Hedging foreign exchange risk in sub-Saharan Africa
The sharp rise in the volatility of foreign exchange (FX) markets since the summer of 2014 has been felt across the board but particularly in emerging markets, of which sub-Saharan Africa represents one of the most challenging regions.

The sequence of charts shown in Figure 1 below demonstrates the extent of the depreciation of six sub-Saharan currencies (those of Botswana, Ghana, Kenya, Nigeria, Zambia, and South Africa) against the US Dollar (USD) over the last 20 years (January 1996 to January 2016). Of particular note is the increase in the rate of depreciation of most currencies over the last five years, with, in some cases, dramatic acceleration during 2015.

For GPs and LPs that have never invested in sub-Saharan Africa, FX hedging can present many pitfalls, not least the fact that sub-Saharan African FX markets are significantly less liquid than those of the developed world.

Pre-investment risk (entry risk)

Once an investment has been identified, a USD-based investor is exposed to the risk of USD depreciation/local currency appreciation until completion. In practice, most private equity houses will only regard themselves as ‘on risk’ between signing and the completion of the acquisition. The risk of local currency appreciation can be hedged using short-term forward contracts and/or options where these exist.

Hedging with forward contracts runs the risk that the acquisition will not complete and that the GP will be left with an underwater forward contract with no offsetting gain on the now defunct underlying transaction. This problem can be solved by buying call options on the local currency or by entering into a deal contingent forward (DCF) contract where the GP will not be committed should the transaction fail to complete as a result of certain pre-agreed conditions precedent. However, it should be noted that, outside the Republic of South Africa, the existence of a DCF market cannot be relied on. Certainly, more risk-embracing investment banks may be prepared to quote but this will be very much on a deal-by-deal basis.

Pre-divestment risk (exit risk)

A similar situation exists when trying to hedge an imminent exit. Vanilla forwards may be considered if the deal is viewed as highly likely to run to completion. If not, put options on the local currency, while expensive – and by no means always available – will provide protection without the risk of commitment should the underlying transaction fail to complete. Again, for investments in South Africa, DCFs can provide a neat and cost-effective solution.
Figure 1: Currencies in sub-Saharan Africa

Botswana - USDBWP

Ghana - USDGHS

Kenya - USDKES

Nigeria - USDNGN

Zambia - USDZMW

South Africa - USDZAR
The first thing that surprises many is that when looking to hedge an emerging market currency back into USD, it is rarely possible to achieve a hedged rate that is close to the spot rate. This is due to the fact that the interest rates of the currencies concerned are invariably higher (and often very substantially so) than USD interest rates, leading to a forward curve in which the USD trades at a premium – and the foreign currency at a discount – to the spot rate. This is illustrated in Table 1, which shows the forward curve for the US dollar against the South African Rand (USD/ZAR).

### Medium-term investment risk
While entry and exit risk is (relatively) easy to mitigate, hedging medium-term holding risk (that is, the risk run over the duration of the investment itself) presents more of a challenge. The first thing that surprises many is that when looking to hedge an emerging market currency back into USD, it is rarely possible to achieve a hedged rate that is close to the spot rate. This is due to the fact that the interest rates of the currencies concerned are invariably higher (and often very substantially so) than USD interest rates, leading to a forward curve in which the USD trades at a premium – and the foreign currency at a discount – to the spot rate. This is illustrated in Table 1, which shows the forward curve for the US dollar against the South African Rand (USD/ZAR).

### Illiquidity
The ZAR is the most liquid of all sub-Saharan African currencies. Of the rest, most are substantially illiquid and hedging can be difficult as a consequence. Investors that are used to the virtually bottomless pools of liquidity in developed FX markets are likely to be surprised by liquidity conditions in sub-Saharan Africa. To put this issue into context, the largest market of any kind in the world (turning over more than US$1 trillion per day), is the EUR/USD market, where the vast majority of trades are speculative in nature, rather than related to trade or hedging. Here, trades of over EUR100 million can be accommodated relatively easily. Indeed, with a little planning, trades of over EUR1 billion can be executed. In contrast, the spot USD/ZAR market turns over only around the equivalent of between US$5 billion to US$7 billion daily and trades of over US$50 million are considered to be of a good size. All other sub-Saharan African currency markets are less liquid than the ZAR – most being considerably so.

<table>
<thead>
<tr>
<th>Spot</th>
<th>1 month</th>
<th>3 months</th>
<th>6 months</th>
<th>9 months</th>
<th>12 months</th>
<th>24 months</th>
<th>36 months</th>
</tr>
</thead>
</table>

Table 1: USD/ZAR forward curve
Their reward for taking this risk is an interest rate return that is very much higher (often by several hundred basis points) than that available on USD, yet the threat of devaluation hangs like the sword of Damocles.

**Deliverable forwards**
Most investors are familiar with vanilla FX forward contracts, which commit two parties to exchange a given amount of one currency for another at a pre-agreed rate, on a pre-agreed date. Deliverable forward contracts are based, as the name suggests, on physical delivery of one currency by one party, who will then receive the agreed amount of the other currency from the counterparty at the pre-agreed rate. In the event that a customer, as one party, has insufficient funds to make the full payment to the counterparty (normally a bank), this usually presents little hindrance. The customer simply enters the spot market to buy the requisite amount of currency that needs to be delivered to fulfil the maturing forward contract. In practice, the providing bank does this on the customer's behalf and the forward contract will be deemed ‘cash settled’.

**Non-deliverable forwards (NDFs) and currency controls**
In some countries there is no deliverable forward market, whether on account of currency controls (which may mean that local currency either cannot be delivered offshore at all or only under specific circumstances) or as a result of a lack of liquidity in the money market. In these markets, forwards are offered on a non-deliverable basis. No principal changes hands and forwards are settled at maturity by reference to the spot rate at the time, with any difference paid by one party to the other in USD. Since no local currency is paid or received, NDFs, when conducted offshore, are completely beyond the control of the local authorities - a situation that clearly has its attractions in the case of tight regulatory conditions.

**Synthetic NDFs**
In some countries, there is no functioning money market at all, meaning that NDFs must be constructed by applying the local government bill rate to the US interest rate of the same tenor. This can create an effective NDF, so long as both parties to the transaction are agreeable to the methodology.

Unfortunately, the very lack of a properly functioning money market means that countries where such synthetic NDF hedging has to be effected are the least developed and liquidity is, consequently, extremely restricted. Indeed, counterparties to such a hedging trade are effectively betting against a depreciation or devaluation in the local currency over the term of the hedge. Their reward for taking this risk is an interest rate return that is very much higher (often by several hundred basis points) than that available on USD, yet the threat of devaluation hangs like the sword of Damocles. For this reason, there are few counterparties prepared to back their view of no devaluation with amounts of money that are sufficiently large to offer serious hedging opportunities to investors. Further, such counterparties must be identified and this is often a job for investment, rather than commercial, banks.

Of course, attempting to predict when to hedge and when not to, is no easy matter. However, there are certain rules of thumb which, while not fool proof, may assist the investor. These are highlighted in the box on page seven.
Spot markets: Extent to which they have historically fulfilled the forward curves
Where forward markets exist, invariably local currencies trade at a deep discount to the USD. Therefore, in order to hedge the investor must accept an exchange rate that is significantly worse than the spot rate. This is very often the first mistake made in business plans. In the same way as some investors believe that they can borrow at Libor, some believe that, having converted USD into, for example, ZAR at the spot rate (or something approaching it, after bank spread), they will then with little difficulty be able to hedge their exposure in the forward market, after some small allowance for credit spread, at a very similar rate. Such investors will be disappointed at the outcome.

Table 1 on page four demonstrates the extent to which the ZAR trades at a discount to the USD in the forward market. A USD investor, having converted USD into ZAR at the spot rate of 16.6585 and wishing to hedge for 12 months, would face a rate to hedge out risk with a vanilla, deliverable forward contract of 17.8955 – a discount of approximately 7.43%.

Investors facing such a steeply disadvantageous forward curve may be disinclined to ‘lock in’ and accept such a poor rate compared to the spot rate at entry. Indeed, they will be inclined to wonder whether such a discount to the USD is justified. In other words, if they hedge with a vanilla forward, what is the likelihood of the usually very steep curve being fulfilled in the sense that the spot rate does actually rise to the extent that is implied (but not necessarily predicted) by the interest rate differential?
Figure 2 on page six shows the 12-month USD/ZAR forward rate pertaining at each year end going back to the end of 2004. It can be seen that, at certain times, hedging by selling a ZAR 12-month forward would have been an excellent hedging strategy. This would have been the case at the end of 2007. A year later, the spot rate had spiked sharply upwards, far above the rate that could have been locked in via the forward market a year earlier. On other occasions, however, an investor that had hedged would, with hindsight, have regretted the decision since the spot rate in a year’s time was still lower than the hedged rate. Interestingly, this would have been the case the very next year, from the end of 2008 to the end of 2009.

**FX options**

Another way of avoiding the ‘hit and miss’ element of hedging with vanilla forwards is to use FX options. These confer on the holder the right – but not the obligation – to exchange one currency for another at a pre-agreed rate (the ‘strike rate’) on a pre-agreed date. The great advantage of options is that, should a local currency either not depreciate or even appreciate, the holder of the option, having no obligation, will simply allow the option to expire worthless and take advantage of the better market rate.

The only disadvantage to hedging with options is that they are sold on a premium basis and can be relatively expensive. However, their expense is related to the degree of volatility anticipated in the market and is therefore justified. Table 2 below shows the price of USD call/ZAR put options of various tenors and strike rates. It can be seen that the longer the tenor, the more expensive the option. However, the expense can be mitigated by choosing a strike rate that is higher than the forward rate (that is, one that is ‘out of the money’). This means that the investor carries some of the risk but this is often seen as more acceptable than suffering the substantial negative impact on IRR of large premiums for ‘at the money’ options.

Most markets tend to reward risk in the sense that, in the long term, investing in more risky assets will tend to generate greater returns. This is usually the case in equity and bond markets, for example. In the case of FX markets, however, currencies with a risk premium expressed by high interest rates cannot be relied on to depreciate by less than the interest rate differential over USD. Indeed, as we saw in Figure 2 above, the opposite is often the case.

<table>
<thead>
<tr>
<th></th>
<th>1 month</th>
<th>3 months</th>
<th>6 months</th>
<th>12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ATMF</strong></td>
<td>2.51%</td>
<td>4.13%</td>
<td>5.72%</td>
<td>8.22%</td>
</tr>
<tr>
<td><strong>ATMF+2%</strong></td>
<td>1.76%</td>
<td>3.36%</td>
<td>4.97%</td>
<td>7.48%</td>
</tr>
<tr>
<td><strong>ATMF+5%</strong></td>
<td>1.04%</td>
<td>2.48%</td>
<td>4.03%</td>
<td>6.53%</td>
</tr>
<tr>
<td><strong>ATMF+10%</strong></td>
<td>0.46%</td>
<td>1.53%</td>
<td>2.88%</td>
<td>5.25%</td>
</tr>
</tbody>
</table>

Table 2: USD call/ZAR put option premiums as a percentage of hedged USD amount

When is it the right time to hedge?

A vanilla forward hedge is more likely to be successful when:

- The spot rate is coming to the end of a period of stability.
- The forward curve is relatively shallow (that is, the interest rate differential between the local currency and the USD is very small.)
- Implied volatility in the FX options market is relatively low.

A vanilla forward hedge is less likely to be successful when:

- The spot rate has just experienced a ‘spike’ and is therefore relatively high.
- The forward curve is relatively steep (that is, the interest rate differential between the local currency and the USD is relatively great).
- Implied volatility in the FX options market is relatively high.
The development of predictive algorithms and the massive advances in computer power (with associated huge reductions in cost) have enabled the development of predictive models that attempt to forecast future FX movements.

Active versus passive hedging strategies
Entering into forward contracts and buying put options on the local currency are examples of passive hedging strategies. A hedging strategy might be described as more active if an investor varied the proportion of options to forwards according to recent market price action. For example, the sharp upward spike in the USD/ZAR rate in late 2008 might have persuaded some investors that the 2008 year end was not the time to be locking into a high rate with vanilla forwards and that a hedging strategy concentrating on ZAR put options would be more appropriate. Anyone following this logic would have reaped the rewards, as the USD/ZAR rate retraced back down again in 2009. Of course, hindsight is always the most powerful of analytical tools! Nonetheless, there is more to hedging than simply locking in with forwards.

The development of predictive algorithms and the massive advances in computer power (with associated huge reductions in cost) have enabled the development of predictive models that attempt to forecast future FX movements. In the context of hedging, these are often referred to as overlay strategies.

Overlay strategies
This is a phrase that has many different meanings. For the purpose of this paper, it refers to the use of models to decide whether or not a particular currency pair should be hedged or not. Some models are programmed to consider a combination of previous price action in the spot market, the shape of the forward curve and the level of implied volatility in the options market, in order to come to a conclusion as to whether to hedge or not. Others analyse momentum indicators in order to identify trends. One of the advantages of such overlay strategies is that they typically restrict themselves to hedging in the spot market, meaning that credit lines for forward trades are not required.

Natural hedges
Investors should always take advantage of natural hedges where they exist. For example, the value of a company with a high proportion of hard currency revenues will be less adversely affected by local currency depreciation than that of a company whose sales are more substantially centred on the domestic market.

Proxy hedges
Where FX markets are illiquid, there have been attempts to hedge FX risk using proxy hedges. For example, sales of copper and cocoa futures have been used to hedge exposure to Zambia and Ghana. The difficulty with such proxy hedging is that apparent strong correlations have a tendency to break down just at the point at which they are relied on. For the most part, those who have been successful in using commodity hedges as proxies for FX hedges have probably had luck on their side.
Investors should always take advantage of natural hedges where they exist.
Conclusion

FX hedging of sub-Saharan African currencies, largely as a result of limited market development and lack of liquidity where markets do exist, is likely to present a considerable challenge to investors for some time to come. Even in South Africa, where reasonably liquid markets are available, the extent to which the ZAR trades at a discount to the USD in the forward market means that there will usually be a substantial cost to hedging on account of the forward curve. Nonetheless, analysis of markets to gain some historical perspective can help with the decision-making process.

In particular, hedging should not be confused with blindly ‘locking in’ a rate with forwards or NDFs. In certain circumstances, and depending on the risk/reward profile of those concerned, some use of options, where possible, will be desirable. Equally, at times, a perfectly legitimate strategy may be not to hedge. In some very undeveloped markets, this may in practice be the only alternative. In such circumstances, FX risk becomes, in effect, simply part of the sovereign risk associated with investment.
About this white paper
Hedging foreign exchange risk in sub-Saharan Africa was originally published by Private Equity International in Private Equity in sub-Saharan Africa.

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• Know-how on local business practices
• The risks and challenges you may encounter along the way

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