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TRADERS, MARKET MICROSTRUCTURE
AND EXCHANGE RATE DYNAMICS

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ABSTRACT

We report findings from a survey of United States foreign exchange traders. Our results indicate that: (i) The share of customer business, versus interbank business, has remained fairly constant; (ii) The channels by which transactions take place have changed, as electronically-brokered transactions have risen from 2% to 46% of total, mostly at the expense of transactions undertaken by traditional brokers; (iii) The single most widely-cited reason for deviating from the standard market convention on the bid-ask spread is a thin/hectic market; (iv) Half or more of market respondents believe that large players dominate in the dollar-pound and dollar-Swiss franc markets; and (v) 60% of respondents believe there is low predictability of exchange rates intraday. Even at medium and long run horizons, only a third of traders believe that there is high predictability.

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1. Introduction

The microstructure approach to exchange rates has garnered an increasingly large number of adherents over recent years. This phenomenon is unsurprising given the well known deficiencies of conventional macroeconomic models of exchange rates, especially at short horizons (see for instance the critique by Flood and Taylor (1996)). Instead of focusing on the typical macroeconomic fundamentals, such as inflation and interest rates, the microstructure approach considers the effects of market configuration, information asymmetry, heterogeneity of participants, and bounded rationality on exchange rate dynamics.

In the spirit of the microstructure approach, this paper uses information drawn from a survey of U.S.-based foreign exchange traders designed to elicit information about several aspects of exchange rate dynamics not observable in typical data sets. In contrast to the conventional research methodology adopted in economics -- theoretical modeling, estimation, and testing -- our survey attempts to ascertain directly how market participants behave, document their experiences, and solicit their views on the workings of the foreign currency market.¹

Two issues will likely arise in the reader's mind. The first is the economists' skepticism of survey methods, which has a long history. It derives from the aphorism of "watch what I do, not what I say." There is a concern that those individuals surveyed will respond strategically, distorting their answer to gain some advantage. In general, there is little evidence that such strategic distortion of responses occurs, and in any event, the responses to the questions contained in this survey are unlikely to convey competitive advantage to the concerned agents.

¹ A companion paper (Cheung and Chinn, 1999) examines the macroeconomic implications of the survey responses. See also assessments of the East Asian markets in Cheung and Wong (1999a,b).

Moreover, as argued by Blinder (1991), Shiller *et al.* (1991), among others, the results from a properly designed survey can provide valuable facts that are not found in standard models and not available to econometricians.

Furthermore, the use of survey data has some well-known advantages. Rather than using the representative agent paradigm, one can document the extent to which agents are heterogeneous in their beliefs and behavior. This allows a more fully fleshed-out interpretation of observed exchange rate dynamics. In view of empirical inadequacies exhibited by extant exchange rate models, the findings uncovered by a well-constructed survey may provide some useful insights on the market structure and practitioners' behavior.

Admittedly, the use of survey data imposes certain limitations upon the researcher. In certain instances, it is difficult to quantify the association between variables, and to construct easily interpretable hypothesis tests. Hence, we cannot overstress the point that we view survey data as a complement, rather than a substitute, for standard empirical analysis.

The second issue pertains to the relevance of microstructure for those aspects of economic behavior of interest to macroeconomists. One is tempted to assert that the microstructural activities are but a mere sideshow compared to the underlying movements in the macroeconomic fundamentals. This perspective has held sway because, in part, economists have not been able to observe what traders react to. In recent work, Evans (1998) has used previously unavailable *market* (as opposed to individual trader) data on quotes and transactions to link up the activities of traders and asset prices over several months. He finds a strong relationship between excess purchases of a currency, and the DM/US\$ exchange rate. This, then, is an explicit tie between the microstructure of the forex market and a macroeconomic variable. As the availability of such

finely-detailed data increases, it is likely that such links will become better established.

Our study focuses on several interesting issues in exchange rate economics. One set of survey questions examines the bid-ask spread of interbank quotes, which has received considerable attention recently. Despite their diminutive size, bid-ask spreads have implications for conditional volatility, mean returns, and return auto-correlations (Bollerslev and Domowitz, 1993; Bollerslev and Melvin, 1994). As it is difficult to gather marketwide data (e.g., trading volume) on foreign exchange trading, the survey method offers an alternative means to study bid-ask spreads in the interbank market. We also examine other microstructure issues, including the existence of dominant players in certain currency markets, and the sources of competitive advantage for large players, and the predictability of exchange rates.

The outline of the paper is as follows. In section 2, we describe the survey methodology and overview the data set. In section 3, we discuss the survey responses in the context of several major issues in the exchange rate microstructure literature. In section 4 we make some concluding remarks.

2. Survey Methodology and Sample Overview

The data used in this study were obtained from a mail survey of the foreign exchange traders located in the United States. The survey was conducted between October 1996 and November 1997. The mailing list was compiled from the 1996 and 1997 editions of the *Dealers' Directory* published by the Hambros Bank. In preparing the questionnaire, we solicited and incorporated advice and suggestions from several experienced practitioners.² A total of 1796

² A copy of the questionnaire is reproduced as Appendix A.

surveys were mailed, 44 of which proved undeliverable. The number of completed questionnaires returned was 142. The response rate was approximately 8.1%. This rate is typical for mail surveys.³ As of April 1998, the United States foreign exchange market was the second largest after the London market, and constituted about one-fifth of the daily turnover of US\$1971.0 billion (Bank for International Settlements, 1998).⁴

Information about the respondents and their organizations is summarized in Table 1. As indicated in Figure 1.a, most respondents are experienced practitioners. Over 80% of them have the title "chief/senior dealer" or "treasurer/manager." Thus we are confident that the views recorded in the survey are representative of participants with extensive experience in the foreign exchange market.

The intraday position limit is the maximum open position a dealer is authorized to assume during the day. Since, in most cases, dealers square their positions at the end of a trading day, the intraday position limit can be used as a proxy for a dealer's trading capacity. To buttress this point, note that Lyons (1998) documents the half-life of a dealer's position is only 10 minutes. Most respondents in Table 1.b have a daytime position limit below US\$25 million.⁵ Only a few respondents stated their position limits in terms of the value at risk.

Figure 1.c indicates that, as expected, a plurality of the respondents are associated with banks headquartered in the United States. Europe comes a close second. Japan comes far behind as the next most likely headquarters location, with only 8%.

³ 8% is bracketed by the "typical" rates of 5% and 10% cited by Alreck and Settle (1995).

⁴ Figures are for traditional foreign exchange market activity, including spot, outright forward and foreign exchange swaps.

⁵ Typically, these limits can be exceeded on authority of the chief dealer, although the precise rules vary from organization to organization.

Data on average daily turnover, which measures the activity and market share of a trading bank, are reported in Figure 1.d. The response pattern indicates a bimodal distribution, with 31% reporting a daily turnover of US\$100-499 million, and 28% a figure of between US\$1000-5000 million.

It is of interest to view the evolution of the forex market. We document some salient features in Table 1. In Panel 1.a, we investigate the proportion of transactions via either interbank trades, traditional brokers, and electronic brokers.⁶ The responses indicate that five years prior to the survey (1992), transactions were apportioned equally between interbank and traditional broker trades. Transactions via electronic brokers constituted only about 2% of total trades. By 1996-97, interbank transactions had fallen to roughly one-third of total transactions; at the same time, traditional brokers lost considerable ground to electronic brokers, such that the latter constituted 46% of total trades, and the former only 17%! These figures accord well with the 1998 Federal Reserve Bank of New York survey which indicated that almost 1/3 of all April 1998 spot transactions were conducted through order-matching systems (Federal Reserve Bank of New York, 1988: 6).⁷ Perhaps more telling are the minimum and maximum estimates of trade conducted through each mode. Five years ago, the maximum response for trade taking place through traditional brokers was 100%; the more recent maximum proportion is 80%. The maximum proportion taking place through electronic brokers was 30% in the earlier period; more recently, it is 95! Overall, it appears that electronic broker transactions have substituted out mostly, but not exclusively, for traditional broker trades.

⁶ Goodhart, Ito and Payne (1996) document the characteristics of the activities of the Reuters D2000-2 electronic brokering system.

⁷ A more detailed discussion is presented in New York Foreign Exchange Committee (1997).

While the mode of the transactions has changed substantially, the nature of the business has remained remarkably constant. Panel 1.b reports that, on average, 62% of transactions were interbank business related, virtually the same proportion as five years earlier, while 35% were customer related.

3. Empirical Results

3.1 The Interbank Bid-Ask Spread

Responses to survey questions regarding the magnitude of interbank bid-ask spreads are presented in Figure 2. The questions involve (a) the magnitude of the average bid-ask spread, (b) the frequency distribution of deviations from convention, (c) the frequency of adhering to the convention, (d) reasons for adherence to the convention, and (e) reasons for deviation from the convention. Conventional spreads in the interbank market, according to respondents, are displayed in Figure 2.a. While a wider spread is acceptable in a hectic market, the ability to consistently offer quotes with these conventional spreads in a hectic market is regarded as an essential characteristic of a market leader. The conventional spreads for four major trading currencies reported in Figure 2.a are largely in accordance with those described by traders. These numbers also confirm the observation that actual interbank spreads are narrower than indicative quotes on the Reuters screen (Bessembinder, 1994; Lyons, 1995).

In general, only a small proportion of interbank bid-ask spreads differ from the conventional one (Figure 2.b) thus corroborating the reported clustering of bid-ask spreads at a few distinct values (Bollerslev and Melvin, 1994; Lyons, 1995). Most of the non-conventional spreads are narrower and only a few are wider: 26% of the respondents say that over 20% of their quotes have spreads narrower than the conventional one, while 75% indicate that less than 10%

of their interbank quotes have a spread wider than the conventional one. One respondent provided some possible explanations for this asymmetry. “Lower volatility enables the professional trader to quote tighter prices, due to less risk. Secondly, professional dealers pride themselves on the risk they are able to 'endure' via tighter pricing.”

Figures 2.c to 2.e shed some insights on the rationale of deviating from the conventional interbank spread. 69% of the respondents suggest the market norm, rather than the potential cost of making a quote, determines their interbank bid-ask spreads in most circumstances (Figure 2.c).

By far, the most frequently cited reason for adopting the conventional spread is to "maintain an equitable and reciprocal trading relationship" (Figure 2.d). In the interbank market, foreign exchange trading is conducted according to several tacit agreements that reduce transaction costs and create a fair trading relationship. For example, traders are expected to respond to a request for quotes within a reasonable time span. A two-way price with a conventional spread is another practice traders expect from each other. The responses confirm that practitioners tend to observe the tacit agreement to maintain an equitable trading environment.

Traders postulate that frequent violations of tacit agreements result in loss of reputation. It is important for both banks and traders to maintain their reputation so others will choose to trade with them. Offering quotes with a conventional spread is one of the ways in which a trader can establish his reputation. Thus, it is not surprising to see "secure a good market image for the firm and the dealer" as the second most cited reason for conforming to the conventional spread.

Compared with the two preceding reasons, trading profits are a much less significant factor for setting the spread. Less than 6% of respondents select this choice. This reinforces the

presumption that potential costs play a minor role in determining the spread (Figure 2.c). As one trader said, “The bid/ask spread is hardly sufficient for a dealer to make money, unless his/her desk has significant business on both sides of the market, such that they are able to 'capture' the spread by both buying and selling with different counterparties. Dealers make the majority of their profit on rate movement, not spread.”

As reported in Figure 2.e, the most cited reason for deviating from the conventional spread is a "thin and hectic market" (31%). This choice and the one of "thin and quiet market" account for more than 40% of the responses. Liquidity effects, especially in the presence of uncertainty as exemplified by a hectic market, seem to have significant implications for bid-ask spreads.

The role of uncertainty is further illustrated by 43% of the responses claiming "increased market volatility," "before/after a major news release," and "unexpected change in market activity" are the reasons for deviating from the market convention. These three reasons are related to a potential increase in the level of market uncertainty. The choices of the volatility factor lend support to the empirical findings reported in Bollerslev and Melvin (1994). Thus, our respondents confirm anecdotal evidence, garnered from conversations, that wider bid-ask spreads tend to occur under such circumstances. They also match with the statistical results obtained by Jorion (1996) indicating a correlation between volatility and bid-ask spreads.

Only a small percentage of respondents say they widen the spread when they are holding a position against the market trend or the cost of keeping their positions is increasing. The importance of these two inventory-cost related factors is played down (2%).

Market traders we interviewed confirm that, given the trading mechanism, it is not

unexpected to observe the weak association between bid-ask spreads and trading positions reported in Figure 2.e. Traders rely on interbank trading to access information on market sentiments and other market makers' activities. Market moving news is mainly disseminated through direct interbank dealing before brokered interbank transactions. Therefore, active traders do not want to reveal information on their own unfavorable positions by offering a wide spread quote. Compared with the wide swing of intraday exchange rates, a few points advantage associated with a wide spread has very limited impact on trading profits. In addition, making wide spread quotes under normal market conditions has the side effect of damaging a trader's reputation and driving away potential trading opportunities, which can severely limit a dealer's ability to read the market and make profitable trade in the future. Thus, most traders do not widen the spread solely because of adverse positions. On the other hand, some practitioners pointed out that a good trading position, for example a long dollar position when the dollar is strengthening, gives a dealer an opportunity to establish or enhance his reputation as a trader by offering a good two-way price in a hectic market without incurring a loss.

Our survey results provide some indirect evidence of the asymmetric information effect on interbank bid-ask spreads. A standard microstructure theory (Glosten and Milgrom, 1985) predicts a trader will quote a wide spread when he believes his counterparty has superior information. However, only a relatively small percentage of the responses consider dealing with either a small bank or an informed trading bank as reasons for offering non-conventional spreads. If the two types of banks represent market participants with, respectively, little and superior market information, then most traders do not consider informational asymmetry in determining their bid-ask spread. This finding complements the implication of a model recently developed by

Perraudin and Vitale (1996). The authors model the trading process as the means by which traders acquire timely market information from other market participants and, consequently, show the standard asymmetric costs argument may not apply to the decentralized foreign exchange market.

Compared with the factors related to inventory and asymmetric costs, a slightly lower percentage of responses say "a wide spread quote from a counterparty" is a reason for offering a wide spread quote. Market participants offer two possible interpretations. First, the counterparty's wide spread quote may signal some information which the trader is not aware of. Second, as a protest and a demand for a fair trading relationship, traders do retaliate and offer a wide spread quote back to the same counterparty.

3.2 Do Dominant Players Exist?

In the US foreign exchange market, dollar/mark, dollar/yen, dollar/pound and dollar/Swiss franc are the four most actively traded exchange rates (Federal Reserve Bank of New York, 1998). Less than 25% of our respondents believe the dollar/mark and dollar/yen markets are dominated by a few big players (Figure 3.a). On the other hand, there is a split of opinion over the dollar/pound rate. About 50% of the respondents say the dollar/pound market is dominated by a few big players. Even more striking, for the Swiss franc almost 60% indicate that the big players exert dominance. These two results may be related to the relatively small dollar/pound and dollar/Swiss franc trading volumes in this markets. The Federal Reserve Bank of New York survey shows that the daily average turnover of dollar/mark spot dealings in the New York market was US\$43.8 billion and that of the dollar/yen was US\$30.5 billion in April 1998. During the same period, however, the total daily average turnover of dollar/pound and dollar/Swiss franc

transactions in this market was only US\$10.2 billion and US\$7.6 billion, respectively.⁸ In line with this view, one trader suggested that low liquidity, rather than few players, was a key factor in the dollar/Swiss franc market.⁹

Interestingly, the response that large players exist, and do possess advantages is in disagreement with remarks in Federal Reserve Bank of New York (1998: 8) that “the foreign exchange market remained similarly competitive in 1998 compared to 1995.” The New York Fed’s conclusions were based on a 5-firm market share of 31%, and a Herfindahl-Hirschman index of market concentration of 317, interpreted by the New York Fed survey as a high value.

With regard to the sources of large players' competitive advantage, respondents say "large customer base" and "better information" about the market are the two main factors. These two factors account for 56% of the total responses. Essentially, large players are perceived to have a better customer and market network, which, in turn, give them better information on order flow and the activity of other trading banks. The importance of a large customer base underscores recent efforts to use customer orders to explain the trading mechanism and trading volume (Lyons, 1997). The next two frequently mentioned sources are "deal in large volumes" and "ability to affect exchange rates." Other factors receive a much lower response rate (15% and 9%, respectively).

3.3 The Predictability of Exchange Rates

There is an enormous literature documenting the difficulties of predicting exchange rates

⁸ These figures are for spot market trading which constitutes roughly half of total foreign exchange trading (the other components are forward contracts, and swaps).

⁹ Although this same trader allowed that the relative paucity of traders in the Australian and Canadian dollar markets may explain the dominance of a few players.

using structural or time series models (Frankel and Rose, 1995). In this section, we ask the foreign exchange traders themselves how predictable they believe exchange rates are. This is an interesting question because presumably the traders themselves have a larger information set than the typical econometrician who has access only to macro data available intermittently, and to selected financial variables such as interest rates and stock prices at high frequencies.

We asked traders to rate the degree of predictability at three horizons – intraday, medium run (up to six months) and long run (over six months). In Figure 4, a rating of 1 indicates no predictability, while a rating of 5 indicates high predictability. Perhaps not surprisingly, at the intraday frequency, exchange rates are viewed as essentially unpredictable. 62% give ratings of 1 or 2. The modal response is a 2 rating. Only 11% give ratings of 4 or 5.

As the horizon moves to the medium and long run, the modal response becomes a rating of 3. Interestingly, the distinction of medium- and long-run does not seem to matter for the traders' views on predictability. 30% of traders rate medium-run predictability as a 4 or 5, and 35% view predictability at the long-run similarly.

The question why this pattern obtains remains a key puzzle in international finance. As pointed out by Flood and Rose (1995), among many others, floating exchange rates are far more variable than the observable macro determinants such as money stocks, interest and inflation rates. The most persuasive explanations have been rooted in microstructural explanations, such as Osler (1998). Osler presents a model wherein random shocks are translated into near random walk behavior of the exchange rate by the activities of noise traders (De Long, *et al.*, 1990).

4. Conclusions

We have examined the responses of foreign exchange traders to questions regarding their views about the operations of the foreign exchange market at the microstructural level. We have uncovered a number of interesting findings. With respect to the characteristics of the market, the share of customer business, versus interbank business, has remained fairly constant. However, the channels by which these transactions take place have experienced considerable transformation, as electronically-brokered transactions have become much more prominent.

We also elicit interesting responses regarding the motivations for certain observable behaviors in the foreign exchange market. First, the respondents do not view trading profits as the most important reason for following the market convention; rather the desire to maintain equitable and reciprocal trading relationships, followed by a desire to maintain a positive market image, are the prominent answers. This pattern of responses indicates that other motivations not easily captured by standard microstructure models may explain the adherence to market norms. Second, the most commonly cited reason for single most important reason for departing from the convention on bid-ask spreads is the onset of a thin/hectic market. This appears to conform to some recent empirical work linking volatility and wide spreads. Third, the foreign exchange market is not monolithic, when it comes to the issue of large players. In particular, while the DM/dollar market is widely viewed as fairly competitive, the smaller dollar-pound and Swiss franc markets are perceived as more dominated by the larger banks. Fourth, exchange rate predictability is viewed as fairly low. Surprisingly, there is little variation in the proportion of traders who hold this view over the various horizons – from intraday to over six months. However, this final display of relative unanimity stands in stark contrast to the substantial heterogeneity in forex trader views exhibited on a wide range of subjects.

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Table 1
FX transaction Types

1.a Transactions Via

	Now	5 years ago
Interbank	35.72% (25.00%)	48.10% (50.00%)
Traditional Brokers	17.16% (15.00%)	49.79% (50.00%)
Electronic Brokers	46.93% (50.00%)	2.10% (0.00%)

1.b Nature of Business

Interbank Business	63.65% (70.00%)	66.49% (70.00%)
Customer Business	36.34% (30.00%)	33.50% (30.00%)

NOTE: Figures are arithmetic averages of responses. Figures in (parentheses) are the median response.

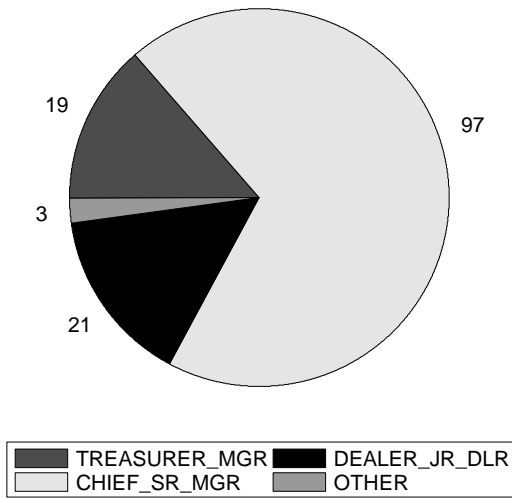


Figure 1.a: Respondent's Position

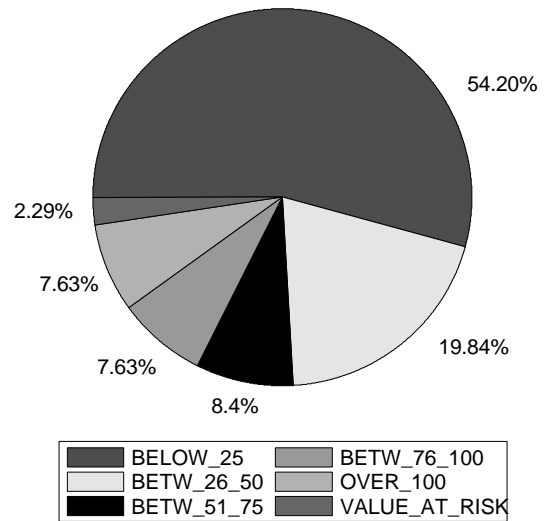


Figure 1.b: Daytime Position Limit (in millions of US\$)

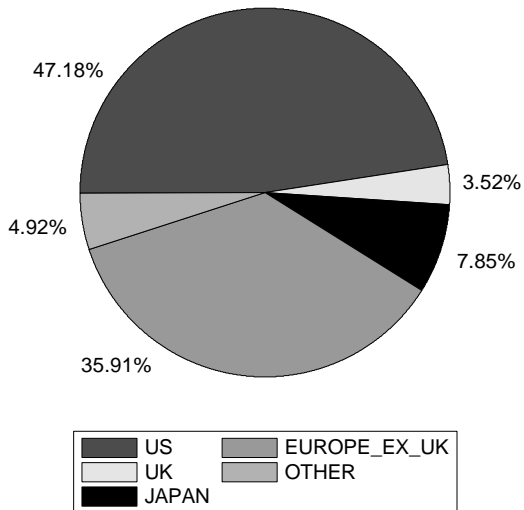


Figure 1.c: Headquarters Location

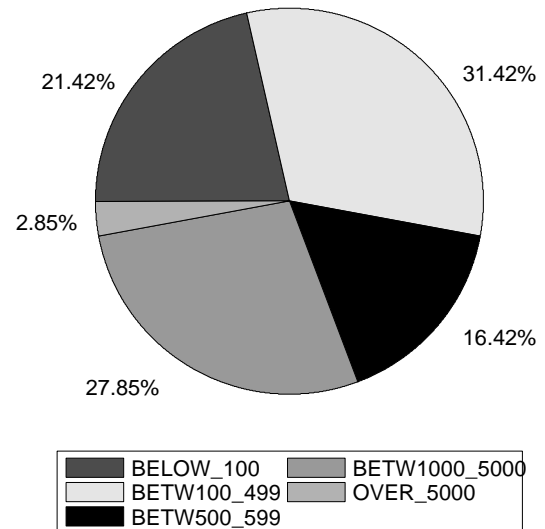


Figure 1.d: Average Daily Turnover of the Organization (in millions of US\$)

NOTE: Figure 1.a reports the number of respondents under each of the listed job capacities. Other figures present the percentages of respondents who select the listed choices. For some questions, the component frequencies of a category do not sum to one due to rounding. In some cases, there are multiple responses or incomplete replies.

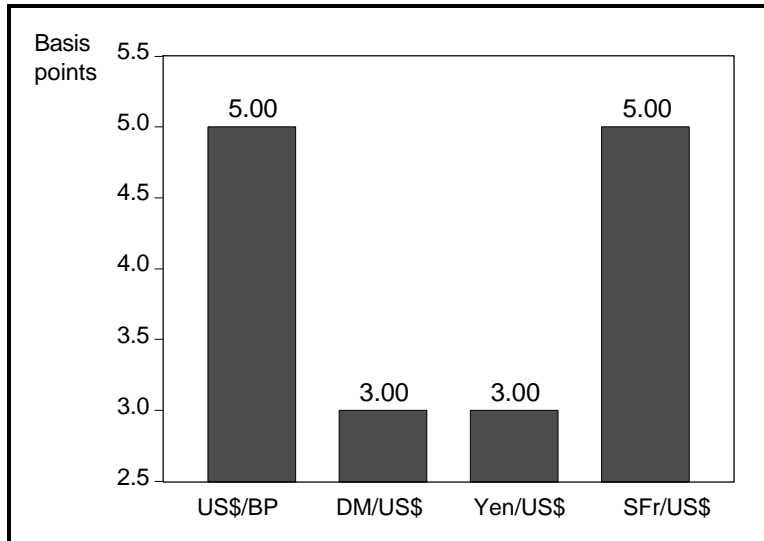


Figure 2.a: Conventional Interbank Bid-Ask Spread (in points, mode).

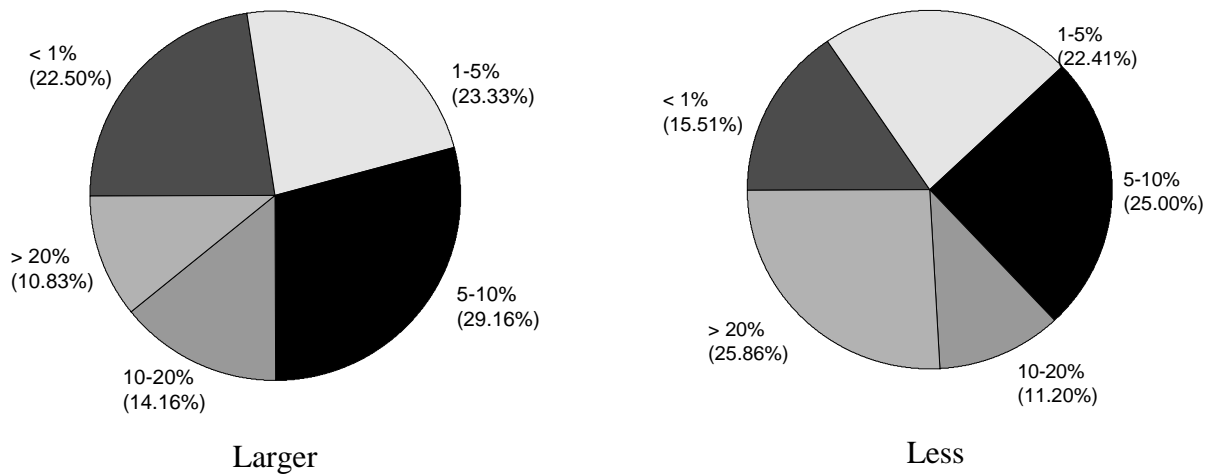


Figure 2.b: Frequencies of Quotes Different from the Convention

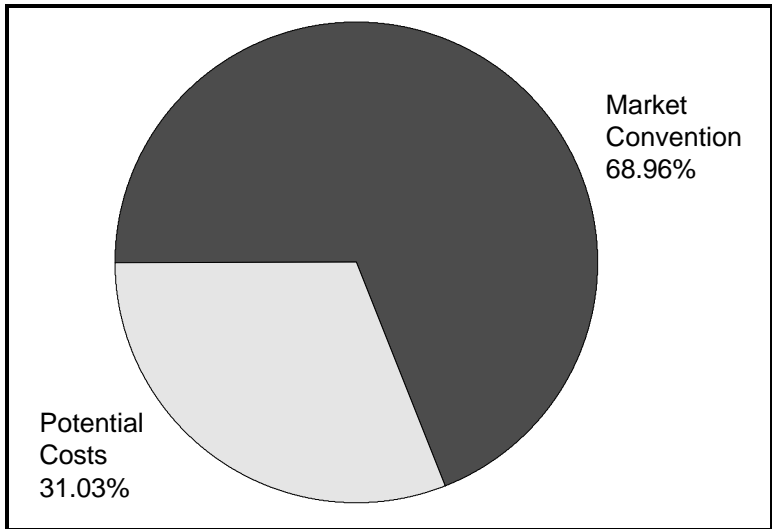


Figure 2.c: Choice of Interbank Bid-Ask Spread

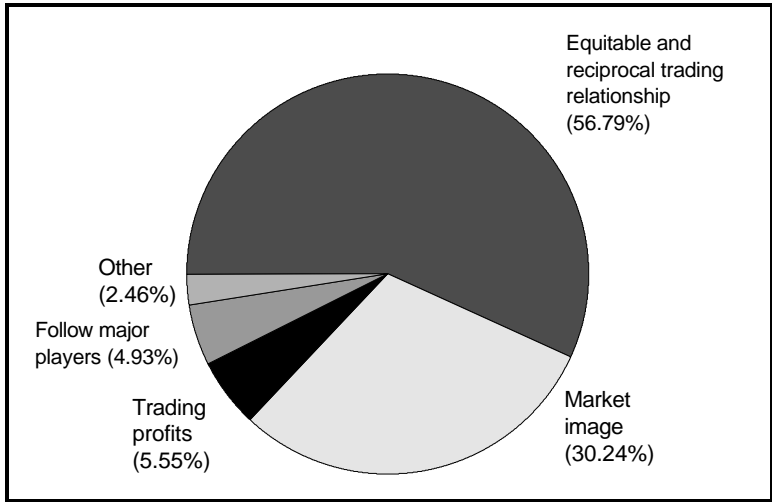


Figure 2.d: Reasons for Deviating from the Market Convention

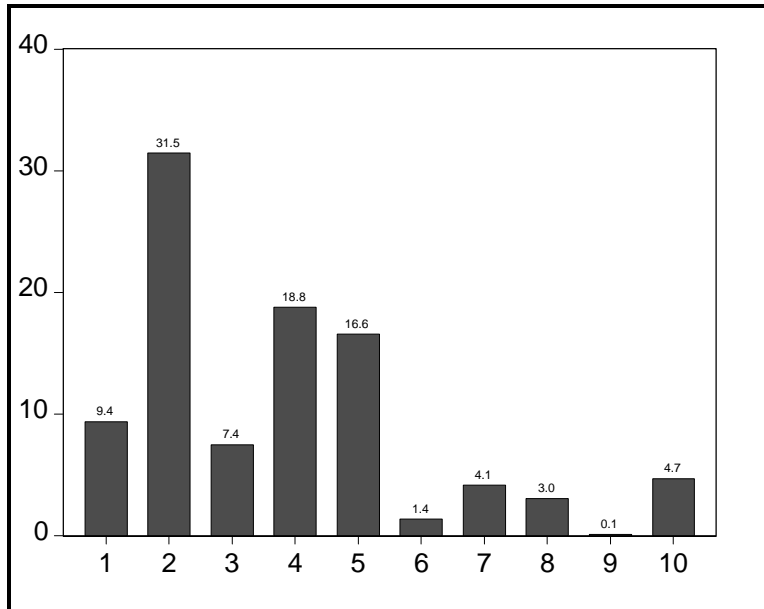


Figure 2.e: Reasons for Deviating from the Market Convention

Key

- Reason 1: Thin/Quiet Market
- Reason 2: Thin/Hectic Market
- Reason 3: Unexpected Change in Market Activity
- Reason 4: Before/After a Major News Release
- Reason 5: Increased Market Volatility
- Reason 6: A Position against the Market Trend
- Reason 7: Quote for Small Bank
- Reason 8: Quote for Informed Trading Bank
- Reason 9: Costs of Keeping the Position
- Reason 10: Wide-Spread Quote from a Counterparty

NOTE: Figure 2.a reports, for each exchange rate, the mode of bid-ask spreads indicated by respondents. Other panels present the percentages of respondents who select the listed choices. For some questions, the component frequencies of a category do not sum to one due to rounding. In some cases, there are multiple responses or incomplete replies.

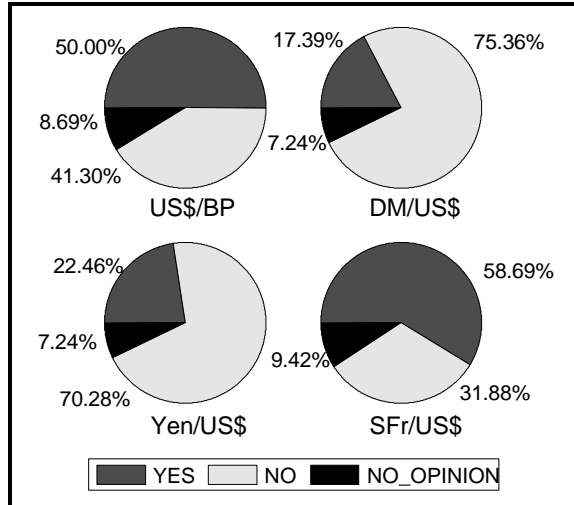


Figure 3.a: Do Dominant Players Exist in the Major Markets?

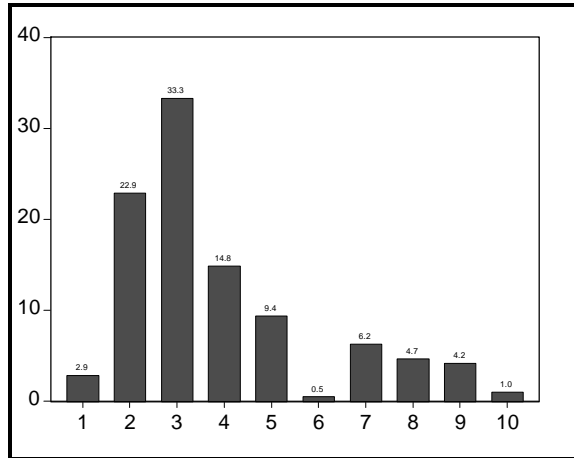


Figure 3.b: Competitive Advantage for Large Players

Key:

- Reason 1: Lower Costs
- Reason 2: Better Information
- Reason 3: Large Customer Base
- Reason 4: Deal in Large Volumes
- Reason 5: Ability to Affect Exchange Rates
- Reason 6: Smaller Counterparty Risk
- Reason 7: Ability to Offer New FX Products
- Reason 8: Accessing the Global Trading Network
- Reason 9: Experienced Traders
- Reason 10: Others

NOTE: The percentages of respondents in each category are reported. For some questions, the component frequencies of a category do not sum to one due to rounding. In some cases, there are multiple responses or incomplete replies.

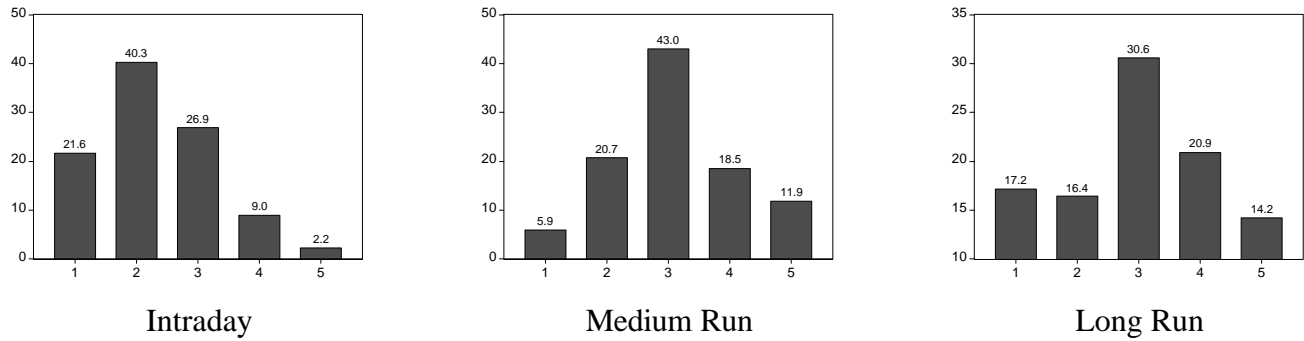


Figure 4: Predictability

NOTE: The percentages of respondents in each category are reported. For some questions, the component frequencies of a category do not sum to one due to rounding. In some cases, there are multiple responses or incomplete replies. "Medium-run" refers to periods shorter than six months while "long-run" refers to periods longer than six months. For the 1-5 scale, 1 indicates no predictability and 5 indicates high predictability.

Appendix A
Copy of Survey

A SURVEY ON THE U.S. FX MARKET

I. BACKGROUND INFORMATION

1. Your current position is

- treasurer/manager
- chief/senior dealer
- dealer/junior dealer
- other: _____

2. Daytime spot position limit (US\$ million)

- below 25
- 26 - 50
- 51 - 75
- 76 - 100
- over 100
- value at risk : _____

3. Your organization's headquarters is in

- US
- UK
- Japan
- Europe (excluding UK)
- Asia (excluding Japan)
- other: _____

4. Your department's average daily FX turnover (US\$ million) is

- below 100
- 100-499
- 500-999
- 1000-5000
- over 5000

5. FX transactions that are traded via

	interbank	traditional brokers	electronic brokers	Total
now	_____ %	_____ %	_____ %	100%
5-years ago	_____ %	_____ %	_____ %	100%

6. FX transactions that are

	interbank business	customer business	Total
now	_____ %	_____ %	100%
5-years ago	_____ %	_____ %	100%

*Interbank business includes deals to square customer transactions

7. The best way to describe your spot FX trading is

- | | | |
|-------------|--|---|
| now | <input type="checkbox"/> based on technical trading rules
<input type="checkbox"/> based on fundamental analysis
<input type="checkbox"/> other: _____ | <input type="checkbox"/> driven by customer orders
<input type="checkbox"/> the "jobbing" approach |
| 5 years ago | <input type="checkbox"/> based on technical trading rules
<input type="checkbox"/> based on fundamental analysis
<input type="checkbox"/> other: _____ | <input type="checkbox"/> driven by customer orders
<input type="checkbox"/> the "jobbing" approach |

II. ON THE FX MARKET

1. The conventional interbank bid-ask spread of each of the following exchange rates is

US\$/£ : _____ points Yen/US\$: _____ points

DM/US\$: _____ points Sfr/US\$: _____ points

2. Under most circumstances, the bid-ask spread of your interbank quote is mainly determined by

- the market convention the potential costs of making that quote

3. Please indicate, for all interbank quotations, the proportion of your quotes that have a bid-ask spread larger (smaller) than the market convention.

proportion of spreads	<1%	<5%	<10%	<20%	≥20%
<input type="checkbox"/> larger than the convention:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> smaller than the convention:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. If most of your interbank price spreads conform to the market convention, please select the most important reason for such conformity.

- your firm's policy
- to maintain an equitable and reciprocal trading relationship with other traders
- to secure a good market image for the firm and yourself
- to maximize trading profits
- to follow the practice of major players
- other: _____

5. Please check the 3 (or fewer) most important reasons for you to quote a bid-ask spread larger than the market convention.

- | | |
|---|---|
| <input type="checkbox"/> a thin and quiet market | <input type="checkbox"/> holding a position against the market trend |
| <input type="checkbox"/> a thin and hectic market | <input type="checkbox"/> a quote for a small trading bank |
| <input type="checkbox"/> an unexpected change in market activity | <input type="checkbox"/> a quote for an informed trading bank |
| <input type="checkbox"/> before and after the announcement of market news | <input type="checkbox"/> an increase in the costs of keeping the position |
| <input type="checkbox"/> increased market volatility | <input type="checkbox"/> a counterparty gave you a wide-spread quotation |
| <input type="checkbox"/> other: _____ | |

6. Do you agree that the following forex markets are dominated by one or a few "big" players?

	Yes	No	No Opinion
<input type="checkbox"/> US\$/£	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> DM/US\$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Yen/US\$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sfr/US\$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Select the 3 (or fewer) most important sources of competitive advantage for the large players in the FX market.

- | | |
|--|--|
| <input type="checkbox"/> lower operating costs | <input type="checkbox"/> smaller counterpart risks |
| <input type="checkbox"/> better information about the market | <input type="checkbox"/> ability to offer new FX products |
| <input type="checkbox"/> a large customer base | <input type="checkbox"/> accessibility to global trading network |
| <input type="checkbox"/> ability to deal in large volumes | <input type="checkbox"/> experienced traders |
| <input type="checkbox"/> ability to influence exchange rates | <input type="checkbox"/> other: _____ |

8. How fast do you believe the market can assimilate the new information when the following economic announcements from the major developed countries differ from their market expectations?

	less than 10 sec.	less than 1 min.	less than 10 min.	less than 30 min.	Over 30 min.
<input checked="" type="checkbox"/> unemployment rate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> trade deficit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> inflation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> GNP(GDP)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> interest rate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> money supply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. In your opinion, which one of the following economic announcements from the major developed countries has the biggest impact on the FX market?

- | | | | | |
|-------------|--|--|---------------------------------------|------------------------------------|
| now | <input type="checkbox"/> unemployment rate | <input type="checkbox"/> trade deficit | <input type="checkbox"/> inflation | <input type="checkbox"/> GNP (GDP) |
| | <input type="checkbox"/> interest rate | <input type="checkbox"/> money supply | <input type="checkbox"/> other: _____ | |
| 5 years ago | <input type="checkbox"/> unemployment rate | <input type="checkbox"/> trade deficit | <input type="checkbox"/> inflation | <input type="checkbox"/> GNP (GDP) |
| | <input type="checkbox"/> interest rate | <input type="checkbox"/> money supply | <input type="checkbox"/> other: _____ | |

10. Do you believe exchange rate movements accurately reflect changes in the fundamental value?

	Yes	No	No Opinion
<input checked="" type="checkbox"/> intraday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> medium run (within 6 months)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> long run (over 6 months)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. If the FX market does not accurately reflect the exchange rate fundamental value, which of the following factors do you believe are responsible for this?

	Yes	No	No Opinion
<input checked="" type="checkbox"/> excessive speculation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> manipulation by the major trading banks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> manipulation by institutional customers/hedge funds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> excessive central bank intervention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

