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A survey of market practitioners' views on exchange rate dynamics

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Abstract

We report some findings from a survey of practitioners in the interbank foreign exchange markets in Hong Kong, Tokyo, and Singapore. The respondents contend that liquidity and market uncertainty are two important reasons for deviating from the conventional interbank bid-ask spread. A strong customer base is perceived as a source of competitive advantage for large participants.

Most respondents agree that non-fundamental factors have pervasive impacts on short-run exchange rates. Speculation is believed to increase volatility but also improve market liquidity and efficiency. Despite their claim that intervention exacerbates volatility, more than one-half of the respondents suggest official intervention helps restore equilibrium.

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1. Introduction

Since the advent of the current floating rate regime, the literature on exchange rate economics has expanded at an astonishing pace. There is little agreement, however, on the laws and forces governing exchange rate movements. Since the

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seminal paper by Meese and Rogoff (1983), abundant evidence attesting to the difficulties of predicting exchange rates using economic fundamentals has accumulated (e.g., Frankel and Rose, 1995; Taylor, 1995).

Given the limited empirical success of standard structural exchange rate models, there is a growing interest in foreign exchange microstructure. The microstructure approach considers the effects of market configuration, information asymmetry, heterogeneous participants, and bounded rationality. For example, Ito (1990) reports that market participants have heterogeneous expectations on future exchange rates; and Lyons (1997) uses customer order flow to explain the trading activity in foreign exchange markets.¹

In the spirit of the microstructure approach, this paper presents results from a questionnaire survey of individual traders in three Far East foreign exchange centers, namely Hong Kong, Tokyo, and Singapore.² Specifically, traders in the interbank market are asked to provide their views on a number of issues in exchange rate economics including determinants of bid-ask spreads and the role of fundamentals. The information from market traders themselves on how they behave, their first-hand experiences, and their views on exchange rate dynamics would offer an “insider” perspective on these three foreign exchange markets.³

The survey approach is quite different from the standard research procedure in economics, which involves (1) theorizing the phenomenon and, then, (2) subjecting the empirical implications to the test of actual data. Economists’ traditional skepticism on the usefulness of the survey methodology can be traced back to the famous “billiard player” analogy (Friedman and Savage, 1948). However, as argued by Blinder (1991), results from a properly designed survey can provide valuable facts that are not found in standard models and not available to econometricians. While the survey approach yields information on market institutions, price mechanism, and individual traders’ beliefs that is not readily discernible from conventional empirical data, survey data have certain limitations. In some cases, it is more tedious, if not impossible, to quantify the association

¹See Frankel et al. (1996) for a recent collection of articles on the microstructure of foreign exchange markets.

²The trading volumes, as a percentage of total world trading, of the top five foreign exchange centers are: 29.50% for the United Kingdom, 15.55% for the U.S., 10.26% for Japan, 6.71% for Singapore, and 5.74% for Hong Kong (Bank of International Settlements, 1996). The statistical properties of exchange rates and bid-ask spreads in these markets are illustrated in, for example, Bollerslev and Domowitz (1993). For instance, the dollar/mark market activity in the Far East is bimodally distributed around the lunch hour. Over a 24-h period, the bid-ask spread tends to widen during the lunch hour or regional market closure.

³Examples of survey studies on foreign exchange markets are Group of Thirty (1980, 1985), Bank for International Settlements (1996), and Cheung and Chinn (1999). Taylor and Allen (1992) focus on the use of technical analysis. Apparently, our study is the first attempt to adopt the survey approach to systematically examine the microstructure issues considered in this paper. We are not aware of any studies using the survey approach to examine similar issues in other multiple-dealer markets like the NASDAQ.

between variables, to construct hypothesis testing procedures, and to implement statistical analysis. Thus, the use of survey data is meant to complement, rather than to replace, standard empirical analysis. For instance, the survey approach offers a channel to gather information on the implication of common market practice on exchange rate quotations, which is not directly reflected in empirical data. The traders' views and beliefs can also be compared and contrasted with results from empirical data to further our understanding of exchange rate dynamics.

In the survey, one set of 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 (Keim, 1989; Bollerslev and Domowitz, 1993; Bollerslev and Melvin, 1994; Goodhart et al., 1996). One main responsibility of an interbank dealer is to make two-way exchange rate quotes upon request. Thus the market practitioners can offer us their first-hand experiences of bid-ask spread dynamics which may not be available directly from empirical data. We also ask the practitioners to express their views on the existence of dominant players and the competitive advantage for large players.

The empirical failure of exchange rate models also spurred research on the effects of non-fundamentals such as bandwagon behavior, technical trading, and over-reaction to news (Goodhart, 1988; Frankel and Froot, 1990). These non-fundamental factors are not easy to quantify. To shed some light on the empirical relevancy of these factors, we solicit market practitioners' views on exchange rate determinants, reasons of deviating from fundamental values, and exchange rate predictability at various time horizons.

The survey also addresses a longstanding issue: the implications of speculation on foreign exchange markets. In the past few decades, there has been an ongoing debate on whether speculation is stabilizing or destabilizing (Friedman, 1953; McKinnon, 1976; De Long et al., 1990). The issue is further complicated by the difficulty of disentangling the effects of an inherently unstable economic structure from those of speculation on exchange rate volatility. Given their practical experiences with speculative activity, market traders can provide some valuable information on the effects of speculation, which may not be reflected in price data. In addition to volatility, we survey traders on their views on the effects of speculation on misalignment, liquidity, and efficiency.

There are diametrically opposite views on the effect of central bank intervention (Taylor, 1982; Jurgensen Report, 1983; Dominguez and Frankel, 1993; Edison, 1993; Kaminsky and Lewis, 1996). According to some studies, intervention is ineffective and increases market volatility. Others argue that intervention smooths disorderly markets and even sterilized intervention affects exchange rates. As front-line operators, interbank traders feel the direct impacts of intervention operations and they also have to deal with the market consequences of such operations. Thus, the practitioners can provide some interesting data on the

perceived effects of intervention, at least as pertinent to the markets in which these traders operate.

The rest of the paper is organized as follows. The next section describes the survey and reports some preliminary data. Section 3 analyzes responses from individual foreign exchange practitioners. Some concluding remarks are offered in Section 4.

2. Survey design and preliminary results

The data used in this study were obtained from a mail survey of three Far East foreign exchange centers, namely Hong Kong, Tokyo, and Singapore. The survey was conducted between October 1995 and January 1996. The mailing list was compiled from the Dealers Directory published by the Hambros Bank and information provided by the Forex associations in Hong Kong, Tokyo, and Singapore. A total of 1961 questionnaires were sent out. The number of completed questionnaires received was 392. The response rates were 32.15% from Hong Kong, 14.42% from Tokyo, and 13.82% from Singapore.⁴

Information about the respondents and their organizations is summarized in Table 1. As indicated in Table 1a, most respondents are experienced practitioners. Over 80% of them have the title “chief/senior dealer” or “treasurer/manager”.⁵ The distribution of respondents’ seniority in the foreign exchange business roughly matches that of the mailing list.

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.⁶ The position limits of our respondents exhibit a bi-modal distribution (Table 1b). Most respondents have a daytime position limit either below US\$40 million or above US\$70 million. Relative to the other two centers, the responses from Singapore distribute more evenly across the position limit classifications. Only a few respondents stated their position limits in terms of the value at risk.⁷

⁴The number of undelivered surveys was 84. Our response rates were quite reasonable as “Mail surveys with response rates over 30 percent are rare. Response rates are often only about 5 or 10 percent” (Alreck and Settle, 1985, p. 45). Copies of the survey and the full set of survey responses are available from the authors.

⁵See Cheung and Wong (1997, 1999) for information provided under the “Others” category in this and other questions.

⁶In some large trading banks, senior dealers do not have an explicit intraday position limit, and they are expected to report to their immediate supervisors if they take a large open position.

⁷Based on a volatility estimate, value at risk measures the price risk of a portfolio, that is the potential loss in the portfolio value due to changes in asset prices. Our survey results do not necessarily imply that organizations do not use the value at risk concept in risk management.

Table 1
Information about respondents and their organizations^a

| | Hong Kong | Tokyo | Singapore |
|--|-----------|-------|-----------|
| <i>(a) Respondent's position</i> | | | |
| Treasurer/manager | 68 | 28 | 30 |
| Chief/senior dealer | 117 | 38 | 44 |
| Dealer/junior dealer | 37 | 9 | 7 |
| Others | 5 | 1 | 8 |
| Total | 227 | 76 | 89 |
| <i>(b) Daytime position limit (Million US\$)</i> | | | |
| Below 10 | 31.5% | 25.7% | 15.2% |
| 10–25 | 36.0% | 13.5% | 26.6% |
| 25–40 | 10.0% | 12.2% | 15.2% |
| 41–55 | 4.5% | 12.2% | 16.5% |
| 56–70 | 2.5% | 8.1% | 2.5% |
| Over 70 | 12.0% | 27.0% | 19.0% |
| Value at risk | 3.5% | 1.4% | 5.1% |
| <i>(c) Headquarters location</i> | | | |
| North America | 17.6% | 13.2% | 27.0% |
| Europe (include UK) | 44.5% | 26.3% | 29.2% |
| Asia | 33.5% | 50.0% | 32.6% |
| Others | 4.4% | 10.5% | 11.2% |
| <i>(d) Average daily turnover of the organization (Million US\$)</i> | | | |
| Below 100 | 40.7% | 36.8% | 23.7% |
| 100–500 | 27.3% | 33.8% | 32.9% |
| 500–1000 | 9.3% | 8.8% | 22.4% |
| Over 1000 | 22.7% | 20.6% | 21.1% |

^a Panel (a) reports the number of respondents under each of the listed job capacities. 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.

Table 1c shows that 44.5% of the respondents from Hong Kong are affiliated with financial institutions with headquarters in Europe and the United Kingdom. On the other hand, responses from Asia-based financial institutions comprise 50% of the Tokyo sample. The Singapore sample is distributed more evenly across the geographic classifications.

Data on average daily turnover, which measures the activity and market share of a trading bank, are reported in Table 1d. The response patterns from the foreign exchange centers are quite different. The Singapore center has a lower response frequency in the below US\$100 million average daily turnover category and a higher response rate in the US\$500–1000 million category.

Using a non-parametric test for homogeneity, it is found that the respondents from Hong Kong, Tokyo, and Singapore are homogeneous in terms of their seniority in the foreign exchange business but heterogeneous in terms of their

position limits, companies' headquarters, and turnover volumes.⁸ We will briefly comment on the effects of these characteristics on the patterns of survey responses in Section 4.

3. Survey results

3.1. *The interbank bid-ask spread*

Responses to survey questions on interbank bid-ask spreads are presented in Table 2. According to the respondents, there are conventional spreads in the interbank market (Table 2a). From personal communications with dealers in major trading banks, we know that, under regular market conditions, the spread of interbank dollar/mark and dollar/yen quotes good for up to US\$5 million is 3 points (pips); that is a spread of 0.0003 mark or 0.03 yen. The spread may be widened to 5 points if the quote is for US\$10 million or more. For dollar/pound quotes, the spread is 5 points. 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 the three major trading currencies reported in Table 2a are largely in accordance with those described by traders. These numbers are also consistent with 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 (Table 2b). Most of the non-conventional spreads are narrower and only a few are wider: 20% (Hong Kong) to 35% (Singapore) of the respondents say that over 20% of their quotes have spreads narrower than the conventional one, while 74% (Tokyo) to 93% (Singapore) indicate that less than 10% of their interbank quotes have a spread wider than the conventional one. Results in Table 2b corroborate the reported clustering of bid-ask spreads at a few distinct values (Bollerslev and Melvin, 1994; Lyons, 1995).

In Table 2c–e, the respondents characterize the determinants of their interbank bid-ask spreads. More than 70% of the respondents suggest the market convention, rather than the potential cost of making a quote, determines their interbank bid-ask spreads in most circumstances (Table 2c).

The most frequently cited reason for adopting the conventional spread is to “maintain an equitable and reciprocal trading relationship” (Table 2d). The dealers we talked to said that interbank 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

⁸See Cheung and Wong (1997, 1999) for details. A discussion of the test for homogeneity is found in, for example, DeGroot (1975).

Table 2
The interbank bid-ask spread^a

| <i>(a) Conventional interbank bid-ask spread (in points, mode)</i> | | | | | | |
|--|-----------|-------|-----------|-------|-----------|-------|
| | Hong Kong | Tokyo | Singapore | | | |
| Dollar/pound | 5 | 5 | 5 | | | |
| Mark/dollar | 3 | 3 | 5 | | | |
| Yen/dollar | 3 | 3 | 5 | | | |
| <i>(b) Frequencies of quotes different from the convention</i> | | | | | | |
| % of deviation | Hong Kong | | Tokyo | | Singapore | |
| | Larger | Less | Larger | Less | Larger | Less |
| < 1% | 21.0% | 21.8% | 17.2% | 17.5% | 24.4% | 18.5% |
| 1–5% | 30.8% | 23.4% | 34.5% | 14.3% | 41.5% | 9.9% |
| 5–10% | 30.8% | 20.8% | 22.4% | 33.3% | 26.8% | 18.5% |
| 10–20% | 9.7% | 14.2% | 19.0% | 12.7% | 4.9% | 18.5% |
| > 20% | 7.7% | 19.8% | 6.9% | 22.2% | 2.4% | 34.6% |
| <i>(c) Choice of interbank bid-ask spread</i> | | | | | | |
| | Hong Kong | Tokyo | Singapore | | | |
| Market convention | 77.4% | 69.9% | 71.3% | | | |
| Potential costs | 22.6% | 30.1% | 28.7% | | | |
| <i>(d) Reasons for following the market convention</i> | | | | | | |
| | Hong Kong | Tokyo | Singapore | | | |
| Firm policy | 8.6% | 12.5% | 8.3% | | | |
| Equitable and reciprocal trading relationship | 41.3% | 60.2% | 44.6% | | | |
| Market image | 28.1% | 14.8% | 28.1% | | | |
| Trading profits | 9.7% | 5.7% | 8.3% | | | |
| Follow major players | 10.0% | 5.7% | 10.7% | | | |
| Others | 2.3% | 1.1% | 0.0% | | | |
| <i>(e) Reasons for deviating from the market convention</i> | | | | | | |
| | Hong Kong | Tokyo | Singapore | | | |
| Thin/quiet market | 5.5% | 8.2% | 8.2% | | | |
| Thin/hectic market | 28.2% | 27.8% | 25.9% | | | |
| Unexpected change in market activity | 13.5% | 9.8% | 14.0% | | | |
| Before/after a major news release | 16.4% | 10.8% | 16.0% | | | |
| Increased market volatility | 15.6% | 16.5% | 21.0% | | | |
| A position against the market trend | 3.4% | 4.6% | 1.6% | | | |
| Quote for small bank | 5.2% | 6.7% | 3.7% | | | |
| Quote for informed trading bank | 2.4% | 3.1% | 1.6% | | | |
| Costs of keeping the position | 1.5% | 2.1% | 1.2% | | | |
| Wide-spread quote from a counterparty | 7.3% | 9.3% | 6.2% | | | |
| Others | 1.0% | 1.0% | 0.4% | | | |

^a Panel (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.

reasonable time span. A two-way price with a conventional spread is another practice traders expect from each other. The responses suggest that practitioners tend to observe the tacit agreement to maintain an equitable trading environment.

The dealers we interviewed also pointed out 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 a trader can establish his reputation. Thus, it is not surprising to see “secure a good market image for the firm and the dealer” is the second most frequently 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 10% of respondents select this choice. This is consistent with the responses recorded in Table 2c – not too many traders consider potential costs as a major factor in determining the spread. The remaining factors account for less than 20% of the responses.

As reported in Table 2e, the most frequently cited reason for deviating from the conventional spread is a “thin and hectic market.” The percentage of respondents that selected this choice ranges from 26% (Singapore) to 28% (Hong Kong). Conversations with dealers indicate that wider bid-ask spreads tend to occur under such circumstances. Further, 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 37% (Tokyo) to 51% (Singapore) of the responses selecting “increased market volatility,” “before/after a major news release,” and “unexpected change in market activity” as 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).

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 in all three foreign exchange markets; only 4.9, 6.7, and 2.8% of the responses from Hong Kong, Tokyo, and Singapore selected these two choices. However, inventory costs refer to the costs associated with the risk of carrying an undesirable position. The higher the market volatility, the higher the inventory costs. Furthermore, liquidity facilitates inventory management. Thus, the inventory effect cannot be interpreted in isolation without taking risk and liquidity into consideration. In addition, inventory can induce price shading even though it does not affect the spread width (Lyons, 1995).

The market traders we interviewed were not surprised by the weak association between bid-ask spreads and trading positions reported in Table 2e. They pointed out that 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.⁹ 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 wider 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 traders 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.¹⁰ 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 higher percentage of responses say "a wide spread quote from a counterparty" is a reason for offering a wide spread quote. Market traders gave 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. *Dominant players*

In the global foreign exchange market, dollar/mark, dollar/yen, and dollar/pound are the three most actively traded exchange rates (Bank of International Settlements, 1996). Less than 20% of our respondents believe the dollar/mark and

⁹Interbank transactions account for most of the trading activity in foreign exchange markets.

¹⁰However, this does not rule out the possibility that informational asymmetry can affect, for example, the volatility pattern of exchange rate movements. See Ito et al. (1998).

dollar/yen markets are dominated by a few big players (Table 3a). For the dollar/pound market, the Hong Kong center has very similar numbers of votes for the “Yes” and “No” categories. However, in the other two centers, one-half of the respondents say the dollar/pound market is dominated by a few big players while only 25% (Tokyo) to 34% (Singapore) of them say it is not.

In all the three foreign exchange markets, “large customer base” and “better information” are selected as the two main sources of large players’ competitive advantage (Table 3b). In each market, these two factors account for around 50% of the responses. 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.

Table 3
Dominant players^a

| | Hong Kong | Tokyo | Singapore |
|--|-----------|-------|-----------|
| <i>(a) Do dominant players exist in the major markets?</i> | | | |
| US\$/BP | | | |
| Yes | 43.3% | 50.7% | 50.0% |
| No | 43.8% | 25.3% | 34.1% |
| No opinion | 12.9% | 24.0% | 15.9% |
| DM/US\$ | | | |
| Yes | 11.4% | 18.7% | 14.8% |
| No | 83.1% | 76.0% | 79.5% |
| No opinion | 5.5% | 5.3% | 5.7% |
| Yen/US\$ | | | |
| Yes | 17.7% | 18.7% | 13.6% |
| No | 75.5% | 78.7% | 80.7% |
| No opinion | 6.8% | 2.7% | 5.7% |
| <i>(b) Competitive advantage for large players</i> | | | |
| Lower costs | 2.5% | 3.4% | 4.5% |
| Better information | 22.1% | 20.9% | 21.5% |
| Large customer base | 27.1% | 26.7% | 30.0% |
| Deal in large volumes | 16.6% | 14.6% | 12.1% |
| Ability to affect exchange rates | 11.9% | 11.7% | 8.5% |
| Smaller counterparty risk | 0.6% | 2.4% | 1.2% |
| Ability to offer new FX products | 3.8% | 4.4% | 5.3% |
| Accessing the global trading network | 8.0% | 8.7% | 10.9% |
| Experienced traders | 6.9% | 7.3% | 6.1% |
| Others | 0.5% | 0.0% | 0.0% |

^a 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.

3.3. Fundamental determinants

The views on the role of exchange rate fundamentals are summarized in Table 4. Most market participants believe intraday exchange rate variations have little to do with fundamentals (Table 4a). Only 5% of the respondents consider fundamentals contributing to intraday exchange rate movements. However, the fundamentals are perceived to have a larger impact in the medium and long runs. In the survey, “medium run” (“long run”) refers to periods shorter (longer) than 6 months. About 80% of the replies say that exchange rate changes reflect variations in fundamentals in the long run. This is consistent with the finding that exchange rates appear to have some systematic long-run fundamental components (Chinn and Meese, 1995; Mark, 1995).

Between 75% (Tokyo) and 89% (Singapore) of the respondents believe “excessive speculation” is the main reason for exchange rates deviating from their fundamental values (Table 4b). The second most important reason for deviations from fundamentals is “institutional customers and hedge funds manipulation.” This choice is in accordance with the growing importance of institutional investors in the global foreign exchange market (Ito and Folkerts-Landau, 1996).

Compared with “major trading bank manipulation,” more respondents say “excessive central bank intervention” is a reason for deviations from fundamentals. While 48% (Singapore) to 63% (Hong Kong) of the respondents select central bank intervention, only 25% (Tokyo) to 42% (Hong Kong) consider trading bank manipulation a reason to explain deviations from fundamentals.¹¹

Table 4c provides further evidence of practitioners’ views on forces governing exchange rates. Short-term variability is largely attributed to non-economic forces including bandwagon effects, over-reaction to news, speculation, and technical trading. Only 1% of the traders see that intraday movements are related to economic fundamentals. The effect of economic fundamentals, however, is viewed as prevailing in the medium and long runs. At the medium-run horizon, between 29% (Tokyo) and 35% (Hong Kong) of the replies assert exchange rate variation is determined by economic fundamentals. The proportion of respondents who hold the same opinion for exchange rates in the long run increases to 76% from Hong Kong and 82% from Tokyo.

In contrast, the importance assigned to non-fundamental factors dissipates quickly when the horizon increases. Technical trading is an exception. It has the biggest impact on the medium-run exchange rate. About 40% of the respondents say that technical trading is the major factor determining exchange rates in the medium run. Even in the long run, 17% of the traders still believe technical trading

¹¹This question is not asked specifically in reference to the three Far East foreign exchange markets. The responses may be affected by, for example, the recent Mexican Peso crisis.

Table 4
Exchange rates and their fundamentals^a

| | Hong Kong | Tokyo | Singapore |
|--|-----------|-------|-----------|
| <i>(a) Exchange rate movements reflect changes in the fundamental value</i> | | | |
| Intraday | | | |
| Yes | 4.5% | 5.3% | 5.7% |
| No | 91.5% | 90.7% | 90.8% |
| No opinion | 4.0% | 4.0% | 3.4% |
| Medium run | | | |
| Yes | 53.8% | 50.0% | 51.1% |
| No | 33.6% | 42.1% | 38.6% |
| No opinion | 12.6% | 7.9% | 10.2% |
| Long run | | | |
| Yes | 80.1% | 78.9% | 81.8% |
| No | 10.2% | 11.8% | 8.0% |
| No opinion | 9.7% | 9.2% | 10.2% |
| <i>(b) Reasons for exchange rate movements do not reflect changes in the fundamental value</i> | | | |
| Excess speculation | | | |
| Yes | 85.8% | 75.0% | 88.5% |
| No | 8.5% | 16.7% | 5.1% |
| No opinion | 5.7% | 8.3% | 6.4% |
| Major trading bank manipulation | | | |
| Yes | 42.1% | 24.6% | 40.5% |
| No | 38.9% | 60.9% | 48.6% |
| No opinion | 18.9% | 14.5% | 10.8% |
| Institutional customer/hedge fund manipulation | | | |
| Yes | 76.1% | 72.6% | 80.0% |
| No | 15.3% | 20.5% | 12.5% |
| No opinion | 8.6% | 6.8% | 7.5% |
| Excessive central bank intervention | | | |
| Yes | 63.2% | 49.3% | 47.9% |
| No | 24.4% | 38.4% | 39.7% |
| No opinion | 12.4% | 15.9% | 12.3% |
| <i>(c) Factors determining exchange rate movements</i> | | | |
| Intraday | | | |
| Bandwagon effects | 22.3% | 25.8% | 25.1% |
| Over-reaction to news | 30.5% | 32.3% | 27.7% |
| Speculative forces | 31.2% | 28.0% | 33.3% |
| Economic fundamentals | 1.1% | 0.0% | 1.0% |
| Technical trading | 15.0% | 14.0% | 12.8% |
| Medium run | | | |
| Bandwagon effects | 12.9% | 9.6% | 13.9% |
| Over-reaction to news | 1.2% | 3.2% | 1.5% |
| Speculative forces | 10.5% | 19.2% | 12.3% |
| Economic fundamentals | 34.5% | 28.8% | 33.1% |
| Technical trading | 40.8% | 39.2% | 39.2% |

Table 4. Continued

| | Hong Kong | Tokyo | Singapore |
|---------------------------|-----------|-------|-----------|
| Long run | | | |
| Bandwagon effects | 1.1% | 0.0% | 1.4% |
| Over-reaction to news | 0.6% | 0.0% | 0.0% |
| Speculative forces | 4.0% | 1.6% | 1.4% |
| Economic fundamentals | 76.1% | 82.3% | 80.3% |
| Technical trading | 18.2% | 16.1% | 16.9% |
| <i>(d) Predictability</i> | | | |
| Intraday | | | |
| 1 | 13.2% | 17.6% | 12.8% |
| 2 | 21.8% | 18.9% | 24.4% |
| 3 | 27.7% | 17.6% | 31.4% |
| 4 | 28.6% | 29.7% | 22.1% |
| 5 | 8.6% | 16.2% | 9.3% |
| Medium run | | | |
| 1 | 5.5% | 16.2% | 6.9% |
| 2 | 23.9% | 21.6% | 24.1% |
| 3 | 38.1% | 28.4% | 42.5% |
| 4 | 26.1% | 13.5% | 16.1% |
| 5 | 6.4% | 20.3% | 10.3% |
| Long run | | | |
| 1 | 24.9% | 37.0% | 30.6% |
| 2 | 27.6% | 24.7% | 17.6% |
| 3 | 21.7% | 16.4% | 24.7% |
| 4 | 16.6% | 11.0% | 18.8% |
| 5 | 9.2% | 11.0% | 8.2% |

^a 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 6 months while “long run” refers to periods longer than 6 months. For the 1–5 scale used in Panel (d), 1 indicates no predictability and 5 indicates high predictability.

is a significant determining factor. The perceived importance of technical trading, however, is not as pervasive as reported in global markets a decade ago. For instance, in a survey that covers leading participants from around the world, Group of Thirty (1985) reports 97% of bank respondents and 87% of securities houses believe the use of technical trading models has a significant impact on the foreign exchange market.

The respondents were asked to use a scale of 1 to 5, where “1” indicates no predictability and “5” indicates high predictability, to express their views on market trend predictability (Table 4d). In general, the responses are clustering around the choices “2,” “3,” and “4.” An exception is that the choice “1” (no predictability) has a relatively high score at the long-run horizon. Despite their views on the long-run effect of fundamentals on exchange rates (Table 4c), more respondents see market trend as difficult to predict in the long run.

To explore the possible reasons why traders believe long-run exchange rates are less predictable, we analyze the responses in both Table 4c and 4d. In comparing the respondents who assigned a higher score to intraday predictability with those who assigned a higher score to long-run predictability, we find the former group of respondents tends to say technical trading determines intraday exchange rates (homogeneity test statistic 7.50, $P = 0.006$) and the latter group is prone to say economic fundamentals determine long-run exchange rates (homogeneity test statistic 4.53, $P = 0.033$). That is, a trader's view on predictability is related to his view on the roles of technical trading and fundamentals at various time horizons.¹²

3.4. Speculation

An overwhelmingly large proportion of respondents say that speculation increases volatility (Table 5).¹³ It is, however, difficult to determine if the increase in volatility is a symptom of destabilizing speculation. Specifically, there is a split of opinion on whether speculation helps restore equilibrium or moves exchange

Table 5
Effects of speculation^a

| | Hong Kong | Tokyo | Singapore |
|--------------------------|-----------|-------|-----------|
| <i>Volatility</i> | | | |
| Increase | 95.9% | 90.5% | 97.6% |
| Decrease | 4.1% | 9.5% | 2.4% |
| <i>Fundamental value</i> | | | |
| Away | 53.3% | 43.1% | 46.2% |
| Toward | 46.7% | 56.9% | 53.8% |
| <i>Market liquidity</i> | | | |
| Increase | 88.5% | 89.2% | 81.7% |
| Decrease | 11.5% | 10.8% | 18.3% |
| <i>Market efficiency</i> | | | |
| Improve | 83.4% | 82.2% | 76.5% |
| Reduce | 16.6% | 17.8% | 23.5% |

^a 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.

¹²We found these two groups made similar choices for other factors in Table 4c. Also, when we compared respondents selecting choices 4 and 5 (high predictability) with those selecting choices 1 and 2 (low predictability) at the intraday horizon, we found that the former group is more likely to say technical trading determines intraday exchange rates (homogeneity test statistic 9.08, $P = 0.003$). However, compared with those selecting choices 1 and 2, respondents selecting choices 4 and 5 at the long-run horizon are more likely to say fundamentals determine long-run exchange rates (homogeneity test statistic 5.84, $P = 0.016$).

¹³The implication of speculation on volatility is consistent with a recent study by Ito et al. (1998).

rates away from fundamentals. As a result, it is unclear whether the higher variability induced by speculative activity is related to a faster or a slower adjustment process to the equilibrium. Nonetheless, the responses indicate the possible distinction between the volatility and adjustment effects. As indicated in Table 4c, the effects of speculation on volatility and convergence are mainly felt at the intraday horizon.

Despite its ambiguous role, respondents see speculation as rendering some useful functions to the market. Most respondents are positive on the role of speculation in providing market liquidity and improving market efficiency.

3.5. Central bank intervention

Apparently, there is no consensus on the effects of central bank intervention (Jurgensen Report, 1983; Dominguez and Frankel, 1993; Edison, 1993).¹⁴ In our survey, the respondents do not give a strong positive assessment of the role of official intervention (Table 6). Over 60% of them believe that intervention adds to, rather than reduces, exchange rate volatility. The perception of volatility exacerbation agrees with the empirical results on intervention and exchange rate volatility

Table 6
Effects of central bank intervention^a

| | Hong Kong | Tokyo | Singapore |
|---------------------------|-----------|-------|-----------|
| <i>Volatility</i> | | | |
| Increase | 72.2% | 61.1% | 62.2% |
| Decrease | 27.8% | 38.9% | 37.8% |
| <i>Fundamental value</i> | | | |
| Away | 29.3% | 45.1% | 36.5% |
| Toward | 70.7% | 54.9% | 63.5% |
| <i>Appropriate timing</i> | | | |
| Yes | 54.1% | 52.9% | 60.8% |
| No | 45.9% | 47.1% | 39.2% |
| <i>Achieve the goal</i> | | | |
| Yes | 60.8% | 31.9% | 58.7% |
| No | 39.2% | 68.1% | 41.3% |

^a 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.

¹⁴In previous surveys of market practitioners, central bankers were accused of technical incompetence, being poor at reading the market, and intervening at the wrong moment (Group of Thirty, 1980, 1985). It is also claimed that central bank intervention exacerbates market volatility instead of smoothing disorderly markets.

reported in some recent studies (Bonser-Neal and Tanner, 1996; Dominguez, 1998).

Despite volatility exacerbation, more than one-half of the respondents say official intervention operations restore equilibrium exchange rates. Among the three foreign exchange centers, Hong Kong has both the highest percentage of respondents supporting the view that intervention tends to restore equilibrium values and claiming intervention increases volatility.¹⁵

Participants in Hong Kong and Tokyo are almost equally split on whether central bank intervention is usually conducted at the right time. In Singapore, respondents have more favorable views of timing. On the question of whether central bank intervention achieves the desired goal, respondents give a mixed evaluation. While over one-half of the replies from Hong Kong and Singapore agree that official intervention achieves its goal, 68% of the replies from Tokyo think it does not. Participants in the Tokyo market have the most pessimistic views on intervention in terms of restoring equilibrium values, being conducted at the right moment, and achieving the goal.

4. Concluding remarks

This study presents some findings from a survey of practitioners in the Hong Kong, Tokyo, and Singapore interbank foreign exchange markets. One possible concern about survey results is whether the respondents conceal truth and give inaccurate replies. However, given the nature of this survey, it seems that the traders have little, if any, incentive to deliberately lie to, for example, avoid the conflict of interest or protect self-respect. Thus, we believe our survey results reflect some valuable information about the traders' beliefs and behavior.

Traders report that their behavior is influenced by the prevailing market practice. For instance, the respondents indicate that they generally follow the market convention to set their interbank bid-ask spreads. The practice is also a means to maintain an equitable and reciprocal trading relationship between dealers. Liquidity and market uncertainty are the two main reasons for the spread to deviate from the market norm. These responses suggest that the study of bid-ask spread dynamics may benefit from a better understanding of the prevailing market practice and its implications on trader's behavior.

A plurality of participants view the existence of dominant players as important only in the dollar/pound market. A large customer base and better information are perceived as the possible sources of competitive advantage for large players. These findings raise a potential issue of strategic behavior in the foreign exchange market. Goldberg and Tenorio (1997) show that the *tâtonnement* mechanism

¹⁵Note that volatility increase and convergence to equilibrium are not necessarily two inconsistent responses.

adopted by some emerging foreign exchange markets encourages strategic behavior to influence exchange rates. Thus, an interesting future research topic is to explore if large players in the global exchange market act strategically.

Short-run exchange rate dynamics are believed to mainly depend on non-fundamental forces (e.g., bandwagon effects, over-reaction to news, technical trading, and excessive speculation) rather than fundamentals. This is consistent with the findings that it is very difficult to predict short-term exchange rate movements using only economic fundamentals. The respondents also say technical trading has non-trivial impact on medium- to long-run exchange rates. The results challenge economists to combine fundamentals and non-fundamentals in a unified model for both short-run and long-run dynamics (De Long et al., 1990; Frankel and Froot, 1990). A successful model should also allow for the self-fulfilling nature of the non-fundamental factors.

The respondents offer mixed evaluations on speculation and intervention. For instance, both speculation and central bank intervention are perceived to increase market volatility. However, practitioners contend that speculation enhances liquidity and efficiency while intervention helps restore equilibrium. Practitioners have diverse opinions on these issues. A test for homogeneity shows that the response patterns depend on the market from which the respondent is selected, seniority, position limit, turnover volume, and headquarters location.¹⁶ For example, traders from different centers or institutions with different turnover volumes have different response patterns to the questions on the effects of intervention.¹⁷ Overall, the survey results suggest that traders, who jointly determine exchange rates in the interbank market, have diverse beliefs on certain aspects of the exchange rate behavior.

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¹⁶Cheung and Wong (1997, 1999) contain more detailed results on the test of response homogeneity across different ways to group individual replies. These results are omitted for brevity. Also, Bank for International Settlements (1996) shows that the composition of trading activity can be very different across countries.

¹⁷Peiers (1997) shows that Deutsche Bank acts as a price leader prior to Bundesbank intervention announcements. See also Varian (1985) on the effect of heterogeneous beliefs on asset prices.

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