

## **A forecast for the rand/US dollar exchange rate to end-2015**

By Dr Roelof Botha, GOPA Group SA

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(Econometric modelling by Dr Ilse Botha, Department of Economics, UJ)

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### **Background**

Conducting a medium-term forecasting exercise for the rand/US\$ exchange rate is fraught with additional difficulties to those that pertain to the traditional macroeconomic variables within the domain of international trade and investment flows.

International investor sentiment towards any particular country is affected not only by market data on the historical and anticipated returns on investments in equities, bonds and other asset classes, but also by perceptions on socio-political stability.

Furthermore, exchange rate fluctuations are often not explained by domestic factors alone, but rather by the economic and socio-political environment in a particular trading partner. A highly relevant case in point is the recent weakness of the US\$, which has resulted in currency strength (in relative terms) in virtually all of the emerging market economies.

In order to circumvent the more subjective variables impacting on the rand/US\$, it is useful to construct an econometric model that incorporates realistic assumptions for a number of key variables (some of which may then be treated as exogenous in the model) and then to compare these results with those of a purely endogenous model. This has been done with the assistance of Dr Ilse Botha from UJ.

The results of the forecasting model are preceded by a concise discussion of recent exchange rate trends and the key factors influencing the domestic exchange rate.

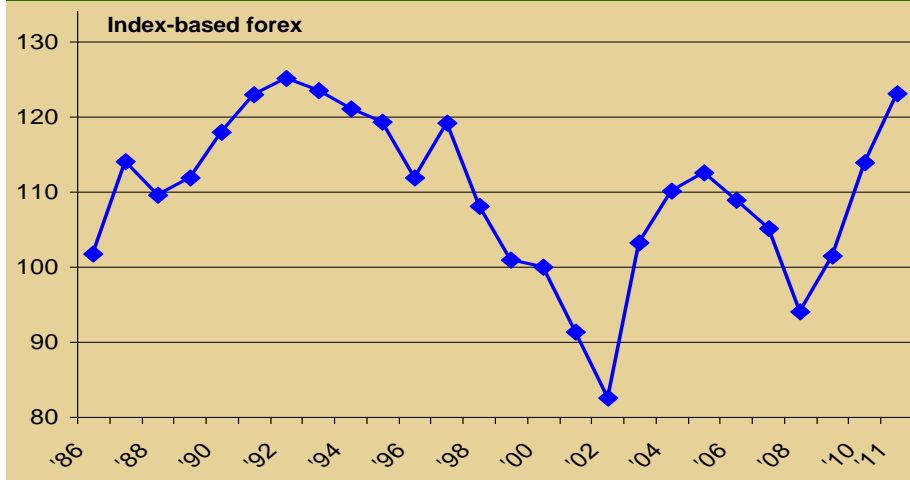
### **Currency strength**

Table 1 illustrates the volatility of the rand against the US dollar over the past eleven years, whilst figure 1 provides a clear indication of the current overvalued nature of the real effective rand exchange rate (compared to any period during the past quarter of a century except the abnormal currency instability of 1992).

	<b>Appreciation</b>	<b>Depreciation</b>
1999 average to Jan 2002		-47.4
Jan 2002 tot Dec 2004	102.6	
Dec 2004 to November 2007		-14.5
November 2007 to Feb 2009		-33.1
Feb 2009 to Jan 2010	34.4	
Jan 2010 to July 2011	9.6	

This data set relates to an index, consisting of South Africa's 15 most important trading partners and has been adjusted for inflation differentials. The Euro, US dollar, Chinese yuan, British pound and Japanese yen, combined, account for 84% of the weighting.

Fig 1: Real effective exchange rate of the rand – 25-year view



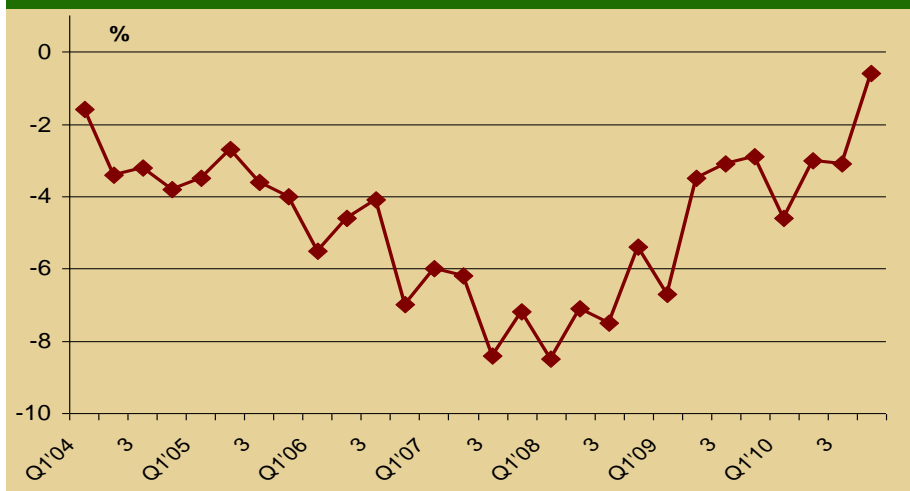
**Dominant role of the current account**

Any meaningful analysis of rand exchange rate trends requires an overview of the current account of the balance of payments as its point of departure, due to its dominant influence on the demand for and supply of foreign exchange.

During 2010, merchandise exports alone accounted for more than 68% of the total gross inflow of foreign exchange, whilst merchandise imports represented two-thirds of the total demand for foreign exchange.

The trend depicted by figure 2 provides a valuable clue to the extraordinary local currency strength experienced over the past 30 months. Although imports have increased notably since the end of the recession, exports have increased at a significantly faster rate, leading to a sharp reduction of the current account deficit.

Fig 2: Ratio of the balance on the current account to GDP



### Results of the forecasting exercise

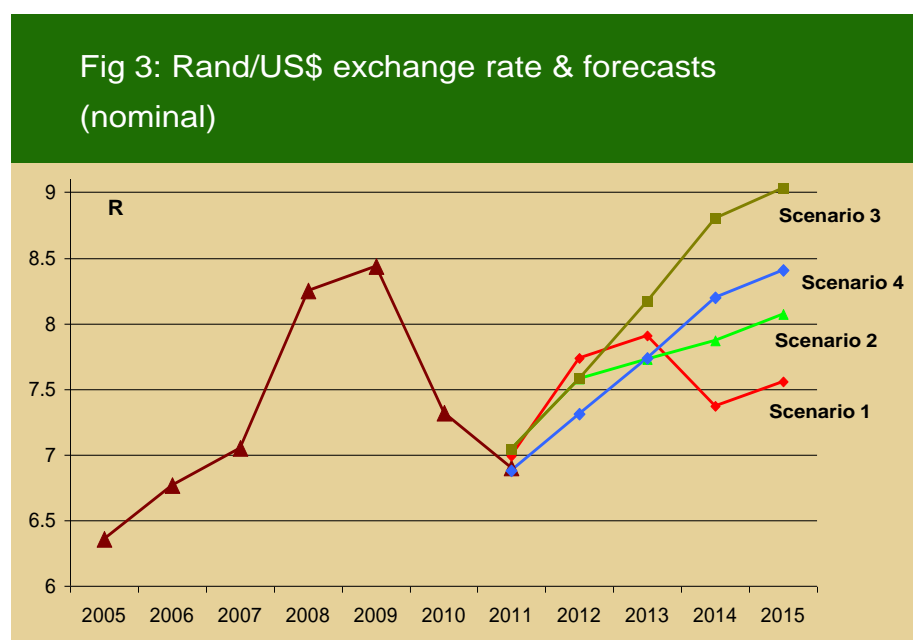
Due to the inherent limitations imposed on any forecasting exercise by the presence of numerous interrelated variables that serve either to augment or to counter the underlying trend of the relevant indicator, it was decided to formulate four different scenarios for predicting the rand/\$ exchange rate.

A Structural Vector Autoregressive (SVAR) econometric modelling approach was followed in the case of the first three scenarios, whilst an extrapolation of the relationships between the exchange rate, the deficit on the current account of the balance of payments, inflation and real GDP growth was utilised in the case of scenario four.

The SVAR technique assumes a system of variables that are endogenous in the system and by implication all variables influence each other with a certain lag structure. Various different scenarios may then be modelled, namely with the inclusion of a number of exogenously determined variables. The vector included the R/\$ exchange rate, oil price (\$ per barrel) and the producer price index (PPI), with the prime rate, gold price and the balance on the financial account being treated as exogenous within different permutations.

The R/\$ exchange rate forecasts are based on the assumption that the variables included in the vector have a moderate upward trend, essentially determined by long-term average rates of change. It was assumed that the prime rate will increase gradually from the beginning of 2012 to a level of 10.5% towards the middle of 2012 and thereafter vary marginally between 10% and 10.5%. The data sample is from 1999 to July 2011.

Tables 2 & 3 and figure 3 present the forecasts & steps in the methodology for the R/\$ exchange rate under the four different scenarios. Scenario 1 represents the only case where initial rand weakness is forecast to be reversed during the forecasting period.



Year	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Average
2011	6.99	7.04	7.04	6.88	6.99
2012	7.74	7.58	7.58	7.31	7.55
2013	7.91	7.73	8.17	7.74	7.89
2014	7.37	7.87	8.80	8.20	8.06
2015	7.56	8.07	9.03	8.41	8.27

<b>Scenario 1</b>	Prime rate is exogenous, assuming a modest upward trend in 2012 with marginal fluctuations between 10% and 10.5% until 2014
<b>Scenario 2</b>	Prime rate, gold price & the balance on the financial account are exogenous, with an extrapolation to 2014 of the average annual depreciation forecast by the model between 2010 and 2011
<b>Scenario 3</b>	Prime rate, gold price & the balance on the financial account are exogenous, with an extrapolation to 2014 of the average annual depreciation forecast by the model between 2011 and 2012
<b>Scenario 4</b>	<ol style="list-style-type: none"> <li>1. Determination of the average annual % change in the current account balance during two periods of rising deficits &amp; two periods of declining deficits (between 1995 and 2010)</li> <li>2. Determination of the average annual % change in the \$/Rand exchange rate during two periods of currency weakness &amp; two periods of currency strength correlated to the current account balance (between 1995 and 2010)</li> <li>3. Determination of the ratio between the average % changes in the current account balance and the \$/Rand exchange rate</li> <li>4. Inflation of 4.5%, 6%; 5.5% and 4% has been assumed for 2011, 2012, 2013 and 2014, respectively</li> <li>5. Real GDP growth of 4% for both 2011 &amp; 2012; and 4.5% and 5% has been assumed for 2013 and 2014, respectively</li> <li>6. Extrapolation of the average current account deficit/GDP ratio during relatively stable growth years for 2012</li> <li>7. Extrapolation of the average current account deficit/GDP ratio during relatively stable growth years &amp; high growth years for 2013</li> <li>8. Extrapolation of the average current account deficit/GDP ratio during high growth years for 2014</li> <li>9. Extrapolation of the ratio determined under step 3, based on the % change in the current account balance determined under steps 6 to 8</li> </ol>
<b>Note:</b>	The forecast for 2015 is based on an inflation differential adjustment of the 2014 figures for all four scenarios

It should be pointed out that currency movements are traditionally characterized by considerably more pronounced cyclical turning points, due, *inter alia*, to prior positions of over- or undervaluation and speculative trade by foreign exchange dealers.

Due to the overvalued nature of the rand exchange rate over the past two years, it is entirely possible for the next phase of depreciation to overshoot an equilibrium position and move to above R8.50.

### Depreciation seems imminent

Justification for the view supporting an imminent correction to the overvalued status of the rand exchange rate, as depicted by all four of the forecasting scenarios, hinges mainly on fairly optimistic economic growth prospects for South Africa.

The recession only lasted three quarters and the South African economy recorded its seventh successive quarter of positive real GDP growth during the first quarter of 2011. The latter amounted to close to 5%, which was the median growth range sustained during the four years prior to the global recession.

Domestic economic growth of close to or above 4% is being forecast by a number of authoritative economic research agencies, which will generate sufficient taxation revenues for the next phases of government's ambitious infrastructure expenditure programme. The latter will require substantial imports of capital equipment, particularly for new power stations and harbour upgrades.

Furthermore, the South African economy possesses a relatively high import propensity, with a fairly predictable positive correlation between GDP growth and merchandise import growth.

Against this background, the deficit on the current account of the balance of payments is expected to gradually widen to a level of more than 6% of GDP by 2012, which provides credence to the exchange rate forecasts above.

The latter is also fairly compatible with the consensus view on the rand/\$ exchange rate expressed by most of the 34 economists participating in the monthly *Finmedia* survey of economic forecasts (see table 4, which is based on the July survey).

<b>Table 4: Forecasts for the average rand/\$ exchange rate during the 4th quarter of 2011 - selected institutions</b>	
	R/\$
Investec	7.00
JP Morgan	7.00
Nedbank	7.10
Average of <i>Finmedia</i> panel (34 economists)	7.21
IDC	7.24
Stellenbosch BER	7.25
Old Mutual	7.25
Citibank	7.40
Economists.co.za	7.40
Ecoquant	7.60
Sanlam	7.60
PSG Konsult	7.80
Gryphon	8.50
<b>Source: <i>Finmedia</i> (Sake24)</b>	