

**CONFIDENTIAL REPORT**  
**CURRENCY TRADING RESEARCH**



**CURRENCY UNDER MANAGEMENT**

***‘Fund manager scale; what impact to the client in increasingly illiquid Foreign Exchange markets?’***

**Highlights**

- **Market impact matters more in FX than in bonds/equities.**
- **In currency, market liquidity has shrunk, so large deals now move the price – market impact.**
- **For bigger managers with larger business who trade ‘bulk orders’<sup>1</sup>, this means poorer prices/more slippage/higher cost of trading for their clients. We estimate this at 14.6bp per trade for a 25billion \$ manager.**
- **Ask your manager how he handles currency execution, and what is his ‘market impact’ estimated by 3<sup>rd</sup> party sources, i.e. the manager’s FX counterparties. This is the real cost of trading.**

**Market Impact and Size**

**Overview:**

Although the global foreign exchange market trades an enormous daily volume (\$1.971 trillion, according to 1999 BIS survey), changes in market liquidity nevertheless mean large currency transactions can have a disproportionate impact on market prices, thus increasing the cost of trading.

As currency managers have a limited number of assets (say the 7 majors) to trade in, the market impact of implementing dealing decisions is much more of an important issue to consider, than for a manager of an equity or bond portfolio, who typically has a broad universe of securities to choose from.

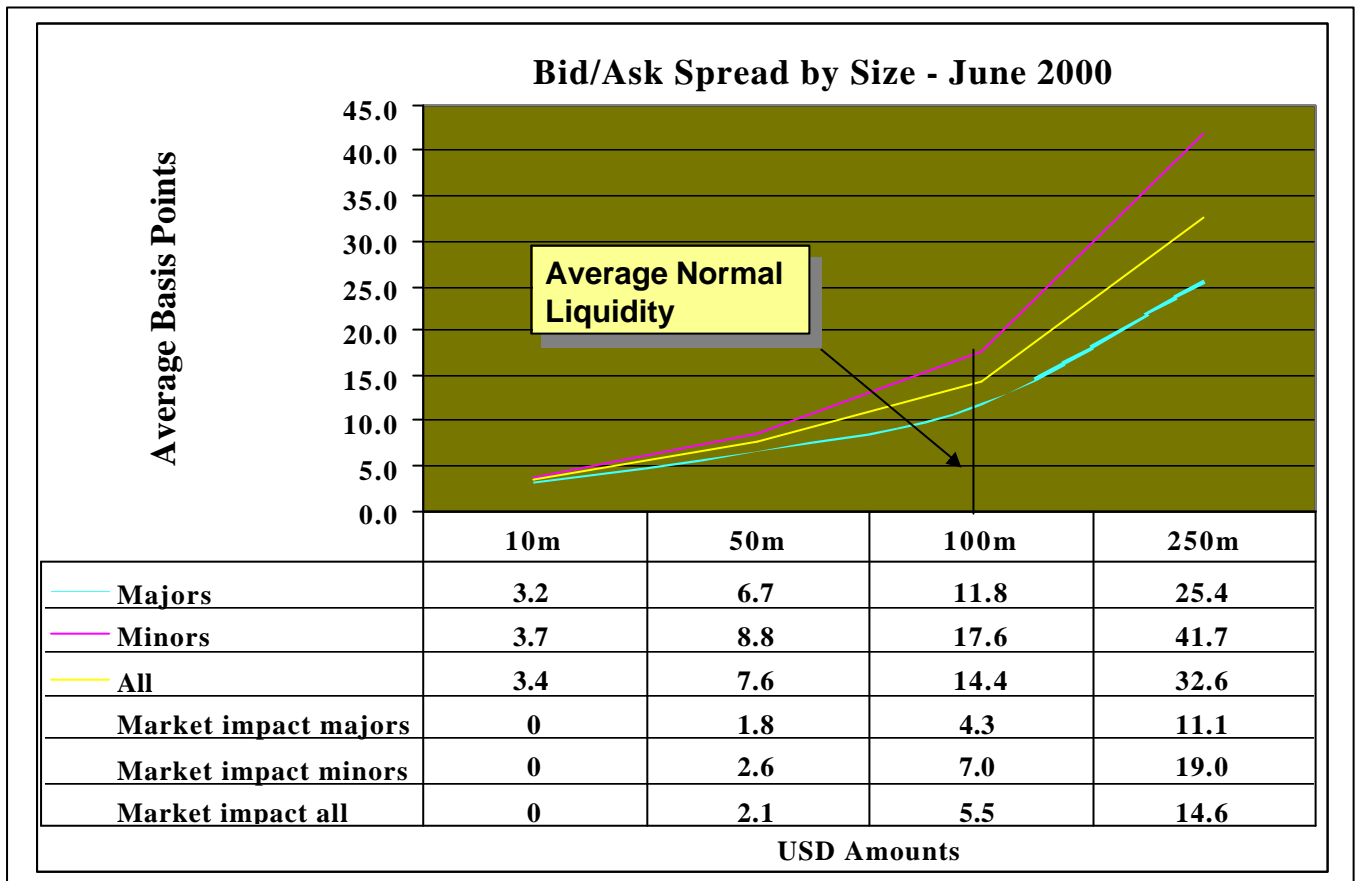
Managers that have defined processes and product, that treat clients equally, that are committed to best execution, need to trade ‘bulk orders’<sup>1</sup>. If this process is relatively price sensitive and/or its signal changes reasonably quickly, say over 300% turnover p.a., then a minimum trade would be at least 1%. Trading less than 1% at a time implies the process would be out of date continuously and could be operationally very cumbersome.

For example, a currency manager with \$25 billion under management, trading 1% positions, is estimated to impact the market by an additional 14.6bp per \$250 million trade, compared with a manager having \$1 billion under management trading in amounts of \$10 million. With a 300% turnover for example, the resulting implied additional cost to the client is 43.8bp, on the whole portfolio, per annum.

**Methodology:**

As a regular part of Lee Overlay Partners counterparty selection process, we survey our selected counterparty’s interbank spreads on a range of currency pairs and their estimates on the current size of liquidity.

The analysis and all conclusions are based on this data. See graph below.



1. Market impact is measured as half the increase in spread associated with increased trade size.
2. The calculations were derived from indicative spot pricing received from 8 major counterparty institutions with which Lee Overlay has a relationship. These include the most aggressive price quoters in the market and treat Lee Overlay Partners as a top-level client. They can be identified upon request.
3. Quotes were taken for major currency pairs - EUR/USD, USD/JPY, EUR/JPY, GBP/USD and EUR/GBP, and also for minor currencies (reflected by spot quotes) in EUR/CHF, USD/CHF, AUD/USD and USD/CAD.

- The quotes were based on low volatility periods in the market. At all other times the spreads would be wider. The mid price spot spread was taken from our counterparties, converted into basis points, and an average calculated from all the currency pairs involved. The average, in our opinion, is a better reflection of what is actually achievable when trading.

Bid ask spreads reflect market impact - a larger spread is paid to place bigger amounts in the market. The chart shows the effect of trade size on market impact. The increase in market impact of larger trade amounts is shown up to a trade size of \$250m. Our calculations use half this measure as the extra cost in implementing one side of a trade.

As can be seen market impact increases in almost a linear fashion with trade size. There is a threshold of normal liquidity, which if exceeded, accelerates this.

### **Liquidity and Market Impact**

Liquidity can be defined as follows: the amount of currency which could be dealt at a given time in the market by means of interbank relationships and brokers, in one round of calls, implemented before the market becomes overtly aware of the transaction and moves prices accordingly (unreasonable slippage).

### **ESTIMATED LIQUIDITY IN LOW VOLATILITY CONDITIONS\* – JUNE 2000**

<b>Table 1</b>	EUR/\$	\$/YEN	EUR/YEN	£/\$	EUR/£	EUR/CHF	\$/CHF	AUD/\$	\$/CAD
ESTIMATED LIQUIDITY IN BASE CURRENCY AMOUNTS	100 - 200	70 - 200	60 - 100	40 -70	30 - 120	60 - 200	70 - 180	40 - 100	UK 20 - 50 US 100 -150

\* Data derived from survey of 5 leading FX counterparties in London.

### **Liquidity has decreased**

Historically, liquidity in the foreign exchange market was very deep. In the early to mid 1990's, "call outs"<sup>2</sup> were regular. For example, liquidity in USD/DEM was estimated at one stage to be \$1.4bn and in USD/JPY \$1.2bn. A spot price in a 'yard' (1 billion) would have attracted spreads of 10 points and 3 points in USD/DEM and USD/JPY respectively. Therefore, transaction costs for these two currency pairs were only 6.7bp and 2.4bp. Currently, with liquidity in both currency pairs (EUR/USD taken as USD/DEM replacement) of between \$100m and \$200m, and increased risk aversion within the banking community, the costs for a transaction 1/4 the size (\$250m) is 2.25 times greater for USD/DEM (EUR/USD) at 15.2bp and just under 10 times greater for \$/JPY at 23.4bp<sup>3</sup>.

We believe several factors have caused this reduction in liquidity:

1. The behavior of market speculators<sup>4</sup> created more volatility in the intraday markets, targeting stops<sup>5</sup>, trading tranches with multiple counterparties simultaneously, and trading entire blocks in competition (still done by some large corporates).
2. Banks became more risk averse as many incurred large losses in the financial markets, e.g. Russian crisis, emerging market currency fluctuations, the collapse of Barings etc. The increased currency market risk aversion resulted in a significant decrease of liquidity, provided by smaller banks, as they pulled out of the interbank markets, becoming only price takers. In effect they became clients of the larger banks.
3. Due principally to a reduction in risk appetite and industry consolidation, the number of interbank counterparties has greatly decreased, and this factor, coupled with improvements in technology, means that “electronic brokers<sup>6</sup>” now see a high percentage of the daily interbank volume. “Call outs<sup>2</sup>” are less common in the current trading climate because they create large surges of price volatility and disproportionate price displacement.
4. Off balance-sheet products (currency futures, options<sup>7</sup> etc) have become more readily available, more universally understood, and more acceptable to clients, reducing some of the need for cash foreign exchange transactions.

The table 2 shows how much could be managed overall, by any given manager, if they never want any single trade to exceed 100% of the ‘market liquidity’ (in quiet market conditions), and they were trading solely in that currency. The table shows a manager can have assets of around \$15billion if solely trading EURO /\$, but only just over \$4billion if trading AUD/\$. If a manager wants to trade with a range of currencies a maximum average composite figure of \$14.4billion assets under management should not be breached (derived from a calculated average liquidity band (see table 1) of \$54-\$144million, translated into assets, for a manager trading 1% positions).

Calculations are for each currency pair based on the average liquidity from table 1, and assumes the manager trades in 1% amounts.

<b>Table 2</b>	EUR/\$	\$/YEN	EUR/YEN	£/\$	EUR/£	EUR/CHF	\$/CHF	AUD/\$	\$/CAD
EQUILAVENT \$billion ASSETS	14.5	13.5	7.8	8.3	7.3	12.8	12.5	4.3	8.5

Trading 100% of market liquidity obviously has significant market impact to the client as seen in the graph on page 2.

However things can be even worse...

The spread data shown on the graph, and the previous tables, are based on calculations assuming a low volatility, high liquidity market, i.e. best market conditions. In the current market, such conditions would be the exception, rather than the norm.

Many periods of the day have higher degrees of volatility normally resulting in decreasing liquidity and widening spot spreads. In such circumstances, larger transactions will cause increased disproportionate price displacement, reducing a currency manager's capacity to implement portfolio decisions and increasing cost of trading to each client. Experienced currency foreign exchange traders can reduce client costs by finding 'pockets' of aggressiveness or 'working orders'<sup>8</sup>.

While broad market liquidity shrinkage affects the average cost of trading for all, a client of a larger fund manager expects to incur a higher cost when accessing the market, while smaller fund managers have the opportunity to achieve better terms for their clients, which will be reflected in performance data.

### ***Recommendations***

Clients should ask managers to produce estimates of their market impact of trading 'Bulk Orders'<sup>1</sup>. The costs to the client are proportionate to the size of the transactions, and therefore directly to the scale of the fund manager's assets (internal and external) under management. We believe that few clients ask for calculations incorporating these additional costs and that more should do so.

Clients should only use managers that employ professional foreign exchange traders with long-term market experience and accomplished track records. The ability to estimate liquidity at any given time, and know what spreads are ultimately achievable, can tighten the spreads quoted, but cannot eliminate this market impact.

Finally, all this should be measured on an on-going basis to measure changes risk aversion and liquidity.

**JUNE 2000**  
**NIGEL ROGERS**  
**HEAD OF TRADING**

### **Important Notice**

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<sup>1</sup> Bulk Orders – Orders generated across a currency manager’s entire client base resulting from a strategy change within the fund manager’s internal processes. These collections of client trades must be traded into the market simultaneously and if not completely filled, allocated on a pro rata basis, at the same average price. Normally calculated as a percentage of the client’s assets under management across not only the external but also any internal portfolios.

<sup>2</sup> Call outs – interbank trading relationships that reciprocally quote pre agreed amounts in currency pairs when called directly.

<sup>3</sup> 15.1bp, 23.5bp costs – these are mid figures calculated from 8 counterparties quoted spreads relating to low volatility (high liquidity) times in the trading day.

<sup>4</sup> Market speculators – these refer to short-term market participants who try to push markets to their advantage. “Black box” speculators trade on the back of technical signals. The activities both of banks’ propriety trading desks and of hedge funds have decreased sharply.

<sup>5</sup> Stops – orders placed in the market at levels that are worse than the current levels which reduce or square up the position on adverse market movements.

<sup>6</sup> Electronic brokers – EBS, Reuters 2000

<sup>7</sup> Owning an option gives you the right, but not the obligation, to ‘take up’ an exchange of two currencies at a pre-decided rate on an agreed date (or at any time over the life of the option if American style), for an upfront fee. This defined risk is different than the commitment to a spot or outright transaction.

<sup>8</sup> Orders – Instead of receiving a bid-offer price from the market, a short-term strategic view of the market is taken and if deemed appropriate, defined parameters are given for the trade to be transacted by a trusted counterparty (which is more advantageous to the client). These orders are worked slowly into the market, attempting to minimise any volatility. There are a variety of other order styles, which are at the disposal of an experienced trader, such as ‘at worst’, ‘at best’, trading by ‘clips’, all of which try to reduce transaction costs for the client.