Pensions Audit Sub Committee

2.00 p.m., Tuesday, 29 September 2015

Audit of Foreign Exchange Transaction Costs

Item number	5.10
Report number	
Executive/routine	
Wards	All

Executive summary

This report considers the audit of foreign exchange (FX) transaction costs incurred in managing the Funds' overseas investments for the period 1 April 2014 to 31 March 2015.

The company carrying out the audit considers the results to be an improvement on the previous year which they considered to be satisfactory and in line with typical market ranges.

Having applied recommendations made by the company last year, this year's audit does not suggest any further changes.

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Report

Audit of Foreign Exchange Transaction Costs

Recommendations

The Committee is recommended to:

1.1 Invite the Pension Board to raise any relevant matters or concerns which the Committee should consider; and

1.2 Note the report and highlight any points it would like to raise at the Pensions Committee on 30 September 2015.

Background

2.1 Over half of the Funds' investments are in overseas markets and as a result a significant level of foreign exchange (FX) transactions is an inevitable part of the investment process. The cost of these transactions is not immediately apparent at the time the transactions are carried out. Hence, it is an important part of good governance that a regular audit of those costs is carried out.

2.2 The introduction to the report prepared by Mercer includes a brief discussion of how the FX markets work and the ways that the costs can be measured. Within the bid / offer spread the counterparty to the trade makes a margin. From the point of view of the Funds the margin should be kept as low as possible.

2.3 FX markets can be very volatile, with prices changing on a minute by minute basis. It is impossible to know in advance the time during a day when the best price for a trade will occur. For that reason, the in-house investment team have decided to conduct trades with reference the London 4pm fix. This provides a benchmark against which costs can be assessed.

2.4 In response, to suggestions in last year's FX audit report (reported to Committee in September 2014), the Funds have made improvements to the FX arrangements with the custodian (Northern Trust) who is the counterparty for most of the trades made by the Funds. The changes include:

2.4.1 Including all trades with Northern Trust within the arrangement whereby they are priced at 0.02% on the London 4pm fix.

2.4.2 Individual trades within that arrangement are consolidated and netted to reduce the underlying number and size of trades.

2.5 Virtually all trades conducted by the in-house investment team are within the above arrangement. External managers have the choice to use this arrangement or use other counterparties.

2.6 Mercer Limited was selected by competitive tender to prepare an FX audit report. This is the second of a three year contract.

Main report

3.1 The report prepared by Mercer is provided in the Appendix.

3.2 In their previous report Mercer concluded that “overall costs (are considered) to be satisfactory and in line with typical market ranges”. In the current report, Mercer observes “Overall the 2015 result for the Fund show an improvement over the previous year.”

3.3 For trades excluding the currency hedging program, Mercer estimate (table 2 of the Appendix) the excess cost to be £607k (0.0275%) for the 12 months to 31 March 2014 compared to an excess benefit of £174k (0.0185% for the 12 months to 31 March 2015). It is important to understand that this cost is estimated against an assessment of the average price for the day.

3.4 The report comments that the new initiative introduced during the year (see 2.4 above) “have lowered the excess cost of spot trading to the Fund”.

3.5 Mercer have also looked at the cost incurred by each investment portfolio with reference to the London 4pm fix and identified that the in-house Global Low Volatility Equity portfolio incurred a cost of 0.0487% despite the 0.020% arrangement described in 2.4 above. The reasons are discussed in the report and are as a result of the less common nature of some of the trades (Japanese Yen to Canadian Dollar) and some trades that were settled quicker than the normal two day cycle due to specific investment requirements.

3.6 The report also looks at the cost of the currency hedging program. Noting that the excess benefit to be £1,372k (0.135%) for the 12 months to 31 March 2014 compared to an excess cost of £143k (0.009% for the 12 months to 31 March 2015). However, this is measured against an assessment of the average price for the day. Trading arrangements were changed during the 12 months to 31 March 2014; this impacts the comparability of the figures. Measured against the 4pm London fix the excess cost is 0.0043% for the 12 months to 31 March 2015.

Measures of success

4.1 The measure of success is for the audit to confirm that the overall cost of FX transactions is satisfactory and in line with typical market ranges. This has been attained.

Financial impact

5.1 The report prepared by Mercer confirms that the FX trading arrangements of the Funds are satisfactory.

Risk, policy, compliance and governance impact

6.1 The purpose of the audit is to minimise the risk of the Funds incurring excessive FX transaction costs. The regular assessment of the Funds' operating costs is an important element of good governance.

Equalities impact

7.1 There are no equalities implications as result of this report.

Sustainability impact

8.1 There are no sustainability implications as a result of this report.

Consultation and engagement

9.1 The Pension Board, comprising employer and member representatives, is integral to the governance of the Funds.

Background reading/external references

None.

Alastair D Maclean

Chief Operating Officer

Deputy Chief Executive

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Links

Coalition pledges	
Council outcomes	CO26 - The Council engages with stakeholders and works in partnerships to improve services and deliver agreed
Single Outcome Agreement	
Appendices	Appendix 1 - Foreign Exchange Transaction Cost Analysis by Mercer, dated August 2015

Appendix 1

MERCER
MAKE TOMORROW, TODAY

FOREIGN EXCHANGE TRANSACTION COST ANALYSIS

LOTHIAN PENSION FUND

AUGUST 2015

MARSH & McLENNAN COMPANIES

CONTENTS

Introduction

Scope

The City of Edinburgh Council as administering authority for the Lothian Pension Fund (the Fund) has engaged Mercer Sentinel to analyse foreign currency exchange (FX) execution by its investment managers and custodian, Northern Trust. This is the second review of a three year contract which covers a full calendar year's transactions executed between 1 April 2014 and 31 March 2015.

Background

Investment managers have three main reasons for exchanging foreign currencies: 1) asset sales/purchases, 2) income repatriation, and 3) exposure management (using currency to express their investment views or to maintain a hedge).

- Asset transactions – When buying an asset in one country, the manager will need that country's currency to settle the purchase. Investment managers will use the excess currencies supplied by securities sales to buy the required currency to settle purchases.
- Income repatriation – FX transactions also arise when income, such as dividend or interest payments, are repatriated. The manager may bring all cash flows back to the base currency (e.g. £) or use the cash flow to make a purchase in another country. In either case, FX trades takes place.
- Exposure management – The motivations associated with maintaining a hedge can be materially different from the immediate considerations surrounding an individual asset transaction. Accordingly, the trading characteristics of individual components taken out of context can appear sub-optimal. For example, many hedges will require a "contract roll" to extend the existing exposure. Typically, a roll will involve the purchase (sale) of a forward and the simultaneous sale (purchase) of a spot contract. Either side of this paired transaction may show extreme cost (or gain) in isolation; whereas the complete pair may show a fairly neutral cost result.

FX is priced and dealt on a bid-offer basis. The difference between the bid and offer price is known as the spread, which is the market cost of trading. Execution outside the prevailing bid-offer range suggests that the Fund is paying an excess cost. There are many reasons why excess expense may be incurred; however, one should be aware of the magnitude and drivers of costs that result from pricing outside the bid-offer spread, in order to assess the reasonableness of the Fund's expenses.

A bid-offer market means those trading FX using a bank intermediary cannot easily identify or measure the potential excess cost or benefit on a given deal. As a result, the only way to assess whether a particular FX transaction is in line with the market is to review the posted bid-offer spreads across market makers on the day in question. Preferably such analysis will be done using time-stamped trade information. In the absence of time-stamped trade information, trade cost analysis can use the high offer and low bid of a trading day as a proxy (the day-range methodology).

Sources

Mercer Sentinel's FX analytics is now provided by Abel Noser with Mercer Sentinel providing the commentary. Abel Noser has more than 30 years' experience in Transaction Cost Analysis, and provides industry leading measurement of FX trading performance. Both absolute and relative peer cost comparisons are provided based on industry standard metrics.

There are several differences to the Abel Noser data presentation when compared to the traditional Mercer Sentinel format, shown in previous reports. Gross trades are presented on a value basis rather than by ticket size for overall cost analysis. Detailed commentary on trade size and the evaluation of transaction price relative to the midpoint is no longer provided within this analysis.

This format is flexible and we will be happy to discuss the Fund's needs and feedback.

All fund managers' trades in every currency pair for the period have been captured and benchmarked against a number of cost metrics as described below. Trades are then referenced against actual execution prices from over 120 of the industry's largest FX financial institutions for the same currency pair on the same day. Absolute costs are given in basis points. Additionally, a relative peer ranking is provided against trades in the same currency pair, contract type and principal trade size from Abel Noser's client universe which trades $3.5 trillion in FX annually.

Methodology

- The **Tick Weighted Average Price (TWAP)** Interval measures and compares the cost and basis point impact of the foreign exchange rate of the actual trade against the TWAP over the specified interval period on the day of the trade. The results for the costs are shown in thousands and basis points. Abel Noser uses a tick-weighted approach where every inter-dealer trade counts the same; therefore time periods with more trading are more heavily weighted. By comparing the trades against the TWAP, the client is able to assess their execution price against the full day's average execution price, not just a specific point in time (e.g. London Fix).

- The **WM Reuters London 4pm Fix (London Fix)** rate compares the foreign exchange rate of the actual executed trade with the London Fix rate of the currency on the day of the trade. If a manager is executing at or near the London Fix, there should be little variation away from this benchmark. However, if only the London Fix were used as benchmark, the trade comparisons would be made without regard to the full day's activity and therefore would give an impaired view of the average daily price movement and trade volume. Therefore it is prudent to use both benchmarks due to the lack of timestamps in the custodian data.

- The **Universe Percentile** measures and compares cost to specialised benchmarks, which are created using results from similar trades executed by other Abel Noser clients. A rank of 50% equates to the median; a lower percentile rank represents a favorable result (showing that more of the universe incurred higher costs) while a higher percentile rank is unfavourable as the trades ranked among the most costly.

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Executive Summary

The results detailed below provide 2014 comparisons against 2015 for all managers. We have used the TWAP measurement for the underling cost /benefit given its similar methodology to that previously used by Mercer Sentinel.

Table 1 below provides the overall results in the TWAP benchmark analysis for all managers and all FX trades within the Fund, including the In House Hedging trades.

Table 1 - Annual FX Results

All trades	12 Months to 31.03.2014	12 Months to 31.03.2015
Value of FX Trades £	3,223,814,232	2,545,711,413
Number of FX Trades	3,694	2,621
Excess benefit/Cost on FX Trading £	765,784	30,616
Excess benefit /Cost, bps	2.38	0.12

In the 2014 report, Mercer Sentinel recommended that the Fund implement FX Netting into its programme. This has been in effect throughout 2015. Daily trade netting involves a process in which all similar FX trades are "warehoused" on a daily basis and consolidated into a single transaction. Trades with opposing directions are then netted at the prevalent mid-rate, thus significantly reducing the trades required to be executed on the open market. Only the net position, as a single trade, then needs to be traded externally from the Fund's portfolio. This applies to all of Lothian's FX trades which are executed with Northern Trust as counterparty to the trade.

These new initiatives that have been applied this year have lowered the excess cost of spot trading to the Fund since the last review in 2014. The application of the netting and repatriation of income and interest has considerably reduced number and size of trades during the year.

The impact of these changes is clearly shown in Table 2 below, which provides the overall results in the benchmark analysis for all managers, where the cost of (2.75) bps is now a benefit of 1.85bps.

Table 2 - All Trades, Excluding Currency Hedging Program

FX Trading	12 Months to 31.03.2014	12 Months to 31.03.2015
Value of FX Trades £	2,206,471,472	944,476,085
Number of FX Trades	3,679	2,606
Excess benefit/Cost on FX Trading £	(607,149)	174,573
Excess benefit /Cost , bps	(2.75)	1.85

We observed that the value of trades has decreased to approximately £944.5 million in the current year from £2.2 billion during the previous period reviewed. The number of trades executed also declined to 2,606 which contributed to the benefit to the Fund of approximately £175,000 or 1.85 bps. This improvement was principally driven by the lower costs suffered by the LPF Transition account in 2015, whose costs reduced from £558,000 on a trade volume of £700 million to approximately £124,000 on a trade volume of approximately £287 million. In line with the review in 2014, the Lothian Buses Pension Fund was included in the analysis.

The highest cost trades were executed by the "In House Global Low Volatility" at a total cost of 4.87 bps against the London Fix and 20.55 bps against the Interval TWAP. The 24 trades in the "In House Global Low Volatility" program valued approximately £70 million. The total cost of these trades was £34,131, with a universe percentile of 59% which shows higher costs. The Fund has a master agreement with Northern Trust to execute at 2.00 bps over the London Fix. Our analysis shows that for, 6 out of the 9 currencies (JPY, CAD, DKK, AUD, CHF and SGD), the trades have been executed at over 2.00 basis points as shown in Table 3.

The two highest cost trades were JPY/CAD which created the cost of £24,368. JPY/CAD is not a directly traded currency pair, so the trades had to be crossed through a major deliverable currency, which caused the excess cost. The same issue occurred on a DKK/SGD trade, which is not a standard spot rate.

Several of the other higher-cost trades of AUD, CHF and SGD were TOD (today) or TOM (tomorrow) rates, not the standard two-day spot rate, which caused higher costs when compared to the London Fix spot rate.

Table 3 below provides the Annual FX Results "In House Global Volatility Trades".

Table 3 - Annual FX Results – "In House Global Low Volatility" Trades

TOTAL									
				London Fix			Interval TWAP		
Currency	Principal (£)	Trade Count	Avg. Trade Size (£)	Gain or Cost (£)	Gain or Cost (bps)	Universe Percentile	Gain or Cost (£)	Gain or Cost (bps)	Universe Percentile
JPY - JAPANESE YEN	32,005,876	2	16,002,938	-24,368	-7.61	59%	-106,198	-33.18	[illegible]
USD - US DOLLAR	13,579,943	3	4,526,648	-2,087	-1.54	60%	-554	-0.41	46%
EUR - EURO (B)	9,740,771	5	1,948,154	-1,258	-1.29	71%	5,926	6.08	25%
CAD - CANADIAN DOLLAR	8,780,037	4	2,195,009	-4,340	-4.94	52%	-36,709	-41.81	[illegible]
DKK - DANISH KRONE	3,390,201	2	1,695,101	-1,317	-3.88	69%	-3,310	-9.76	83%
HKD - HONG KONG DOLLA	834,175	1	834,175	-3	-0.03	40%	-1,239	-14.85	71%
AUD - AUSTRALIAN DOLLAR	746,146	2	373,073	-335	-4.49	54%	-1,505	-20.17	80%
CHF - SWISS FRANC	665,383	2	332,692	-294	-4.42	22%	-112	-1.69	15%
SGD - SINGAPORE DOLLAR	388,156	3	129,385	-131	-3.37	61%	-445	-11.48	79%
GRAND TOTAL	70,130,688	24	2,922,112	-34,131	-4.87	59%	-144,146	-20.55	90%

Table 4 below provides the "In House Hedging" program benchmarked against the 2014 currency overlay results.

Table 4 – In House Hedging Program

In House Hedging	12 Months to 31.03.2014	12 Months to 31.03.2015
Value of FX Trades £	1,017,342,760	1,601,235,328
Number of FX Trades	15	15
Excess benefit/Cost on FX Trading £	1,372,933	(143,957)
Excess benefit /Cost , bps	13.50	(0.90)

The "In House Hedging" program increased in traded value to £1.6 billion during 2015 from £1.0 billion in 2014. The number of trades remained the same however; the cost to the Fund was approximately £144,000 or 0.90bps. This was significantly more costly than the performance in 2014, where the benefit to the Fund was 13.5 basis points or £1.4 million. Northern advised that the spreads applied to the "In House Hedging" program were consistent with the spreads in 2014.

In April, Lothian closed out the Euro hedge of EUR 333 million with a 2 bps spread. This action together with the fluctuations in the FX markets during the course of the year would impact on the overall cost/benefit to the hedging program.

Conclusion

The report shows an overall improvement in the FX trading costs as shown in Table 2.

The main drivers of these aggregate costs versus the London Fix were two JPY/CAD trades which are detailed in Appendix A. These trades required cross rates to trade through a major deliverable currency. Further, there were several short dated trades that compare unfavourably to the spot two-day rates.

Overall the 2015 result for the Fund show an improvement on the previous year reviewed.

Margaret Delman
Mercer Sentinel
August 2015

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APPENDIX A

Foreign Exchange Methodology Abel Noser

Manager, Dealer and Currency Information

Principal	Principal is the notional value of trading represented in the report.
Cost /K (London Fix)	This measure compares the foreign exchange rate of the actual executed trade with the 4PM London Fixing Rate of the currency on the day of the trade. Results are shown in thousands of GBP.
Cost /K (Interval TWAP)	This measure compares the foreign exchange rate of the actual executed trade with the Tick-Weighted Average Price (TWAP) of the currency pair over the specified interval period on the day of the trade. Results are shown in thousands of Total Principal (K) by Manager. Note: Interdealer volumes are not presently available in the FX market. This report uses a tick-weighted approach where every inter-dealer trade counts the same, so time periods with more trading are more heavily weighted.
Cost /BP (London Fix)	This measure compares the foreign exchange rate of the actual executed trade with the 4PM London Fixing Rate of the currency on the day of the trade. Results are shown in basis points.
Cost /BP (Interval TWAP)	This measure compares the foreign exchange rate of the actual executed trade with the Tick-Weighted Average Price (TWAP) of the currency pair over the specified interval period on the day of the trade. Results are shown in basis points.
Percentile Rank	This measure compares cost results to specialized benchmarks created using results from similar trades executed by other Abel Noser Solutions clients. A rank of 50% equates to the median. A low rank represents a favorable result while a high rank represents an unfavorable result.

Table 1 Global Low Volatility Program – Top 10 Highest Cost Trades 1-5

Trade Date	07-11-2014	Sold Currency	JPY		London Fix	Interval TWAP
Settlement Date	12-11-2014	Sold Amount	3,372,260,000	Reference Rate	0.009875	0.009919
Contract Type 1	SPOT	Bought Currency	CAD	Cost (£)	-13,941	-96,326
Contract Type 2	SPOT	Bought Amount	33,276,430	Cost (BP)	(7.52)	(51.94)
Manager	IN-HOUSE GLOBAL LOW VO	Exchange Rate	0.009868	Univ Percentile	59%	[illegible]
Dealer	NORTHERN TRUST COMPAN	Principal Value (GBP)	18,544,292			
2						
Trade Date	06-11-2014	Sold Currency	JPY		London Fix	Interval TWAP
Settlement Date	12-11-2014	Sold Amount	2,455,368,000	Reference Rate	0.009953	0.009952
Contract Type 1	SPOT	Bought Currency	CAD	Cost (£)	-10,427	-9,872
Contract Type 2	1W	Bought Amount	24,418,250	Cost (BP)	(7.75)	(7.33)
Manager	IN-HOUSE GLOBAL LOW VO	Exchange Rate	0.009945	Univ Percentile	59%	68%
Dealer	NORTHERN TRUST COMPAN	Principal Value (GBP)	13,461,583			
3						
Trade Date	07-11-2014	Sold Currency	GBP		London Fix	Interval TWAP
Settlement Date	12-11-2014	Sold Amount	7,788,596	Reference Rate	1.798657	1.806060
Contract Type 1	SPOT	Bought Currency	CAD	Cost (£)	-5,014	-37,093
Contract Type 2	SPOT	Bought Amount	14,000,000	Cost (BP)	(6.44)	(47.62)
Manager	IN-HOUSE GLOBAL LOW VO	Exchange Rate	1.797500	Univ Percentile	69%	[illegible]
Dealer	NORTHERN TRUST COMPAN	Principal Value (GBP)	7,788,596			
4						
Trade Date	07-11-2014	Sold Currency	EUR		London Fix	Interval TWAP
Settlement Date	12-11-2014	Sold Amount	12,000,000	Reference Rate	1.241377	1.240343
Contract Type 1	SPOT	Bought Currency	USD	Cost (£)	-1,346	6,504
Contract Type 2	SPOT	Bought Amount	14,894,400	Cost (BP)	(1.43)	6.91
Manager	IN-HOUSE GLOBAL LOW VO	Exchange Rate	1.241200	Univ Percentile	73%	23%
Dealer	NORTHERN TRUST COMPAN	Principal Value (GBP)	9,418,390			
5						
Trade Date	08-07-2014	Sold Currency	USD		London Fix	Interval TWAP
Settlement Date	10-07-2014	Sold Amount	17,000,000	Reference Rate	0.584157	0.584243
Contract Type 1	SPOT	Bought Currency	GBP	Cost (£)	-1,335	-2,810
Contract Type 2	SPOT	Bought Amount	9,929,327	Cost (BP)	(1.35)	(2.83)
Manager	IN-HOUSE GLOBAL LOW VO	Exchange Rate	0.584078	Univ Percentile	72%	62%
Dealer	NORTHERN TRUST COMPAN	Principal Value (GBP)	9,923,473			

Table 1 Global Low Volatility Program – Top 10 Highest Cost Trades 6-10

6							
Trade Date	07-11-2014	Sold Currency	DKK		London Fix	Interval TWAP
Settlement Date	11-11-2014	Sold Amount	32,128,930	Reference Rate	0.215703	0.215830
Contract Type 1	TOD	Bought Currency	SGD	Cost (£)	-1,317	-3,310
Contract Type 2	SPOT	Bought Amount	6,927,623	Cost (BP)	(3.88)	(9.76)
Manager	IN-HOUSE GLOBAL LOW VO	Exchange Rate	0.215619	Univ Percentile	69%	83%
Dealer	NORTHERN TRUST COMPAN'	Principal Value (GBP)	3,390,192			
7						
Trade Date	07-11-2014	Sold Currency	GBP		London Fix	Interval TWAP
Settlement Date	12-11-2014	Sold Amount	3,156,765	Reference Rate	1.584287	1.582780
Contract Type 1	SPOT	Bought Currency	USD	Cost (£)	-771	2,233
Contract Type 2	SPOT	Bought Amount	5,000,000	Cost (BP)	(2.44)	7.07
Manager	IN-HOUSE GLOBAL LOW VO	Exchange Rate	1.583900	Univ Percentile	57%	21%
Dealer	NORTHERN TRUST COMPAN'	Principal Value (GBP)	3,156,765			
8						
Trade Date	08-01-2015	Sold Currency	AUD		London Fix	Interval TWAP
Settlement Date	09-01-2015	Sold Amount	1,385,930	Reference Rate	0.537624	0.538467
Contract Type 1	TOM	Bought Currency	GBP	Cost (£)	-335	-1,505
Contract Type 2	TOM	Bought Amount	744,775	Cost (BP)	(4.49)	(20.17)
Manager	IN-HOUSE GLOBAL LOW VO	Exchange Rate	0.537382	Univ Percentile	54%	80%
Dealer	NORTHERN TRUST COMPAN'	Principal Value (GBP)	746,107			
9						
Trade Date	08-01-2015	Sold Currency	CHF		London Fix	Interval TWAP
Settlement Date	09-01-2015	Sold Amount	888,679	Reference Rate	0.650863	0.650679
Contract Type 1	TOM	Bought Currency	GBP	Cost (£)	-258	-94
Contract Type 2	TOM	Bought Amount	578,150	Cost (BP)	(4.46)	(1.63)
Manager	IN-HOUSE GLOBAL LOW VO	Exchange Rate	0.650573	Univ Percentile	22%	14%
Dealer	NORTHERN TRUST COMPAN'	Principal Value (GBP)	578,309			
10						
Trade Date	07-11-2014	Sold Currency	GBP		London Fix	Interval TWAP
Settlement Date	11-11-2014	Sold Amount	244,284	Reference Rate	2.047705	2.048968
Contract Type 1	TOD	Bought Currency	SGD	Cost (£)	-108	-259
Contract Type 2	SPOT	Bought Amount	500,000	Cost (BP)	(4.43)	(10.60)
Manager	IN-HOUSE GLOBAL LOW VO	Exchange Rate	2.046800	Univ Percentile	63%	79%
Dealer	NORTHERN TRUST COMPAN'	Principal Value (GBP)	244,284			