Exploiting currencies with time and volume

FIGURE 1 — E-MINI S&P FUTURES

In the futures market, intraday time-volume characteristics tend to follow clear patterns, as illustrated by this three-month average of 10-minute bar volume in the E-Mini S&P 500 contract.

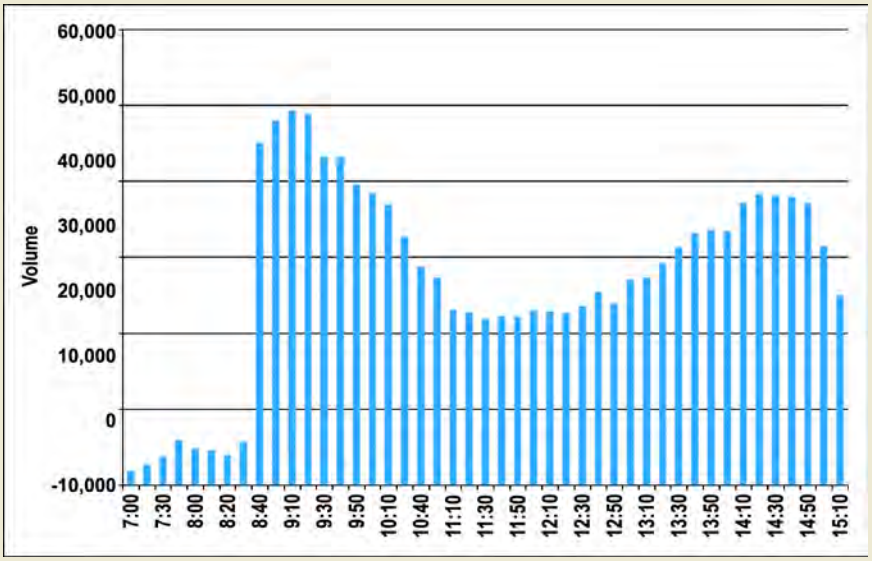

TABLE 1 — THE 12 CURRENCY PAIRS

Analyzing the trading activity in 12 currency pairs showed that regardless of a pair's native trading session, volume was greatest when the three largest forex centers — London, Europe, and the U.S. — were open at the same time.

Pair	Symbol
Aussie dollar/U.S. dollar	AUD/USD
Euro/Swiss franc	EUR/CHF
Euro/British pound	EUR/GBP
Euro/Japanese yen	EUR/JPY
Euro/Swedish krona	EUR/SEK
Euro/U.S. dollar	EUR/USD
British pound/Japanese yen	GBP/JPY
British pound/U.S. dollar	GBP/USD
New Zealand dollar/U.S. dollar	NZD/USD
U.S. dollar/Canadian dollar	USD/CAD
U.S. dollar/Swiss franc	USD/CHF
U.S. dollar/Japanese yen	USD/JPY

The forex "volume profile" has implications for short-term traders seeking the optimal time to place trades.

BY CASPAR MARNEY

Although there is a great deal of research and analysis in the futures markets about trading opportunities using time and volume, little comparable research exists in the foreign exchange market.

The reason time and volume dominate so much discussion of futures trading systems is almost certainly because their behavior in these markets is predictable, and therefore exploitable. Figure 1 shows the volume distribution of a typical futures market, the E-Mini S&P 500 contract (ES) traded on the Chicago Mercantile Exchange, over a three-month period. Although individual days can show huge variance because of specific economic data releases or news, over time this is an incredibly stable profile.

One of the primary reasons time and volume have not been as widely exploited in the currency market is likely because traditionally, it has been almost impossible to get accurate volume information because the foreign exchange market has no central exchange; the market is fragmented among various banks, brokers, and electronic communications networks (ECNs).

Nonetheless, you can accurately determine currency pair volume profiles by sampling the market. This data can then be incorporated in a trading strategy to maximize its potential.

Determining forex volume profiles

The advent of currency ECNs has made accurate forex time and volume data much more readily available. Data from the EBS currency ECN, which the firm reports is used daily by

continued on p. 22

2,800 traders in more than 50 countries, provides a great representative sample of the global spot forex market and will be used throughout this article. You can get access to EBS data through their Data Mine product.

Figure 2 shows the volume distributions (as percentages of total daily volume) for 12 currency pairs from August to October 2009 in London time. Table 1 lists the pairs.

According to the Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity, which was last published by the Bank for International Settlements (BIS) in 2007, London, Europe, and New York are the three largest foreign exchange trading centers. It follows that the highest volume occurs during the few hours when all these centers are active, even for currencies such as the Australian (AUD) and New Zealand (NZD) dollars, which are not native to these time zones.

Figure 3 shows the aggregated volume profile for the same currencies and time period in Figure 2. As was the case in the E-Mini S&P futures market, the chart has a distinct volume pattern. The overlapping opens and closes throughout the forex trading day give the profile its unique but stable distribution, with evident peaks as each trading center opens.

The three distinct peaks correspond to the openings of the Asian, European/London, and U.S. forex sessions, with the largest volume occurring during the few hours when all three are open at the same time. Volume tails off steeply as Europe and London close (17:00), and a final decline occurs as the U.S. closes (22:00); the cycle commences again with the next day's Asian-session opening.

Over time there is little variation in this relationship, which is also highly correlated to the average hourly price ranges of these currencies throughout the day. Figure 4 plots the two together, with the ranges shown as a percentage of the maximum hourly range. A second

continued on p. 24

FIGURE 2 — EBS VOLUME (%) ANALYSIS BY CURRENCY PAIR

Despite the wide range of currency pairs and native trading sessions, their volume profiles are very similar.

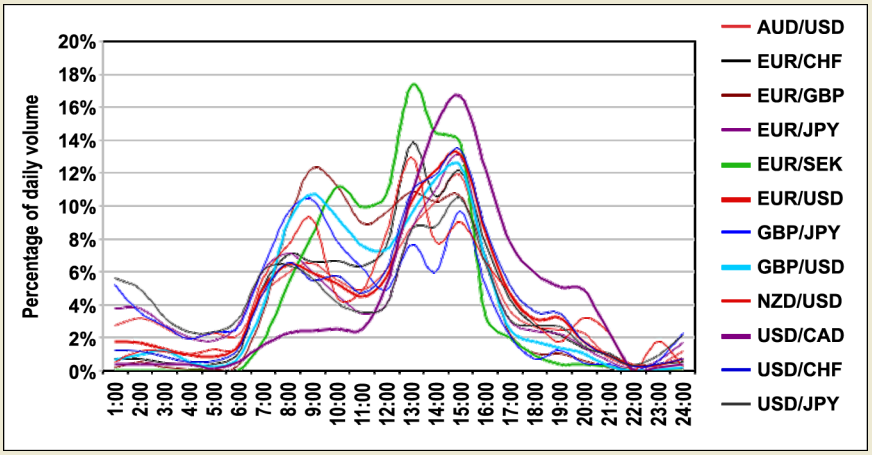

FIGURE 3 — COMBINED VOLUME PROFILE (AUG.-OCT. 2009)

The combined volume profiles of the currencies in Figure 2 produce a distinct pattern, with evident peaks as the Asian, European/London, and U.S. forex sessions began.

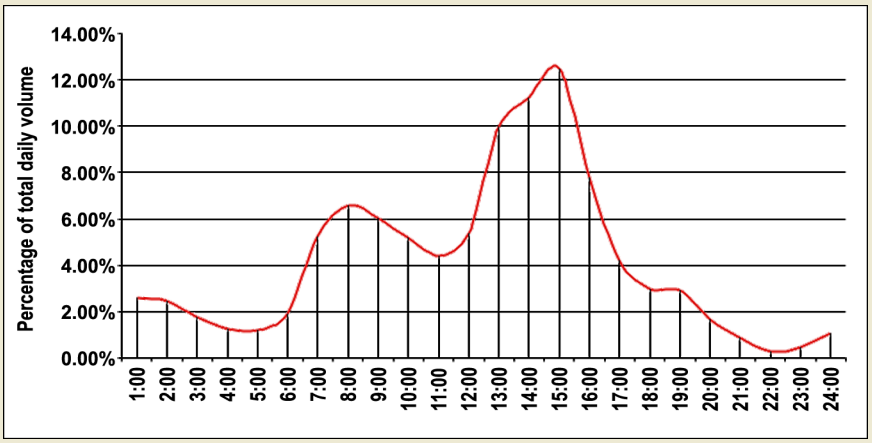

FIGURE 4 — AVERAGE HOURLY RANGES VS. AVERAGE HOURLY VOLUMES

The volume profile is highly correlated to volatility, shown here as hourly trading ranges (red bars). A second volume distribution (black line) from an entirely different time window is very similar to the first distribution.