as to what policies and practices would be relevant to each Principle.

- **Step 2**

Identify whether you have **not** implemented any Key Indicia through those summarised policies and practices (planned policies and practices should not be taken into account at this stage) and assess whether any such non-implementation affects you achieving the intended outcome of the Principle.

The intended outcome of the Principle is to be ascertained by considering both the specific Key Indicia and the text of the Principle (including any commentary in the Final Report that sets out the Principles).

- **Step 3**

Based on this identification and assessment, assign one of the following ratings to the Principle.

- **Step 4**

Summarise any planned policies and practices.

Rating Scale

Fully Implemented	A Principle will be considered to be Fully Implemented when all Key Indicia have been implemented without any significant deficiencies.
Broadly Implemented	A Principle will be considered to be Broadly Implemented when the assessment demonstrates shortcomings in implementation of the Key Indicia by the Administrator and those shortcomings do not, in the judgment of the assessor, substantially affect the Administrator achieving the intended outcome of the Principle.
Partly Implemented	A Principle will be considered to be Partly Implemented when the assessment demonstrates shortcomings in implementation of the Key Indicia by the Administrator and those shortcomings, in the judgment of the assessor, substantially affect the Administrator achieving the intended outcome of the Principle.
Not Implemented	A Principle will be considered to be Not Implemented when the assessment demonstrates no implementation of any of the Key Indicia by the Administrator or where there is some implementation, the implementation is manifestly ineffective in achieving the intended outcome of the Principle.

Principle 1 – Overall responsibility of the Administrator

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

To assess the implementation of these Key Indicia, please explain if you have primary responsibility for the Benchmark determination process.

Please consider that the Benchmark determination process covers at least:

- a) *The development of the Benchmark;*
- b) *The determination and dissemination of the Benchmark;*
- c) *The operation of the Benchmark process (including contingency measures for breakdowns in the process); and*
- d) *The governance surrounding the Benchmark determination process.*

Please identify all other parties who have responsibility for some element of the Benchmark determination process and explain what that responsibility is.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
1.1 Administrator has primary responsibility for all aspects of Benchmark determination process include (at a minimum): a) Development: definition of Benchmark and methodology;	[Yes/No]	[Yes/No/N/A]
b) Determination and dissemination: accurate and timely compilation, publication and distribution;	[Yes/No]	[Yes/No/N/A]
c) Operation: appropriate transparency over significant decisions affecting the compilation and determination; and	[Yes/No]	[Yes/No/N/A]
d) Governance: credible and transparent governance, oversight and accountability for the Benchmark determination process, including an identifiable oversight function	[Yes/No]	[Yes/No/N/A]

accountable for the development and issuance and operation of the Benchmark.		
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Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Principle 2 – Oversight of third parties

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe any aspect of the Benchmark determination process that is outsourced to a third party.

Please describe any policies, procedures and practices that you have which govern or otherwise provide oversight over these arrangements. If these policies, procedures and practices are documented, please provide a copy of the documentation.

If you lack any applicable policies, procedures and practices for oversight, or if these policies, procedures and practices do not cover all topics listed in the Key Indicia, please explain why.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
2.1 Where activities relating to the Benchmark determination process are undertaken by third parties, the Administrator maintains appropriate oversight of such third parties.	[Yes/No]	[Yes/No/N/A]

2.2 The Administrator's policies:	[Yes/No]	[Yes/No/N/A]
a) Clearly define and substantiate through appropriate written arrangements the roles and obligations of third parties and the standards the Administrator expects them to meet;		
b) Monitor third parties' compliance with the standards;	[Yes/No]	[Yes/No/N/A]
c) Make Available to Stakeholders and any relevant Regulatory Authority the identity and roles of such third parties; and	[Yes/No]	[Yes/No/N/A]

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Principle 3 – Conflict of interest for Administrators

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe all identified existing and potential conflicts of interest within the Administrator's business, including all affiliates.

Have any of these conflicts been disclosed to your users or regulatory authority?

Please describe in detail any framework you have for the identification, disclosure, management, mitigation or avoidance of conflicts of interest and how that framework is tailored to relevant conflicts and has been implemented. Please include in your description detail of the identification and mitigation processes you use, giving an example if possible of actual employment of the processes.

Please describe any process you have for the review and updating of these policies and procedures.

If you lack any such framework, or your framework does not cover one of the topics identified in the Key Indicia, please explain why.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
3.1 Administrators: a) Document, implement and enforce policies and procedures for the identification, disclosure, management, mitigation or avoidance of conflicts of interest.	[Yes/No]	[Yes/No/N/A]
b) Review and update their policies and procedures as appropriate.	[Yes/No]	[Yes/No/N/A]
c) Disclose any material conflicts of interest to their users and any relevant Regulatory Authority.	[Yes/No]	[Yes/No/N/A]
3.2 The framework is tailored to the level of existing or potential conflicts of interest and risks posed by the Benchmark and seeks to a) Ensure that:	[Yes/No]	[Yes/No/N/A]
i. Existing or potential conflicts of interest do not inappropriately influence Benchmark determinations;	[Yes/No]	[Yes/No/N/A]
ii. Personal interests and connections or business connections do not compromise the Administrator’s performance of its functions;	[Yes/No]	[Yes/No/N/A]
iii. Segregation of reporting lines within the Administrator, where appropriate, to clearly define responsibilities and prevent unnecessary or undisclosed conflicts of interest or the perception of such conflicts;	[Yes/No]	[Yes/No/N/A]
iv. Adequate supervision and sign-off by authorised or qualified employees prior to releasing Benchmark determinations;	[Yes/No]	[Yes/No/N/A]

v.	The confidentiality of data, information and other inputs submitted to, received by or produced by the Administrator, subject to the disclosure obligations of the Administrator;	[Yes/No]	[Yes/No/N/A]
vi.	Effective procedures to control the exchange of information between staff engaged in activities involving a risk of conflicts of interest or between staff and third parties, where that information may reasonably affect any Benchmark determinations; and	[Yes/No]	[Yes/No/N/A]
vii.	Adequate remuneration policies that ensure all staff who participate in the Benchmark determination are not directly or indirectly rewarded or incentivised by the levels of the Benchmark.	[Yes/No]	[Yes/No/N/A]
b)	Mitigate existing or potential conflicts created by the Administrator's ownership structure or control, or due to other interests of its staff or wider group and to this end:	[Yes/No]	[Yes/No/N/A]
i.	Includes measures to avoid, mitigate or disclose conflicts of interest that may exist between its Benchmark determination business, including staff who perform or otherwise participate in Benchmark production responsibilities, and other business of the Administrator or an affiliate;	[Yes/No]	[Yes/No/N/A]
ii.	Provides that an Administrator discloses conflicts of interest arising from the ownership structure or the control of the Administrator to its Stakeholders and any relevant Regulatory Authority in a timely manner.	[Yes/No]	[Yes/No/N/A]

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Principle 4 – Control framework for Administrators

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe in detail any control framework that you have implemented that concerns the process of determining and distributing the Benchmark.

Please explain how this control framework (or frameworks) is tailored to the materiality of the potential or existing conflicts of interest identified, the extent of the use of discretion in the Benchmark setting process and to the nature of Benchmark inputs and outputs.

Please describe any process you have for the review and updating of these policies and procedures.

If you lack any control framework, or if the control framework does not address the areas identified in the Key Indicia, please explain why.

Please indicate whether and how a summary of this control framework (or frameworks) is Published or Made Available to Stakeholders. If it has, please provide evidence (e.g. a hyperlink). If it not Published or Made Available, please explain why.

Please describe in detail the composition of, selection criteria for and all arrangements with submitters to the Benchmark. Please include in this any submitter code of conduct that you employ.

Please describe the processes in place for monitoring submitters' compliance with the arrangements.

Please describe any ex-ante and ex-post monitoring of submissions conducted, including any procedures covering such monitoring.

Please explain how, if applicable, your submitters comprise an appropriately representative group of participants taking into consideration the underlying interest measured by the Benchmark.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
<p>4.1 Administrators have an appropriate control framework in place for the process of determining and distributing the Benchmark. At a minimum it is:</p> <p>a) Appropriately tailored to the materiality of the identified conflicts of interest, the extent of the use of discretion in the Benchmark setting process and to the nature of Benchmark inputs and outputs.</p>	[Yes/No]	[Yes/No/N/A]
<p>b) Documented and available to relevant Regulatory Authorities. A summary of its main features should be Published or Made Available to Stakeholders.</p>	[Yes/No]	[Yes/No/N/A]
<p>c) Reviewed periodically and updated as appropriate and address the following areas:</p> <p>i. Conflicts of interest in line with Principle 3</p>	[Yes/No]	[Yes/No/N/A]
<p>ii. Arrangements to ensure that the quality and integrity of Benchmarks is maintained, in line with principles 6 to 15</p>	[Yes/No]	[Yes/No/N/A]
<p>iii. Arrangements to promote the integrity of Benchmark inputs, including adequate due diligence on input sources</p>	[Yes/No]	[Yes/No/N/A]
<p>iv. Arrangements to ensure accountability and complaints mechanisms are effective, in line with principles 16 to 19</p>	[Yes/No]	[Yes/No/N/A]
<p>v. Provides robust infrastructure, policies and procedures for the management of risk, including operational risk</p>	[Yes/No]	[Yes/No/N/A]
<p>vi. Establishes an effective whistle blowing mechanism, to facilitate early awareness of any potential misconduct or irregularities, which should allow for external reporting where</p>	[Yes/No]	[Yes/No/N/A]

appropriate		
vii. Ensures Benchmark determinations are made by personnel who possess the relevant levels of expertise, with a process for periodic review of their competence	[Yes/No]	[Yes/No/N/A]
viii. Staff training, including ethics and conflicts of interest training, and continuity and succession planning for personnel	[Yes/No]	[Yes/No/N/A]
Benchmarks based on Submissions:	[Yes/No]	[Yes/No/N/A]
4.2 Administrators:		
a) Have measures in place to ensure as far as possible whereby Submitters comprise an appropriately representative group of participants taking into consideration the underlying Interest measured by the Benchmark;		
b) Employ a system of appropriate measures so that, to the extent possible, Submitters comply with the Submission guidelines, as defined in the Submitter Code of Conduct and the Administrators' applicable quality and integrity standards for Submission; and	[Yes/No]	[Yes/No/N/A]
c) Specify the frequency of Submissions and specifying that inputs or Submissions should be made for every Benchmark determination.	[Yes/No]	[Yes/No/N/A]

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Principle 5 – Internal Oversight

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe in detail the form, arrangements, responsibilities, operation and other details of any oversight function that you have in place to review and provide challenge to the Benchmark determination process and, if relevant, submissions.

Please explain how this oversight function is appropriate to provide effective scrutiny of your activities.

Please detail how this oversight function has operated in practice since its establishment, giving examples of its activities.

Please describe any procedures that relate to your oversight function.

If you lack any such oversight function, or it does not cover the areas listed in the Key Indicia please explain why

Please indicate whether and how details of this oversight function are Made Available to Stakeholders. If they have, please provide evidence (e.g. a hyperlink).

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
5.1 Administrators have an oversight function to review and provide challenge on all aspects of the Benchmark determination process, which should: <ul style="list-style-type: none"> a) Include consideration of the features and intended, expected or known usage of the Benchmark and the materiality of existing or potential conflicts of interest identified. 	[Yes/No]	[Yes/No/N/A]
<ul style="list-style-type: none"> b) Be carried out either by a separate committee, or other appropriate governance arrangements. The oversight function and its composition should be appropriate to provide effective scrutiny of the Administrator. Such oversight function could consider groups of Benchmarks by type or asset class, provided that it otherwise complies with this Principle. 	[Yes/No]	[Yes/No/N/A]

5.2 An Administrator develops and maintains robust procedures regarding its oversight function, which should be documented and available to relevant Regulatory Authorities and its main features Made Available to Stakeholders.	[Yes/No]	[Yes/No/N/A]
5.3 These procedures include terms of reference for the oversight function, selection criteria for membership and summary details of membership of any committee or arrangement of the oversight function (together with declarations of conflicts of interest and processes for election, nomination or removal and replacement of members).	[Yes/No]	[Yes/No/N/A]
5.4 Responsibilities of the oversight function include: a) Oversight of the Benchmark design, including: i. Periodic review of the definition of the Benchmark and its Methodology;	[Yes/No]	[Yes/No/N/A]
ii. Taking measures to remain informed about issues and risks to the Benchmark, as well as commissioning external reviews of the Benchmark (as appropriate);	[Yes/No]	[Yes/No/N/A]
iii. Overseeing any changes to the Benchmark Methodology, including assessing whether the Methodology continues to appropriately measure the underlying Interest, reviewing proposed and implemented changes to the Methodology, and authorising or requesting the Administrator to undertake a consultation with Stakeholders where known or its Subscribers on such changes as per Principle 12; and	[Yes/No]	[Yes/No/N/A]
iv. Reviewing and approving procedures for termination of the Benchmark, including guidelines setting out how the Administrator should consult with Stakeholders about such cessation.	[Yes/No]	[Yes/No/N/A]

<p>b) Oversight of the integrity of Benchmark determination and control framework, including:</p> <p>i. Overseeing the management and operation of the Benchmark, including activities related to Benchmark determination undertaken by a third party;</p>	[Yes/No]	[Yes/No/N/A]
<p>ii. Considering the results of internal and external audits, and following up on the implementation of remedial actions highlighted in the results of these audits; and</p>	[Yes/No]	[Yes/No/N/A]
<p>iii. Overseeing any exercise of Expert Judgment by the Administrator and ensuring Published Methodologies have been followed.</p>	[Yes/No]	[Yes/No/N/A]
<p>Where conflicts of interest may arise due to Administrator’s ownership structures or controlling interests:</p> <p>5.5 Administrator has an independent oversight function which includes a balanced representation of a range of Stakeholders where known, Subscribers and Submitters, which is chosen to counterbalance the relevant conflict of interest.</p>	[Yes/No]	[Yes/No/N/A]
<p>Where Benchmark is based on Submissions</p> <p>5.6 The oversight function provides suitable oversight and challenge of the Submissions by:</p> <p>a) Overseeing and challenging the scrutiny and monitoring of inputs or Submissions by the Administrator, including regular discussions of inputs or Submission patterns, defining parameters against which inputs or Submissions can be analysed, or querying the role of the Administrator in challenging or sampling unusual inputs or Submissions;</p>	[Yes/No]	[Yes/No/N/A]
<p>b) Overseeing the Code of Conduct for Submitters;</p>		
<p>c) Establishing effective arrangements to address breaches of the Code of Conduct for Submitters; and</p>		
<p>d) Establishing measures to detect potential anomalous or suspicious Submissions and in case of suspicious activities, to report them, as well as any misconduct by Submitters of which it becomes aware to any relevant Regulatory Authorities</p>		

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Trade Pair 1

Principle 6 – Benchmark design

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please define and describe the details of the interest that the Benchmark seeks to represent. Please include all related sources which inform the state of the Interest that the Benchmark seeks to represent.

Please include all market metrics that you have available concerning:

- *Size and liquidity of the relevant market (for example whether there is sufficient trading to provide observable, transparent pricing);*
- *Relative size of the underlying market in relation to the volume of trading in the market that references the Benchmark;*
- *The distribution of trading among Market Participants (market concentration); and*
- *Market dynamics*

Please describe in detail the design of the Benchmark including a detailed description of the factors taken into account in designing the Benchmark. In particular, please cover if and how the design of the Benchmark takes into the details of the Interest it seeks represent and explain how it results in an accurate and reliance representation of the economic realities of the Interest it represents. If it does not, please explain why.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices?	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle?
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	Please provide reasoning	Please provide reasoning
1.1 The design of the Benchmark: a) Seeks to achieve, and result in an accurate and reliable representation of the economic realities of the Interest it seeks to measure, and eliminate factors that might result in a distortion of the price, rate, index or value of the Benchmark	[Yes/No]	[Yes/No/N/A]
b) Takes into account the following generic non-exclusive features, and other factors should be considered, as appropriate to the particular Interest: i. Adequacy of the sample used to represent the Interest;	[Yes/No]	[Yes/No/N/A]
ii. Size and liquidity of the relevant market (for example whether there is sufficient trading to provide observable, transparent pricing);	[Yes/No]	[Yes/No/N/A]
iii. Relative size of the underlying market in relation to the volume of trading in the market that references the Benchmark;	[Yes/No]	[Yes/No/N/A]
iv. The distribution of trading among Market Participants (market concentration);	[Yes/No]	[Yes/No/N/A]
v. Market dynamics (e.g., to ensure that the Benchmark reflects changes to the assets underpinning a Benchmark).		

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Trade Pair 1

Principle 7 – Data sufficiency

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe how you:

- *You define an ‘active market’*
- *Ensure the accuracy and reliability of the benchmark as a measure of the relevant Interest.*

In particular, please describe how you satisfy yourself that the choice of data sources provides accurate and reliable measures of the relevant Interest. Please include market metrics on relative market shares of the data sources in the underlying Interest.

- *Ensure that the data you use means that the benchmark anchored in the interest that you seek to represent.*

To meet this later standard, please describe how you ensure the data you use is:

- *Based on prices, rates, indices or values that have been formed by the competitive forces of supply and demand in order to provide confidence that the price discovery system is reliable. This description will need to cover how you verify or gain comfort that the markets from which you draw information are free from manipulation that would distort the market levels; and*
- *Be anchored by observable transactions entered into at arm’s length between buyers and sellers in the market for the interest the Benchmark measures. .*

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
7.1 Administrator has a definition of ‘active market’ for the interest the benchmark seeks to represent and understands what this requires	[Yes/No]	[Yes/No/N/A]
7.2 The data used to construct Benchmark determinations is sufficient to accurately and reliably represent the interest	[Yes/No]	[Yes/No/N/A]

measured by the Benchmark		
7.3 The data used to construct a Benchmark determination is based on bona-fide, arms length transactions and is anchored in the relevant interest	[Yes/No]	[Yes/No/N/A]

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Trade Pair 1

Principle 8 – Hierarchy of data inputs

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe any guidelines that establish hierarchy of data inputs and exercise of expert judgment used for determination of the Benchmark and explain how that hierarchy operates.

If you lack any such guidelines, or the guidelines do not cover the points listed in the Key Indicia, please explain why.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
8.1 Administrators Publish or Make Available clear guidelines regarding the hierarchy of data inputs and exercise of Expert Judgment used for the determination of Benchmarks.	[Yes/No]	[Yes/No/N/A]
8.2 Generally, hierarchy of data inputs includes: a) For Submission-based Benchmarks, the Submitters’ own concluded arms-length transactions in the underlying	[Yes/No]	[Yes/No/N/A]

interest or related markets; b) Reported or observed concluded Arm's-length Transactions in the underlying interest and in related markets; c) Firm (executable) bids and offers; and d) Other market information or Expert Judgments.		
8.3 Provided that the Data Sufficiency Principle is met (i.e., an active market exists), this Principle is not intended to restrict an Administrator's flexibility to use inputs consistent with the Administrator's approach to ensuring the quality, integrity, continuity and reliability of its Benchmark determinations, as set out in the Administrator's Methodology.	[Yes/No]	[Yes/No/N/A]

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Trade Pair 1

Principle 9 – Transparency of benchmark determinations

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe in detail all the information described and published with each Benchmark determination that you believe meets the criteria in Key Indicia 9(a) and (b) below.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

<i>Key Indicia</i>	<i>Have you implemented the Key Indicia through the summarised policies and practices?</i>	<i>If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle?</i>
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	<i>Please provide reasoning</i>	<i>Please provide reasoning</i>
<p><i>9.1 Administrators describe and publish with each Benchmark determination, to the extent reasonable without delaying the publication deadline, concise explanations:</i></p> <p><i>a) Sufficient to facilitate a Stakeholder's or Market Authority's ability to understand how the determination was developed, including, at a minimum, the size and liquidity of the market being assessed (meaning the number and volume of transactions submitted), the range and average volume and range and average of price, and indicative percentages of each type of market data that have been considered in a Benchmark determination; terms referring to the pricing Methodology should be included (e.g., transaction-based, spread-based or interpolated/extrapolated).</i></p>	<i>[Yes/No]</i>	<i>[Yes/No/N/A]</i>
<p><i>b) Of the extent to which and the basis upon which Expert Judgment if any, was used in establishing a Benchmark determination.</i></p>	<i>[Yes/No]</i>	<i>[Yes/No/N/A]</i>

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Trade Pair 2

Principle 6 – Benchmark design

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please define and describe the details of the interest that the Benchmark seeks to represent. Please include all related sources which inform the state of the Interest that the Benchmark seeks to represent.

Please include all market metrics that you have available concerning:

- *Size and liquidity of the relevant market (for example whether there is sufficient trading to provide observable, transparent pricing);*
- *Relative size of the underlying market in relation to the volume of trading in the market that references the Benchmark;*
- *The distribution of trading among Market Participants (market concentration); and*
- *Market dynamics*

Please describe in detail the design of the Benchmark including a detailed description of the factors taken into account in designing the Benchmark. In particular, please cover if and how the design of the Benchmark takes into the details of the Interest it seeks represent and explain how it results in an accurate and reliance representation of the economic realities of the Interest it represents. If it does not, please explain why.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
6.1 The design of the Benchmark: a) Seeks to achieve, and result in an accurate and reliable representation of the economic realities of the Interest it seeks to measure, and eliminate factors that might result in a distortion of the price, rate, index or value of the Benchmark	[Yes/No]	[Yes/No/N/A]
b) Takes into account the following generic non-exclusive features,	[Yes/No]	[Yes/No/N/A]

and other factors should be considered, as appropriate to the particular Interest: vi. Adequacy of the sample used to represent the Interest;		
vii. Size and liquidity of the relevant market (for example whether there is sufficient trading to provide observable, transparent pricing);	[Yes/No]	[Yes/No/N/A]
viii. Relative size of the underlying market in relation to the volume of trading in the market that references the Benchmark;	[Yes/No]	[Yes/No/N/A]
ix. The distribution of trading among Market Participants (market concentration);	[Yes/No]	[Yes/No/N/A]
x. Market dynamics (e.g., to ensure that the Benchmark reflects changes to the assets underpinning a Benchmark).		

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Trade Pair 2

Principle 7 – Data sufficiency

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe how you:

- You define an ‘active market’
- Ensure the accuracy and reliability of the benchmark as a measure of the relevant Interest.

In particular, please describe how you satisfy yourself that the choice of data sources provides accurate and reliable measures of the relevant Interest. Please include market metrics on relative market shares of the data sources in the underlying Interest.

- Ensure that the data you use means that the benchmark anchored in the interest that you seek to represent.

To meet this later standard, please describe how you ensure the data you use is:

- *Based on prices, rates, indices or values that have been formed by the competitive forces of supply and demand in order to provide confidence that the price discovery system is reliable. This description will need to cover how you verify or gain comfort that the markets from which you draw information are free from manipulation that would distort the market levels; and*
- *Be anchored by observable transactions entered into at arm’s length between buyers and sellers in the market for the interest the Benchmark measures. .*

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
7.1 Administrator has a definition of ‘active market’ for the interest the benchmark seeks to represent and understands what this requires	[Yes/No]	[Yes/No/N/A]
7.2 The data used to construct Benchmark determinations is sufficient to accurately and reliably represent the interest measured by the Benchmark	[Yes/No]	[Yes/No/N/A]
7.3 The data used to construct a Benchmark determination is based on bona-fide, arms length transactions and is anchored in the relevant interest	[Yes/No]	[Yes/No/N/A]

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Trade Pair 2

Principle 8 – Hierarchy of data inputs

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe any guidelines that establish hierarchy of data inputs and exercise of expert judgment used for determination of the Benchmark and explain how that hierarchy operates.

If you lack any such guidelines, or the guidelines do not cover the points listed in the Key Indicia, please explain why.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
8.1 Administrators Publish or Make Available clear guidelines regarding the hierarchy of data inputs and exercise of Expert Judgment used for the determination of Benchmarks.	[Yes/No]	[Yes/No/N/A]
8.2 Generally, hierarchy of data inputs includes: a) For Submission-based Benchmarks, the Submitters' own concluded arms-length transactions in the underlying interest or related markets; b) Reported or observed concluded Arm's-length Transactions in the underlying interest and in related markets; c) Firm (executable) bids and offers; and d) Other market information or Expert Judgments.	[Yes/No]	[Yes/No/N/A]
8.3 Provided that the Data Sufficiency Principle is met (i.e., an active market exists), this Principle is not intended to restrict an Administrator's flexibility to use inputs consistent with the Administrator's approach to ensuring the quality, integrity, continuity and reliability of its Benchmark determinations, as set out	[Yes/No]	[Yes/No/N/A]

in the Administrator’s Methodology.		
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Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Trade Pair 2

Principle 9 – Transparency of benchmark determinations

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe in detail all the information described and published with each Benchmark determination that you believe meets the criteria in Key Indicia 9(a) and (b) below.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

<i>Key Indicia</i>	<i>Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning</i>	<i>If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning</i>
<i>9.2 Administrators describe and publish with each Benchmark determination, to the extent reasonable without delaying the publication deadline, concise explanations: c) Sufficient to facilitate a Stakeholder’s or Market Authority’s ability to understand how the</i>	<i>[Yes/No]</i>	<i>[Yes/No/N/A]</i>

<p><i>determination was developed, including, at a minimum, the size and liquidity of the market being assessed (meaning the number and volume of transactions submitted), the range and average volume and range and average of price, and indicative percentages of each type of market data that have been considered in a Benchmark determination; terms referring to the pricing Methodology should be included (e.g., transaction-based, spread-based or interpolated/extrapolated).</i></p>		
<p><i>d) Of the extent to which and the basis upon which Expert Judgment if any, was used in establishing a Benchmark determination.</i></p>	<p><i>[Yes/No]</i></p>	<p><i>[Yes/No/N/A]</i></p>

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Quote Pair

Principle 6 – Benchmark design

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please define and describe the details of the interest that the Benchmark seeks to represent. Please include all related sources which inform the state of the Interest that the Benchmark seeks to represent.

Please include all market metrics that you have available concerning:

- Size and liquidity of the relevant market (for example whether there is sufficient trading to provide observable, transparent pricing);
- Relative size of the underlying market in relation to the volume of trading in the market that references the Benchmark;
- The distribution of trading among Market Participants (market concentration); and
- Market dynamics

Please describe in detail the design of the Benchmark including a detailed description of the factors taken into account in designing the Benchmark. In particular, please cover if and how the design of the Benchmark takes into the details of the Interest it seeks represent and explain how it results in an accurate and reliance representation of the economic realities of the Interest it represents. If it does not, please explain why.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
6.1 The design of the Benchmark: a) Seeks to achieve, and result in an accurate and reliable representation of the economic realities of the Interest it seeks to measure, and eliminate factors that might result in a distortion of the price, rate, index or value of the Benchmark	[Yes/No]	[Yes/No/N/A]
b) Takes into account the following generic non-exclusive features, and other factors should be considered, as appropriate to the particular Interest: i. Adequacy of the sample used to represent the Interest;	[Yes/No]	[Yes/No/N/A]
ii. Size and liquidity of the relevant market (for example whether there is sufficient trading to provide observable, transparent pricing);	[Yes/No]	[Yes/No/N/A]

iii.	Relative size of the underlying market in relation to the volume of trading in the market that references the Benchmark;	[Yes/No]	[Yes/No/N/A]
iv.	The distribution of trading among Market Participants (market concentration);	[Yes/No]	[Yes/No/N/A]
v.	Market dynamics (e.g., to ensure that the Benchmark reflects changes to the assets underpinning a Benchmark).		

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Quote Pair

Principle 7 – Data sufficiency

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe how you:

- *You define an ‘active market’*
- *Ensure the accuracy and reliability of the benchmark as a measure of the relevant Interest.*

In particular, please describe how you satisfy yourself that the choice of data sources provides accurate and reliable measures of the relevant Interest. Please include market metrics on relative market shares of the data sources in the underlying Interest.

- *Ensure that the data you use means that the benchmark anchored in the interest that you seek to represent.*

To meet this later standard, please describe how you ensure the data you use is:

- *Based on prices, rates, indices or values that have been formed by the competitive forces of supply and demand in order to provide confidence that the price discovery system is reliable. This description will need to cover how you verify or gain comfort that the markets from which you draw information are free from manipulation that would distort the market levels; and*
- *Be anchored by observable transactions entered into at arm's length between buyers and sellers in the market for the interest the Benchmark measures. .*

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
7.1 Administrator has a definition of 'active market' for the interest the benchmark seeks to represent and understands what this requires	[Yes/No]	[Yes/No/N/A]
7.2 The data used to construct Benchmark determinations is sufficient to accurately and reliably represent the interest measured by the Benchmark	[Yes/No]	[Yes/No/N/A]
7.3 The data used to construct a Benchmark determination is based on bona-fide, arms length transactions and is anchored in the relevant interest	[Yes/No]	[Yes/No/N/A]

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Quote Pair

Principle 8 – Hierarchy of data inputs

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe any guidelines that establish hierarchy of data inputs and exercise of expert judgment used for determination of the Benchmark and explain how that hierarchy operates.

If you lack any such guidelines, or the guidelines do not cover the points listed in the Key Indicia, please explain why.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
8.1 Administrators Publish or Make Available clear guidelines regarding the hierarchy of data inputs and exercise of Expert Judgment used for the determination of Benchmarks.	[Yes/No]	[Yes/No/N/A]
8.2 Generally, hierarchy of data inputs includes: a) For Submission-based Benchmarks, the Submitters' own concluded arms-length transactions in the underlying interest or related markets; b) Reported or observed concluded Arm's-length Transactions in the underlying interest and in related markets; c) Firm (executable) bids and offers; and d) Other market information or Expert Judgments.	[Yes/No]	[Yes/No/N/A]
8.3 Provided that the Data Sufficiency Principle is met (i.e., an active market exists), this Principle is not intended to restrict an Administrator's flexibility to use inputs consistent with the Administrator's approach to ensuring the quality, integrity, continuity and reliability of its Benchmark determinations, as set out in the Administrator's Methodology.	[Yes/No]	[Yes/No/N/A]

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Quote Pair

Principle 9 – Transparency of benchmark determinations

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe in detail all the information described and published with each Benchmark determination that you believe meets the criteria in Key Indicia 9(a) and (b) below.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
9.3 Administrators describe and publish with each Benchmark determination, to the extent reasonable without delaying the publication deadline, concise explanations: e) Sufficient to facilitate a Stakeholder’s or Market Authority’s ability to understand how the determination was developed, including, at a minimum, the size and liquidity of the market being assessed (meaning the number and volume of transactions submitted), the range and average volume and range and average of price, and indicative percentages of each type of market data that have been considered in a Benchmark determination; terms referring to the pricing Methodology should be included (e.g., transaction-based, spread-based or interpolated/extrapolated).	[Yes/No]	[Yes/No/N/A]
f) Of the extent to which and the basis upon which Expert Judgment if any, was used in establishing a Benchmark determination.	[Yes/No]	[Yes/No/N/A]

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Principle 10 – Periodic review

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe in detail any policies, procedures and practices in place to periodically review the conditions in the underlying Interest that the Benchmark measures.

If you do not have any such policies, procedures and practices, or they do not cover the points listed in the Key Indicia, please explain why.

Please describe the focus (e.g., structural changes, diminished or nonfunctioning market) and outcomes sought from any such reviews that have been held.

Please describe any change in methodology or benchmark tenors or currencies resulting from such reviews.

If the process or detail of the reviews is documented, please provide a copy of the documentation.

Have or will the reviews or their outcomes be made available to anyone under any circumstances? If they have, please provide evidence (e.g. a hyperlink).

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
10.1 Administrators periodically review conditions in the underlying Interest that the Benchmark measures to	[Yes/No]	[Yes/No/N/A]

determine whether the Interest has:		
a) Undergone structural changes that might require changes to the design of the Methodology.		
b) Diminished or is non-functioning such that it can no longer function as the basis for a credible Benchmark.		
10.2 The Administrator should Publish or Make Available a summary of such reviews where material revisions have been made to a Benchmark, including the rationale for the revisions.		

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Principle 11 – Content of the Methodology

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe in detail the methodology used to determine the Benchmark, including all the information contained in the methodology.

Please identify where the methodology addresses each of the required items in the principle. If the methodology fails to cover all the items listed in the Key Indicia, please explain why.

Has the documented methodology, together with a rationale for its adoption, been made available publicly? If so, please provide evidence (e.g. a hyperlink).

Where a Benchmark is based on submissions: does the methodology establish criteria for including and excluding submitters?

Do you anticipate the existing arrangements to change in the future? If so, please describe how and when. If applicable, please also describe how the changes will assist in your implementation of the Key Indicia of the Principle.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
11.1 Administrators have: a) Documented and Published or Made Available the Methodology.	[Yes/No]	[Yes/No/N/A]
b) Provided the rationale for adopting a particular Methodology.		
11.2 The Published Methodology provides sufficient detail to allow Stakeholders to understand how the Benchmark is derived and to assess its representativeness, its relevance to particular Stakeholders, and its appropriateness as a reference for financial instruments. The Methodology contains – as a minimum: a) Definitions of key terms;		
b) All criteria and procedures used to develop the Benchmark including input selection, the mix of inputs used to derive the Benchmark, the guidelines that control the exercise of Expert Judgment by the Administrator, priority given to certain data types, minimum data needed to determine a Benchmark, and any models or extrapolation methods;		
c) Procedures and practices designed to promote consistency in the exercise of Expert Judgment between Benchmark determinations;		
d) Procedures which govern Benchmark determination in periods of market stress or disruption, or periods where data sources may be absent (e.g., theoretical estimation models);		
e) Procedures for dealing with error reports, including when a revision of a Benchmark would be applicable;		
f) Information regarding the frequency of internal reviews and approvals of the Methodology. Where applicable, the Published Methodologies should also include information regarding the procedures and frequency for external review of the Methodology;		
g) The circumstances and procedures under which the Administrator		

will consult with Stakeholders, as appropriate; and		
h) The identification of potential limitations of a Benchmark, including its operation in illiquid or fragmented markets and the possible concentration of inputs.		
Where Benchmark is based on Submissions 11.3 The Administrator should clearly establish criteria for including and excluding Submitters, which: a) Considers any issues arising from the location of the Submitter, if in a different jurisdiction to the Administrator		
b) Is available to any relevant Regulatory Authorities, and Published or Made Available to Stakeholders. Any provisions related to changes in composition, including notice periods should be made clear.		

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Principle 12 – Changes to the Methodology

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Are the procedures and the rationale for any proposed material change to the methodology available publicly or to benchmark users? Do those procedures define what constitutes a material change? If not, why not?

Please describe in detail the procedures followed to make changes to the methodology, including all the factors taken into account in making any changes to the methodology and the definition of what constitutes a material change (if any). Are there different processes depending on the materiality of the change?

If the procedures fail to cover all the topics listed in the Key Indicia below, please explain why.

Are the procedures documented? If so, please provide a copy.

Please describe in detail the processes in place to scrutinize proposed changes to the methodology. Please describe the parties responsible for carrying out this scrutiny. If these processes are documented, please provide a copy.

Please describe any procedures in place to consult with stakeholders in relation to any changes to the methodology. If these are documented, please provide a copy. If there are no such procedures, please explain why.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
12.1 Administrators Publish or Make Available the rationale of any proposed material change in its Methodology, and procedures for making such changes.	[Yes/No]	[Yes/No/N/A]
12.2 The [documented] procedures: a) Clearly define what constitutes a material change, and the method and timing for consulting or notifying Subscribers (and other Stakeholders where appropriate, taking into account the breadth and depth of the benchmark’s use) of changes		
b) Are consistent with the overriding objective that an Administrator must ensure the continued integrity of its Benchmark determinations.		
12.3 The Administrator: a) Specifies how changes to the Methodology will be scrutinised, by the oversight function.		
b) Develops Stakeholder consultation procedures in relation to changes to the Methodology that are deemed material by the oversight function and that are appropriate and proportionate to the breadth and depth of the benchmark’s use an the nature of the Stakeholders.		
12.4 Stakeholder consultation procedures involve: a) Providing advance notice and a clear timeframe that would give Stakeholders sufficient opportunity to analyse and		

comment on the impact of such proposed material changes, having regard to the Administrator's assessment of the overall circumstances		
b) Providing for Stakeholders' summary comments, and the Administrator's summary response to those comments, to be made accessible to all Stakeholders after any given consultation period, except where the commenter has requested confidentiality		

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Principle 13 – Transition

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe in detail the policies and procedures in place to address the possible cessation of the Benchmark and indicate where these policies and procedures specifically address the criteria in principle (a) – (e) above.

If there are no such policies or procedures, please explain why.

Please describe in detail all the factors taken into account in determining the policies and procedures.

Have the policies and procedures been Published or Made Available to Stakeholders? If so, please provide evidence (e.g. a hyperlink).

Have you encouraged users of the Benchmark to have fall-back provisions in contracts or financial instruments that reference the Benchmark? If so, please the details of this encouragement.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
13.1 Administrators have clear documented policies and procedures, to address the need for possible cessation of a Benchmark, due to market structure change, product definition change, or any other condition which makes the Benchmark no longer representative of its intended Interest.	[Yes/No]	[Yes/No/N/A]
13.2 Policies and procedures are proportionate to the estimated breadth and depth of contracts and financial instruments that reference a Benchmark and the economic and financial stability impact that might result from the cessation of the Benchmark.		
13.3 Administrators are required to take into account the views of Stakeholders and any relevant Regulatory and National Authorities in determining appropriate policies and procedures for a particular Benchmark and there is evidence they have done so. These procedures are Published or Made Available to all Stakeholders.		
13.4 Administrators encourage Subscribers and other Stakeholders who have financial instruments that reference a Benchmark to take steps to make sure that: a) Contracts or other financial instruments that reference a Benchmark, have robust fall-back provisions in the event of material changes to, or cessation of, the referenced Benchmark; and		
b) Stakeholders are aware of the possibility that various factors, including external factors beyond the control of the Administrator, might necessitate material changes to a Benchmark.		
13.5 If determined reasonable and appropriate by the Administrator, its written policies and procedures to address the cessation of a Benchmark include the following factors:		

<p>a) Criteria to guide the selection of a credible, alternative Benchmark such as, but not limited to, criteria that seek to match to the extent practicable the existing Benchmark's characteristics, differentials between Benchmarks, the extent to which an alternative Benchmark meets the asset/liability needs of Stakeholders, whether the revised Benchmark is investable, the availability of transparent transaction data, the impact on Stakeholders and impact of existing legislation;</p>		
<p>b) The practicality of maintaining parallel Benchmarks transition to a new Benchmark;</p>		
<p>c) The procedures that the Administrator would follow in the event that a suitable alternative cannot be identified;</p>		
<p>d) In the case of a Benchmark or a tenor of a Benchmark that will be discontinued completely, the policy defining the period of time in which the Benchmark will continue to be produced in order to permit existing contracts to migrate to an alternative Benchmark if necessary; and</p>		
<p>e) The process by which the Administrator will engage Stakeholders and relevant Market and National Authorities, as appropriate, in the process for selecting and moving towards an alternative Benchmark, including the timeframe for any such action commensurate with the tenors of the financial instruments referencing the Benchmarks and the adequacy of notice that will be provided to Stakeholders.</p>		

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Submission Pair Only

Principle 14 – Submitter code of conduct

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe in detail any guidelines in place addressing submitters and indicate where those policies address the criteria set out in principle 14 (a) – (g) below.

Do these guidelines cover all points in the Key Indicia? If not, please explain why. We are particularly interested in reasons why, if applicable, you may not have a prohibition on receiving data from a Front Office Function (e.g. because you are satisfied that there adequate internal and verification procedures).

Do you require Submitters to confirm adherence to the Submitter Code of Conduct annually and whenever a change to the Submitter Code of Conduct has occurred?

Have these guidelines been Published or Made Available to Stakeholders? If so, please provide evidence (e.g. a hyperlink). If not, why not?

Please describe in detail processes in place and the parties responsible for the review, update and oversight of the guidelines and Submitters' adherence to the guidelines.

Please describe the consequences of non-compliance with the guidelines by Submitters.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
14.1 Administrators have a Submitter Code of conduct in place which is available to any relevant Regulatory Authorities, and Published or Made Available to Stakeholders.	[Yes/No]	[Yes/No/N/A]
14.2 Administrators: a) Only use inputs or Submissions from entities which adhere to the Submitter Code of Conduct		
b) Appropriately monitor and record adherence from Submitters		
c) Require Submitters to confirm adherence to the Submitter Code of Conduct annually and whenever a change to the Submitter Code of Conduct has occurred.		
14.3 Administrator's oversight function is responsible for the continuing review and oversight of the Submitter Code of Conduct.		

14.4 The Submitter Code of Conduct covers the following:		
a) Selection of inputs;		
b) Who may submit data and information to the Administrator;		
c) Quality control procedures to verify the identity of a Submitter and any employee(s) of a Submitter who report(s) data or information and the authorization of such person(s) to report market data on behalf of a Submitter;		
d) Criteria applied to employees of a Submitter who are permitted to submit data or information to an Administrator on behalf of a Submitter;		
e) Policies to discourage the interim withdrawal of Submitters from surveys or Panels;		
f) Policies to encourage Submitters to submit all relevant data; and		
g) The Submitters' internal systems and controls, which includes:		
i. Procedures for submitting inputs, including Methodologies to determine the type of eligible inputs, in line with the Administrator's Methodologies;		
ii. Procedures to detect and evaluate suspicious inputs or transactions, including inter-group transactions and to ensure the Bona-Fide Nature of such inputs, where appropriate;		
iii. Policies guiding and detailing the use of Expert Judgment, including documentation requirements;		
iv. Record keeping policies;		
v. Pre-Submission validation of inputs, and procedures for multiple reviews by senior staff to check inputs;		
vi. Training, including training with respect to any relevant regulation (covering Benchmark regulation or any market abuse regime);		
vii. Suspicious Submission reporting;		
viii. Roles and responsibilities of key personnel and accountability lines;		
ix. Internal sign off procedures by management for submitting inputs;		

x.	Whistle blowing policies (in line with Principle 4); and		
xi.	Conflicts of interest procedures and policies (as defined in Principle 14 g xi).		

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Principle 15 – Internal controls over data collection

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe in detail the circumstances where data is sought from external sources, including a detailed description of the sources and the data sought.

Please describe in detail any internal controls in place over the data collection and transmission processes, including how sources are selected, data is collected and integrity and confidentiality of the data is maintained.

If there are no such internal controls, or the internal controls do not cover the topics in the Key Indicia, please explain why.

In what circumstances are data collected from a Front Office Function and how is such data treated? Please explain whether and if so, how, the Administrator seeks corroborating data from other sources.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
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15.1	When an Administrator collects data from any external source the Administrator ensures there are appropriate internal controls over its data collection and transmission processes, which address processes for :	[Yes/No]	[Yes/No/N/A]
a)	Selecting the source		
b)	Collecting the data		
c)	Protecting the integrity and confidentiality of the data.		
15.2	If data is received from the Front Office Function, the Administrator seeks corroborating data from other sources		

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Principle 16 – Complaints procedures

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe in detail your complaints procedures policy for Stakeholders seeking to make a complaint in relation to a Benchmark determination.

If there is no such policy, or it does not cover all of the topics listed in the Key Indicia, please explain why.

Has the policy been published or made available to users of the Benchmark? If so, please provide evidence (e.g. a hyperlink)

What is the process for resolution of informal disputes?

Please describe in detail the process followed if a complaint results in a Benchmark determination being changed. Is this available publicly or to your regulator to anyone?

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

<p align="center">Key Indicia</p>	<p align="center">Have you implemented the Key Indicia through the summarised policies and practices?</p> <p align="center">Please provide reasoning</p>	<p align="center">If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle?</p> <p align="center">Please provide reasoning</p>
<p>16.1 Administrators establish and Publish or Make Available a written complaints procedures policy, by which Stakeholders may submit complaints including concerning whether a specific Benchmark determination is representative of the underlying Interest it seeks to measure, applications of the Methodology in relation to a specific Benchmark determination(s) and other Administrator's decisions in relation to a benchmark determination.</p>	<p>[Yes/No]</p>	<p>[Yes/No/N/A]</p>
<p>16.2 The complaints procedures policy: a) Permits complaints to be submitted through a user-friendly complaints process such as an electronic Submission process;</p>		
<p>b) Contains procedures for receiving and investigating a complaint made about the Administrator's Benchmark determination process on a timely and fair basis by personnel who are independent of any personnel who may be or may have been involved in the subject of the complaint, advising the complainant and other relevant parties of the outcome of its investigation within a reasonable period and retaining all records concerning complaints;</p>		
<p>c) Contains a process for escalating complaints, as appropriate, to the Administrator's governance body; and</p>		
<p>d) Requires all documents relating to a complaint, including those submitted by the complainant as well as the Administrator's own record, to be retained for a minimum of five years, subject to applicable national legal or regulatory requirements.</p>		
<p>16.3 Disputes that are not formal complaints are resolved by the Administrator by reference to its standard appropriate procedures. If a complaint results in a change in a Benchmark determination, that change is published or made available to Subscribers and published or made available to Stakeholders as soon as possible as set out in the Methodology.</p>		

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Principle 17 – Audits

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Have you appointed an auditor to conduct an audit of your adherence with your stated policies and methodologies the Principles? If not, why not?

If so, please describe the details of this appointment and the anticipated audit process in detail.

Have you appointed an auditor to conduct a period audit of your compliance with the Benchmark's methodology? If not, why not?

If so, please describe the details of this appointment and the anticipated audit process in detail. Please include in your response a justification of why the anticipated frequency of audits is proportionate to the size and complexity of your Benchmark operations and the breadth and depth of Benchmark use by Stakeholders.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
17.1 Administrators appoint an independent internal or external auditor with appropriate experience and capability to periodically review and report on the Administrator's adherence to its stated criteria and with the Principles.	[Yes/No]	[Yes/No/N/A]

17.2	Frequency of audits is proportional to the size and complexity of the Administrator's operations.		
17.3	Where appropriate to the level of existing or potential conflicts of interest identified by the Administrator an Administrator appoints an independent external auditor with appropriate experience and capability to periodically review and report on the Administrator's adherence to its stated Methodology.		
17.4	The frequency of audits is proportionate to the size and complexity of the Administrator's Benchmark operations and the breadth and depth of Benchmark used by Stakeholders.		

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Principle 18 – Audit trail

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe your record keeping policies including detailed descriptions of kinds of data and information retained, manner of retention and time for which data and information is retained.

If you do not have such policies, or your policies do not cover the topics listed in the Key Indicia, please explain why.

Do you have record sharing arrangements with a relevant regulated market or exchange? If so, please provide details of these arrangements.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
18.1 Administrators, subject to national legal or regulatory requirements, retain for five years written records on: a) All market data, Submissions and any other data and information sources relied upon for Benchmark determination;	[Yes/No]	[Yes/No/N/A]
b) The exercise of Expert Judgment made by the Administrator in reaching a Benchmark determination;		
c) Other changes in or deviations from standard procedures and Methodologies, including those made during periods of market stress or disruption;		
d) The identity of each person involved in producing a Benchmark determination; and		
e) Any queries and responses relating to data inputs.		
18.2 Administrators may rely on these records held by a Regulated Market or Exchange for compliance with this Principle, subject to appropriate written record sharing agreements.		

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]

Principle 19 – Cooperation with regulatory authorities

Step 1 – Summarise your currently implemented policies and practices that are relevant to this Principle

Instructions [delete once complete]

Please describe in detail your policies and procedures relating to sharing of information with Regulatory Authorities, including the kinds of information and data covered under these arrangements.

If you do not make relevant documents, Audit Trails and other documents available to the Regulatory Authorities, please explain why.

Step 2 – Identify whether each of the following Key Indicia have been implemented through your current policies and practices

Key Indicia	Have you implemented the Key Indicia through the summarised policies and practices? Please provide reasoning	If applicable, does absence of Key Indicia affect you achieving the intended outcome of the Principle? Please provide reasoning
19.1 Relevant parties make readily available and hand over promptly on request, relevant documents, Audit Trails and other documents subject to the Principles to the relevant Regulatory Authorities in carrying out their regulatory or supervisory duties.	[Yes/No]	[Yes/No/N/A]

Step 3 – Assign one of the four ratings to the Principle based on the standards established for each rating and the analysis conducted in Step 2.

Please explain how you arrived at this rating by considering whether the non-implementation of one or more Key Indicia affects you achieving the intended outcome of the relevant Principle

[Fully Implemented/Broadly Implemented/Partly Implemented/Not Implemented]

[Reasoning for rating]

Step 4 – Describe any planned policies and practices (including timelines) that could bring you towards fully implementing this Principle

[Description]