Fear. Greed. Complacency.

Make the most of market sentiment.

South African
Volatility Index
Make the
most of market
sentiment

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INTRODUCING A "FEAR GAUGE" FOR THE SOUTH AFRICAN EQUITY MARKETS

Investor fear and greed play a significant, often irrational role in financial markets around the world. South Africa is no exception.

The question is, how can investors measure market sentiment in an emerging market setting? How can they gauge the fear?

The most referenced equity market "fear gauge" in the world is the VIX, a Chicago Board of Options Exchange product.

Now a similar index has been developed for the South African equity markets: SAVI. The South African Volatility Index.

The SAVI is a forecast of equity market risk in SA. It will enable investors to monitor this "fear" forecast on a daily basis.

The SAVI will be published at the end of each work day by SAFEX (South African Futures Exchange) from the second quarter of 2007.

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In a high volatility environment, large market moves are possible. Up or down.

Volatility is a measure of risk in financial markets. It can estimate how far prices move or, alternatively, how far they are expected to move in a given time frame.

When volatility is low, there is a measure of complacency evident in the markets. A lack of fear.

High volatility, however, suggests a fearful market. In a high volatility environment, large market moves are possible. Up or down. Volatility can be calculated in two ways. Either from historical price data or from current option price data. Using the second method - current option price data - results in an "implied" volatility measure. This represents a forecast of asset return uncertainty over a specific period of time.

The Chicago Board of Options Exchange (CBOE) uses current S&P option price data to calculate the VIX. Similarly, the SAVI is calculated using implied volatilities obtained daily from specific TOP40 options.

When daily returns become volatile, the SAVI tends to spike upward, reflecting a high level of implied volatility or expected risk. Caught in the middle of this turmoil the lone investor may well experience an increased sense of fear.

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THE SAVI AS A FEAR GAUGE

"The VIX represents the consensus of option traders' forecasts for the S&P volatility over the next 30 days … it is a reflection of Fear and Greed amongst a group of market professionals." Montier (2004)

"The VIX is constantly quoted as a market fear indicator in popular financial press – CNBC, Barrons, Wall Street Journal, etc." Hill and Rattray (2004)

Like the VIX, the SAVI can be interpreted as a fear gauge. When daily equity market returns are sufficiently volatile, the SAVI tends to spike upward, reflecting a higher level of implied volatility or expected risk. There is a greater sense of fear in the markets under these circumstances.

A clustering of sufficiently low market returns is associated with low levels of volatility. This is reflected in equally low level of the SAVI. Under these circumstances the expectation or fear of risk is low.

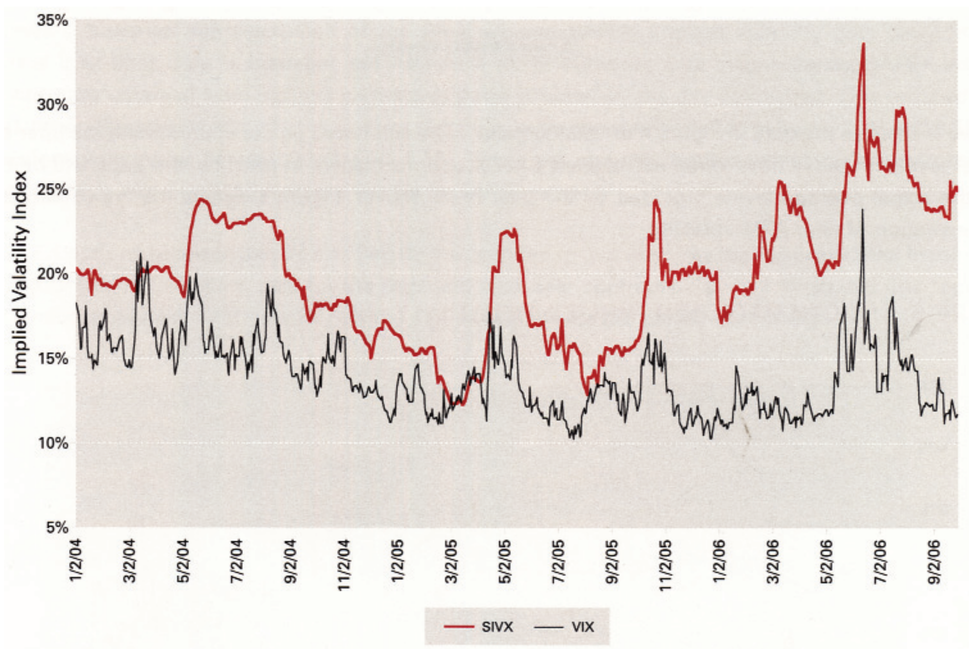
If the VIX is a first-world fear gauge, then the SAVI is a similar gauge of fear in the South African emerging market. The difference between the VIX and SAVI approximates the equity market "fear premium" between an emerging market and a first world equivalent.

THE SAVI IS AN UNDERLYING SPOT INSTRUMENT FOR A VOLATILITY FUTURE

The introduction of the SAVI makes a significant application possible: using the index as the underlying spot instrument for a volatility futures contract. A volatility future will enable volatility to be traded as an alternative asset class.

This has benefits for asset managers, hedge funds and market makers in TOP40 index options. The construction of this futures contract will depend on the successful implementation and market acceptance of the SAVI.

GENERAL SPECIFICATIONS FOR THE SAVI
INDEX NAME
South African Volatility Index (SAVI)
INDEX CONSTITUENTS
Average ATM implied volatility levels for near and next-near TOP40 index Puts and Calls.
INDEX VALUE
The SAVI represents a daily ATM three month implied volatility measure – divided by 100 to get its implied volatility percentage:
A SAVI value of 21.14 has an equivalent percentage representation of 21.14% (0.2114) or a basis point representation of 2114 (0.2114 x 10,000).
The index has a Rand value given that 1 basis point represents R10 (i.e. a multiplier of 10). Hence a SAVI value of 21.14, for example, will have a Rand value of R21,140 (0.2114x 10,000x10).
- T1 = Actual days to
Near Top40 Futures expiry
- s(0, T1) = Implied ATM volatility of options on Near Top40 Futures
- T2 = Actual days to
Next-Near Top40 Futures expiry
- s(0, T2) = Implied ATM volatility of options on Next Near Top40 Futures
Using CBOE (2003) calculate the SAVI by interpolating between the Near and Next-
Near ATM implied volatilities to create a "ninety one" calendar day or NT = 91 – 2 x INT(91/7) = 65 "trading day" impliedvolatility, ie.
SAVI = see brochure s(0,T1) NT2 –65 + s(0,T2) 65–NT1 NT2 –NT1 NT2 –NT1
where NTi are the number of trading days till Ti.
Historical data is applied to the refined Whaley (2000) model to produce the SAVI.
The graph shows the SAVI over the test period Jan 2004 to Sep 2006.



The red line represents the SAVI and the black line Chicago's VIX over the same period. As you can see, the SAVI trades above the VIX. Intuitively this makes sense: South African markets are higher risk than the USA's.

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