

Barra South Africa Equity Model (ZAE4)

Descriptor Details

June 2014

The 16 style factors of ZAE4 comprise a total of 30 descriptors. This document defines these descriptors in the style factors. The descriptors are listed under the style factors to which they belong.

Style: **Beta**

Components: HBETA

Historical Beta

Computed as the slope coefficient in a time-series regression of a stock return against the cap-weighted return of the estimation universe. The regression coefficients are estimated over the trailing 252 trading days of returns with a half-life of 63 trading days. Vasicek shrinkage is applied to the historical beta towards industry beta.

Style: **Earnings Quality**

Components: ACCR

Accruals

The negation of Accrual anomaly, divided by total assets.

CETOE

Cash Earnings-to-Earnings Ratio

The difference between cash-earnings-to-price ratio and earnings-to-price ratio.

Style: **Earnings Yield**

Components: EPIBS

Forward Earnings-to-Price Ratio

Given by the 12-month forward-looking earnings divided by the market capitalization. Forward-looking earnings are defined as a weighted average of the average analyst-predicted earnings for the current and next fiscal years.

EBITTOEV

Earnings Before Interest and Taxes-to-Enterprise Value Ratio

This descriptor measures the historical profitability. It is computed as the trailing 12-month earnings before interests and taxes adjusted by R&D expenses, divided by the enterprise value.

Style: **Foreign Sensitivity**

Components: EURSEN

Euro Sensitivity

Computed as the sensitivity of asset residual return (in historical beta regression) to changes in EUR/ZAR exchange rate. The estimation is over the trailing window of 252 trading days with a half-life of 12 weeks.

GBPSN

Great Britain Pound Sensitivity

Computed as the sensitivity of asset residual return (in historical beta regression) to changes in GBP/ZAR exchange rate. The estimation is over the trailing window of 252 trading days with a half-life of 12 weeks.

USDSN

US Dollar Sensitivity

Computed as the sensitivity of asset residual return (in historical beta regression) to changes in USD/ZAR exchange rate. The estimation is over the trailing window of 252 trading days with a half-life of 12 weeks.

Style: **Growth**

Components: EGIBS

Analyst-Predicted Earnings Growth

Long-term (3-5 years) earnings growth forecasted by analysts.

EGRO

Earnings Growth Rate

Annual earnings per share are regressed against time over the past five fiscal years. The slope coefficient is then divided by the average annual earnings per share to obtain the earnings growth.

SGRO

Sales Growth Rate

Annual sales per share are regressed against time over the past five fiscal years. The slope coefficient is then divided by the average annual sales per share to obtain the sales growth.

Style: **Industry Momentum**

Components: INDMOM

Industry Momentum

This descriptor measures industry relative strength. For each security, it is computed as the weighted average 6 months return of all peer stocks falling into the same GICS sub-industry, by excluding the security in question.

Style: **Leverage**

Components: BLEV

Book Leverage

Computed as:

$$BLEV = \frac{BV + PE + LTD}{BV}$$

where, *BV* is the book value of common equity, *PE* is the book value of preferred equity, and *LTD* is the book value of long-term debt.

DTOA

Debt-to-Assets Ratio¹

Computed as:

$$DTOA = \frac{TL}{TA}$$

where *TL* and *TA* are the total liabilities and total assets, respectively, from the last fiscal year.

MLEV

Market Leverage

Computed as:

$$MLEV = \frac{CAP + PE + LTD}{CAP}$$

where, *CAP* is the market capitalization of the last trading day, *PE* is the book value of preferred equity, and *LTD* is the book value of long-term debt.

Style: **Liquidity**

Components: STOA

Annual Share Turnover

Computed as the log of the median daily turnover (ratio of trading volume to outstanding shares) during the previous year.

STOM

Monthly Share Turnover

Computed as the log of the median daily turnover during the previous month.

STOQ

Quarterly Share Turnover

Computed as the log of the median daily turnover during the previous quarter.

¹ This definition was implemented in the ongoing updates as of May 28, 2018. Prior to this, DTOA was defined as: $DTOA = (Long\text{-}Term\ Debt + Current\ Liabilities) / Total\ Assets$. Historical changes will be reflected in any future model history refresh.

Style: **Macro Sensitivity**

Components: GOLDSSEN

Gold Sensitivity

Computed as the sensitivity of asset residual return (in historical beta regression) to changes in gold spot price. The estimation is over the trailing window of 252 trading days with a half-life of 12 weeks.

USMSEN

US Market Sensitivity

Computed as the sensitivity of asset residual return (in historical beta regression) to US equity market return. The estimation is over the trailing window of 252 trading days with a half-life of 12 weeks.

Style: **Momentum**

Components: RSTR

Stock Relative Strength

This descriptor measures stock momentum. It is the sum of log returns over the trailing 252 trading days with a lag of 21 trading days:

$$RSTR = \sum_{t=-21}^{-272} w_t \log(1 + r_t)$$

where, r_t is the stock return on day t , and w_t is an exponential weight with a half-life of 63 trading days.

Style: **Residual Volatility**

Components: HSIGMA

Historical Sigma

Computed as the volatility of residual returns in the time-series regression of historical beta. The volatility is estimated over the trailing window of 252 trading days with a half-life of 63 trading days.

Style: **Sentiment**

Components: RRIBS

Analyst Rating Change

Computed as the monthly change of analyst revision ratios, which is defined as the number of up revisions minus the number of down revisions, divided by the total number of revisions.

EPIBSC

Change in Analyst-Predicted Earnings-to-Price

Indicates the monthly change of forward earnings-to-price ratio.

Style: **Short-Term Reversal**

Components: STREVSL Short-Term Reversal

Computed as the sum of log returns over the trailing 20 trading days with a lag of 1 trading day, multiplied by -1.

$$STREV = - \sum_{t=-1}^{-20} \frac{\log(1 + r_t)}{20}$$

where, r_t is the stock return of day t .

Style: **Size**

Components: LNCAP Log of Market Capitalization

Computed as the logarithm of the market capitalization of the firm.

Style: **Value**

Components: BTOP Book-to-Price Ratio

Book value of common equity divided by market capitalization.

YIELD Dividend Yield

Trailing 12-month dividend per share divided by asset price.

STOP Sales-to-Price Ratio

Total sales divided by market capitalization.

Style: **Volatility Sensitivity**

Components: COSKEW Residual Return Coskewness

To calculate this descriptor, we take the residual in the time-series regression of historical beta, and regress it against the market return squared.

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² As of September 30, 2013, as reported on January 31, 2014 by eVestment, Lipper and Bloomberg

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