MARKET RISK – APPLICABILITY IN EMERGING MARKETS

By
Iftikar Ahamed

Financial markets of developing countries are commonly referred to as 'emerging markets'. Some examples include Mexico, Malaysia, Chile, Thailand and Philippines. These markets are characterized by bouts of extreme and unexpected volatility that occur from time to time, which are brought on due to low liquidity, poor regulation and systemic risks. They have tremendous growth and profit potential but at the same time pose significant challenges.

Market Risk is the risk of price changes in the market for traded instruments, or any price sensitive asset or liability, and evaluates the potential impact of the market moving adversely in relation to the value of a tradable instrument. This could be any instrument that is bought or sold, ranging from foreign exchange, stocks and bonds to complex options and derivatives. Alternately market risk is also the risk that the value of an investment will decrease due to moves in market rates. Standard market risk factors include: Interest rate risk, or the risk that interest rates will change. Currency risk, or the risk that foreign exchange rates will change. Liquidity risk, or the risk that funds will not be available to meet obligations that fall due; Equity risk – the risk that stock prices will change.

The Sri Lankan financial markets have somewhat lagged behind the rest of their regional counterparts. On closer inspection, the interest generated and consequently, the development of the Equities market seems to have moved at a faster pace compared with the foreign exchange and money-markets. Market activity and product development have not really taken off with basic vanilla flavor being very much the norm.

So, what are the reasons for this intransigence and what is it that will enable the Sri Lankan market to join the ranks of other emerging markets so that Colombo can take the initial steps on the road to becoming a financial center of significance. If emerging markets are said to have great profit potential why are institutions and individuals not grasping the opportunities available?

Some of the main drawbacks that need to be addressed relate to depth and liquidity. It is well known that barring well-developed markets, spot and forward markets are rather shallow in many of the emerging countries. Given the constraints in such emerging markets are there any solutions?

In most of the developing markets, liquidity is not available beyond the one-year period due to restrictions on capital movements. In Colombo, the bulk of moneymarket transactions are dealt on an overnight basis and foreign exchange activity is confined to spot and forwards mainly up to three months. In other words, in markets dominated by trade related flows and which are not financially driven, where capital controls exist, liquidity across the spectrum as seen in the developed markets, may prove to be difficult at least in the early stages of development of the market. The question that one would need to address is within these
constraints, how can liquidity be improved?

For a start, development of the money-market and more importantly increasing the number of

'market-makers' in the foreign exchange area may well hold the key. This is particularly relevant for those banks that have significant exportimport transactions as they have a good base with which to engage in market activity by providing liquidity. As a next step, lifting of exchange controls on the capital account, at least in part, should be explored. Allowing foreign funds access to Government and Corporate Debt securities markets will provide a muchneeded boost in respect of liquidity and market development. The difference is very evident from the activity in the stock market where exchange controls do not apply.

Whilst the authorities need to do their part towards market development it is also up to the respective institutions and the industry at large to be more proactive in the market and comprehend the fact that Treasury dealing rooms could be an important profit center, provided proper risk management systems are in place.

If risk management is the key towards understanding the business of a Bank Dealing Room what are the measures that these institutions can adopt to ensure that they have proper risk control systems in place? How can market risk therefore be measured and what does it facilitate? Measurement and control of market risk is important as it provides information to management of the risk undertaken, enables setting of risk limits, facilitates resource allocation, enables performance evaluation and ensures proper regulation. Local institutions have traditionally used absolute values to set limits e.g. for long/short positions per currency pair on foreign exchange. The concept of Value at Risk (VaR) and its applicability in the local context could hence provoke some interesting thoughts.

The VaR concept or (Value at Risk) is defined as the worst loss that might be expected from holding a security or portfolio over a given period of time (say a single day, or 10 days for the purpose of regulatory capital reporting), given a specified level of probability which is known as the confidence level.

Example: If a position has a daily VaR of USD10Mn at the 99% confidence level it means that losses would not exceed USD 10Mn 99% of the time i.e. the realized daily losses from the position will, on average, be higher than USD10Mn on only one day every 100 trading days (i.e. two or three days each year). VaR technique is based on statistical distributions, standard deviation and confidence levels.

VaR - Foreign Exchange

Spot Forex Rates
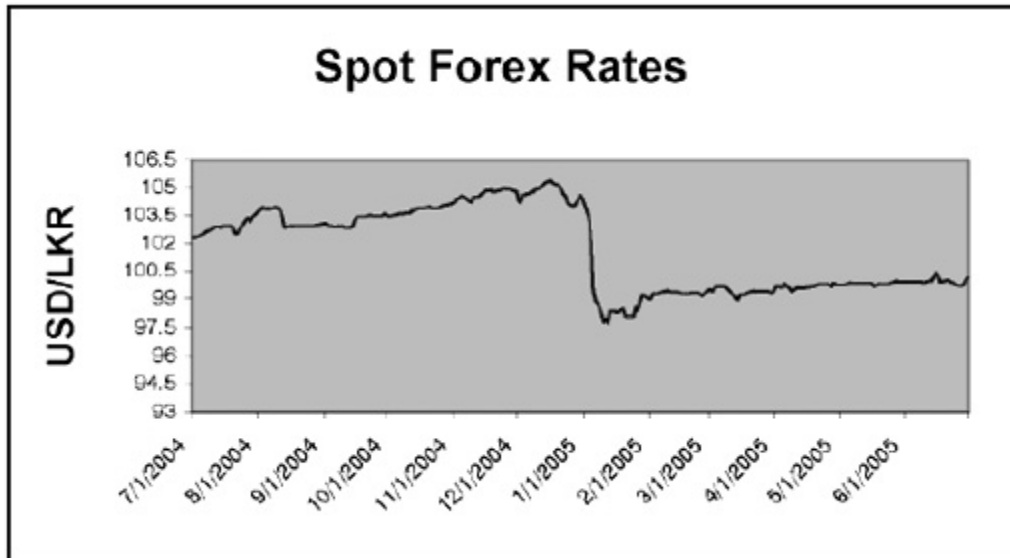
The impact of holding a position of USD1Mn (against LKR) based on the historical volatility of the USD/LKR currency pair is considered below. The data that is presented above gives a standard deviation of 2.2539% (for 1 day volatility).

Next the level of confidence that needs to be built into the calculation and the defeasance period, which is the estimated time taken to liquidate the position or portfolio, have to be decided on. Both these are matters of bank policy.

The following model could hence be developed;

> VaR = Value of the position x FX Volatility.

■ FX Volatility = Number of times σ of FX

■ Confidence Level - 99% (2.326 standard deviations, generally required by regulators and fairly conservative)

■ Defeasance period – 3 days (assuming that it takes 3 days to liquidate a USD/LKR position)

■ VaR on a USD 1Mn position will be
=1,000,000 x 2.326 x 2.2539% x √3= USD90k (approx)

Holding period is an important factor in determining volatility since the risk in any investment is dependent on the time frame.

The square root of maturity period is used to adjust volatility.
VaR (10 days) = VaR (1 day) x √number of days.

VaR – Fixed Income Securities

01-Jan-09 Bond Trading Rates
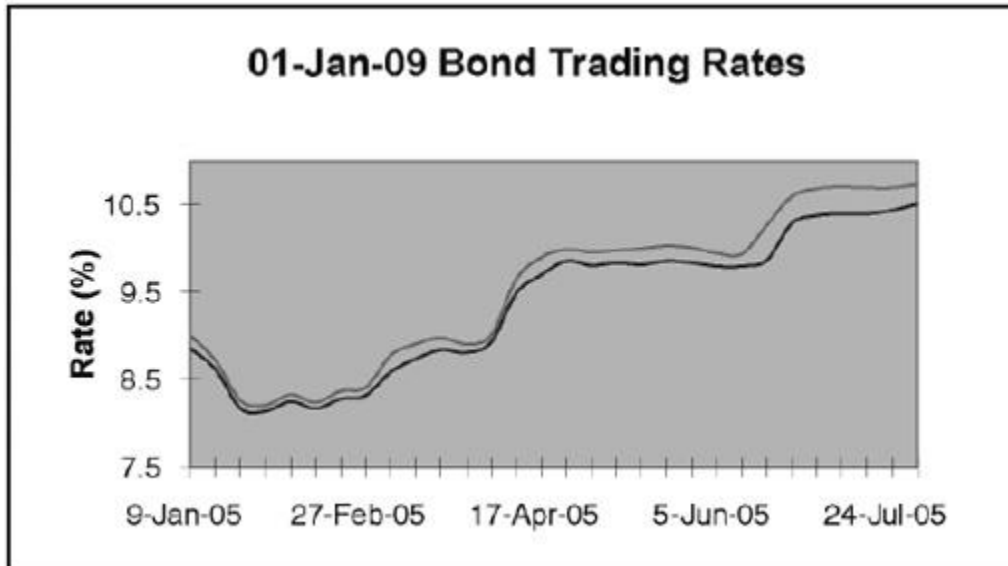
The VaR of holding LKR 100Mn of the 01-Jan-09 Treasury Bond is calculated as follows.

VaR = Value of the position x Modified duration x Adverse daily yield move

- Modified Duration (MD) = Duration / (1+r)

- Value of Position LKR 100Mn

- Modified Duration of this bond 2.75

- Average adverse daily yield move = 0.0079

- VaR = 100,000,000 x 2.75 x .0079 = LKR 2,172,500

The above calculations obviously bring out the risk of these positions factor in a much different light. The fairly harmless foreign exchange position of being long USD1Mn all of a sudden shows the potential risk of losing approximately LKR 9Mn. Likewise holding LKR 100Mn 5year Treasury Bonds has a potential risk of LKR 2.2Mn. Key to these calculations is the volatility of the respective exchange rate or interest rate. In the case of developed markets where options are traded, volatility is a readily obtainable number but in the case of emerging markets such as in Sri Lanka, this will need to be worked out on the basis of historical volatility.

Together with risk management, an important requirement is training, not only of the front line staff, but also of the senior management, so that they can understand the business, the risks involved and the key issues of how to manage the attendant risks Will market risk management measures such as this when broadly adopted strengthen dealing room operations and gain the confidence of senior management to turn Treasury dealing rooms into profit centers that will finally contribute towards the development of the overall market place?

Although business requirements should be the drivers in implementing these measures the real push

may actually come from the regulator with Basle II needing to be adopted in the not too distant future.

Iftikar Ahamed

Iftikar Ahamed was with Deutsche Bank AG for 17 years and served as a Senior Associate Director attached to its Singapore Branch. He was responsible for setting up the Global Markets / Treasury business of the Bank in Vietnam and was previouslyTreasurer at its Colombo Branch. Iftikar has considerable expertise in the area of Treasury and Risk Management, having trained at Deutsche Bank offices worldwide including programmes in London, Frankfurt and Singapore. His current responsibilities at Nations Trust Bank Ltd as its Deputy CEO, include Corporate and Wholesale Banking, Treasury & Investment Banking in addition to operations of Waldock Mackenzie, the Bank's fully owned subsidiary.