Absa Volatility Managed *SA Equity Indices*

You never know what's around the corner.

Introduction

The Absa Volatility Managed SA Equity Indices are designed to provide investors with exposure to the performance of South African shares, but at the same time actively manage the risk of incurring losses that is inherent in equity investing. The Indices focus on volatility and drawdown risk by applying a fully rules-based methodology that allocates capital to cash in periods of adverse equity market conditions, while remaining fully invested in equities in upward-trending markets.

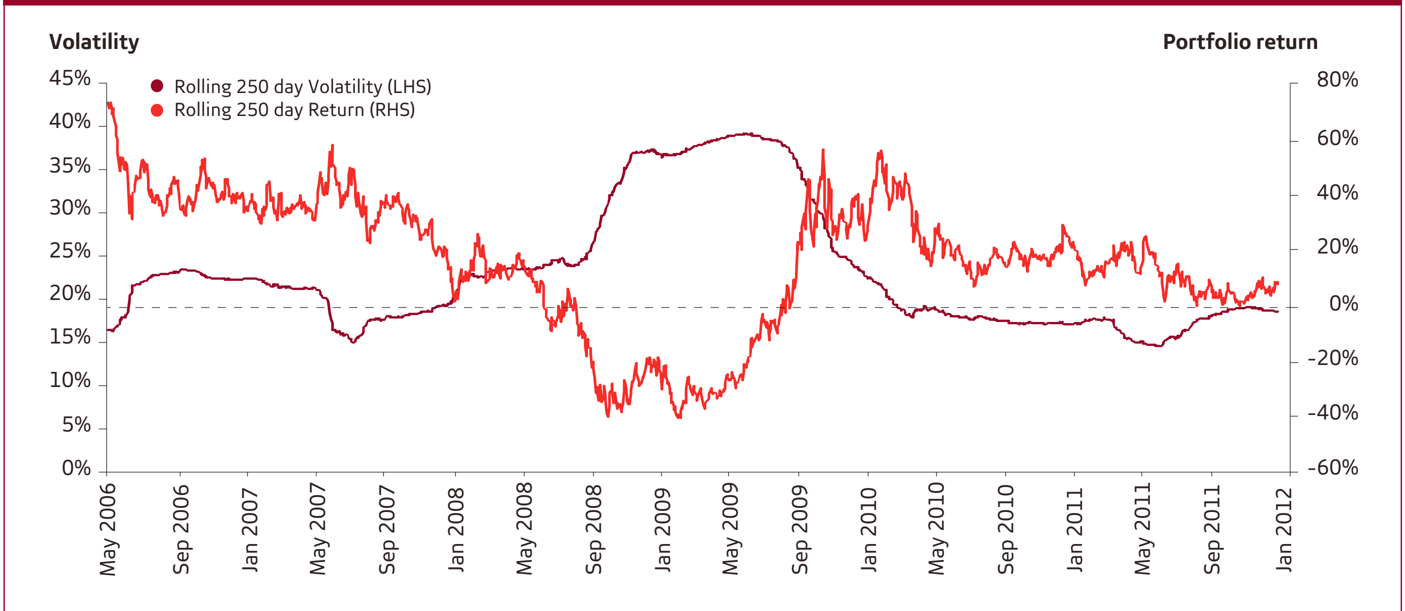
The range consists of three Indices that cater for three different risk preferences: **Defensive, Moderate** and **High Growth**. Each Index applies different volatility and drawdown thresholds, in line with the appropriate risk preference, and sets these as a **Volatility Target** and a **Drawdown Tolerance.**

Dynamic risk management

Equity returns tend to be negatively correlated with volatility under most circumstances – periods of high volatility are almost always accompanied by subsequent poor or negative returns. See Figure 1.

Strategies that target a specific volatility (also known as 'target volatility' strategies) have been shown to generate higher returns for each unit of risk.

Figure 1: Inverse relationship between equity returns and equity volatility



Source: Absa/ Bloomberg, April 2019

A traditional target volatility strategy allocates more capital to cash during periods of rising equity market volatility and remains fully invested in equities during periods when realised volatility is below the Volatility Target.

As an additional risk management mechanism, our Indices employ a Drawdown Tolerance in downward-trending equity markets. This mechanism allocates more capital to cash in periods when the equity market is falling and the underlying basket of equities is approaching the specified Drawdown Tolerance threshold.

Multi-factor risk premia equity

Risk Premia investing has been widely established to outperform market indices over the long term. Individual Risk Premia indices target specific attributes of securities based on past returns (e.g. momentum, low volatility) or fundamental data (e.g. book-to-market, earnings-to-price).

Multi-factor strategies are built from the bottom up and select securities that exhibit more than one attractive attribute, where selection is based on a composite score of the desired attributes. In this way, an intersection of securities that simultaneously demonstrate more than one attribute is selected.

The underlying baskets of securities of the Absa Volatility Managed SA Equity Indices are selected based on low volatility and momentum characteristics, in differing ratios.

Index construction methodology

Liquidity screening

The underlying baskets of shares are selected from the top 40 liquid shares listed on the JSE, ranked by value traded. In addition, only shares that have traded for at least 95% of the time over the last 250 trading days are considered for inclusion. That is, shares must have traded on more than 237 days of the last 250 trading days.

Selection

Shares that pass the liquidity screen above are evaluated on a combined score of their inverse volatility and momentum attributes over the past year. Volatility is simply measured as the standard deviation; momentum is measured by the geometric return over the past year, excluding the last month. The shares with the highest factor scores are selected for inclusion in the portfolio.

Weighting

Shares in the underlying basket are weighted such that their individual contribution to the overall portfolio risk is equally distributed. The risk-contribution weighting method prevents disproportionate risk contributions, improves diversification and mitigates sector concentration. This trait is particularly beneficial in times of high market drawdowns.

Underlying equity basket rebalance

The underlying equity baskets of the Indices are rebalanced quarterly in January, April, July and October.

Volatility management process

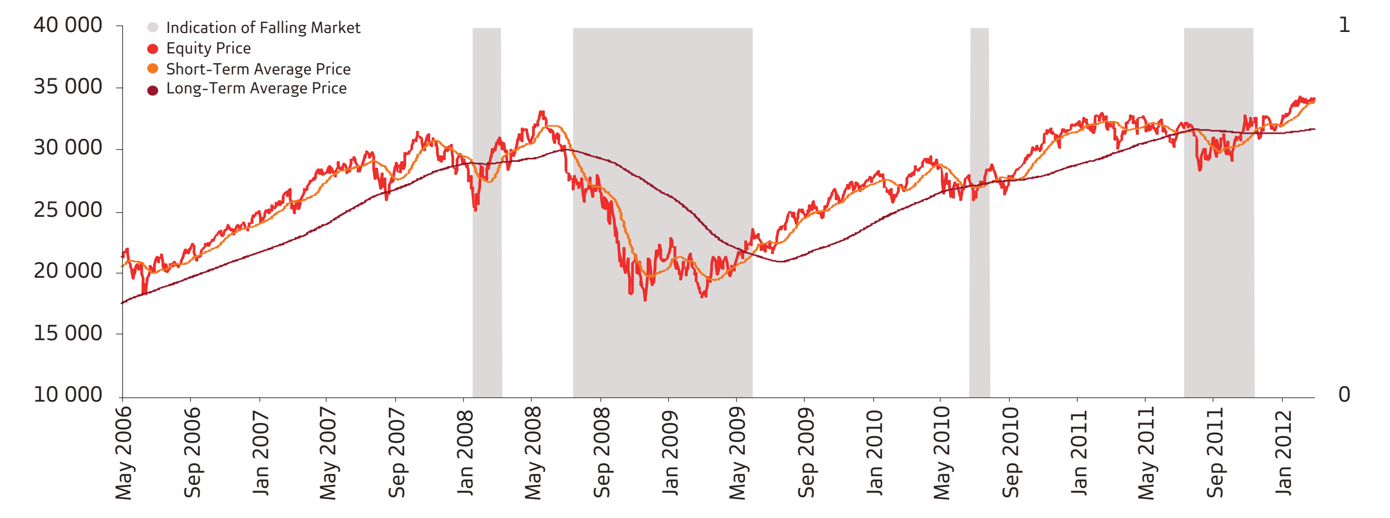
Target Volatility is a process that dynamically allocates capital to cash in response to increased equity volatility. This 'dilutes' the volatility of the equity portfolio, which results in a more stable volatility experience for investors over time. When equity market volatility declines, the allocation to shares increases accordingly.

Drawdown Management Process

In addition to managing the volatility, a further risk management process is adopted in the form of drawdown management. Similar to the target volatility process, drawdown management allocates capital away from equities and into cash in response to an increase in drawdown. This process is designed to create a maximum limit to the possible losses arising from the investment in equities.

Drawdown Tolerance is only applied in falling markets, i.e. in increased drawdown periods. Trend analysis, comparing the short-term average price to the long-term average price, is used as an indicative measure of whether we are experiencing a downward trend in equities, i.e. a short-term average price that is below the long-term average price is used as an indication of a falling market (see Figure 2). By applying the Drawdown Tolerance in falling markets, the Indices ensure that the portfolios will allocate to cash aggressively in periods of high volatility and high drawdown. By not applying the drawdown process in rising markets, the Indices ensure that the portfolios are able to allocate to equities aggressively in periods of low volatility and reduce the potential for under-participation in equities during recovery periods.

Figure 2: Example of applying trend analysis to general equity



Source: Absa/ Bloomberg, April 2019

By managing volatility and drawdown in this manner, the Indices are protected in extreme downward-trending markets, which in addition facilitates a smoother recovery and improves long-term returns.

Turnover management

Target volatility strategies aim to deliver a very precise volatility outcome, which may result in daily trading and high turnover. To minimise unnecessary trading in the portfolio, a buffer rule is applied to prevent small, superfluous changes in exposure from being implemented. That is, only changes in equity allocation that exceed 10% will be implemented.

Absa Volatility Managed SA Defensive Equity Index

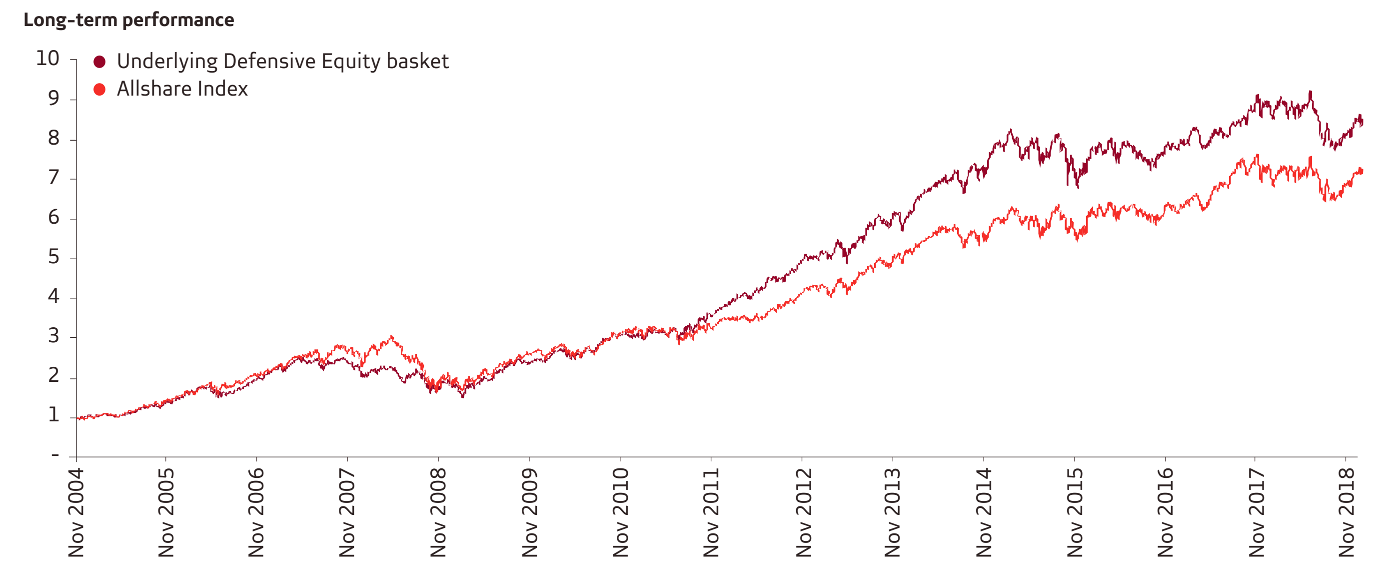
The underlying basket of shares ("Defensive Equity") of the Absa Volatility Managed SA Defensive Equity ("Managed Defensive Equity"), is based purely on a low volatility strategy, where 30 shares are selected based on their low volatility attribute. Low volatility shares by definition exhibit low risk, making this well-suited to a defensive strategy.

Underlying equity basket

The generally understood relationship between risk and return is that it is positive, i.e. the more risk an investor takes, the more they will be compensated. While this may hold true at asset class level (risky asset classes outperform less risky asset classes over time), empirical research on equity markets has yielded surprising results. The relationship between risk and return is in fact inverse. The implication of such a finding is that investors are not compensated for bearing risk, but rather, are rewarded for investing in low-risk equity shares.

Shares that exhibit the lowest volatility over the past year are selected for the Defensive Equity basket. Over the November 2004 to December 2018 sample period, the Defensive Equity basket outperformed the FTSE/JSE All Share Total Return Index with lower risk (see Figure 3 and Figure 4 below).

Figure 3: Underlying Defensive Equity basket cumulative returns vs All Share Index



Source: Absa/ Bloomberg, April 2019

Figure 4: Maximum drawdown, annualised return and standard deviation of underlying Defensive Equity basket vs All Share Index

Source: Absa/ Bloomberg, April 2019

In addition to investing in low volatility shares, the portfolio applies an additional risk management tool in the form of a volatility target.

Parameters for volatility management

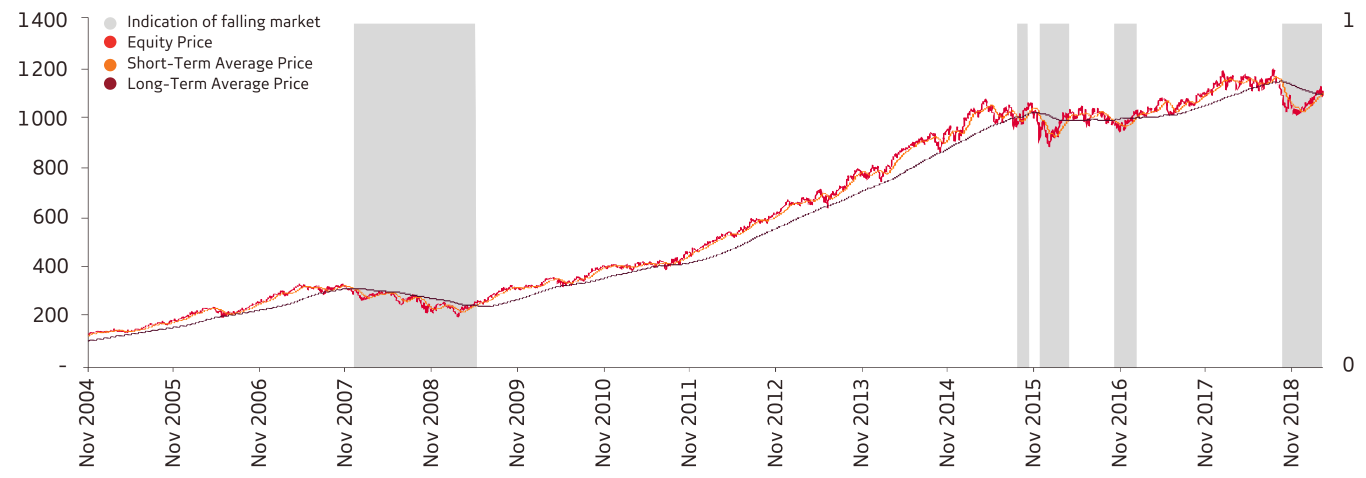
Target Volatility	8%
Drawdown Tolerance	15%
Buffer	10%
No. of Shares	30

Volatility management

With the introduction of trend analysis, the allocation algorithm will move rapidly into cash in adverse equity market conditions (high volatility; downward trending). The rapid allocation back into equities in favourable market conditions (low volatility; upward trending) is also supported, while still managing the overall volatility of the Index (See Figure 5).

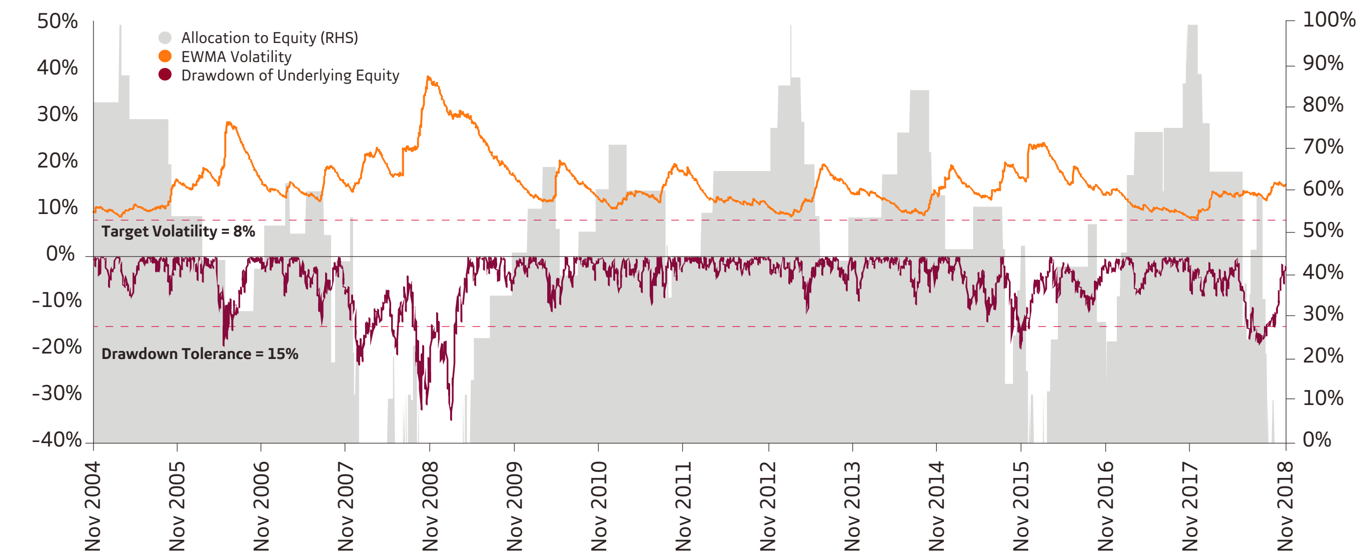
Note that given the defensive nature of the Index, there are significant periods of time when the Index is 100% allocated to cash (see Figure 6).

Figure 5: Trend analysis applied to the Defensive Equity basket. The shaded grey area represents the periods that were defined as a falling market



Source: Absa/ Bloomberg, April 2019

Figure 6: Volatility and drawdown of Defensive Equity basket to be managed. The shaded grey represents the resulting allocation to equity; the balance is allocated to cash



Source: Absa/ Bloomberg, April 2019

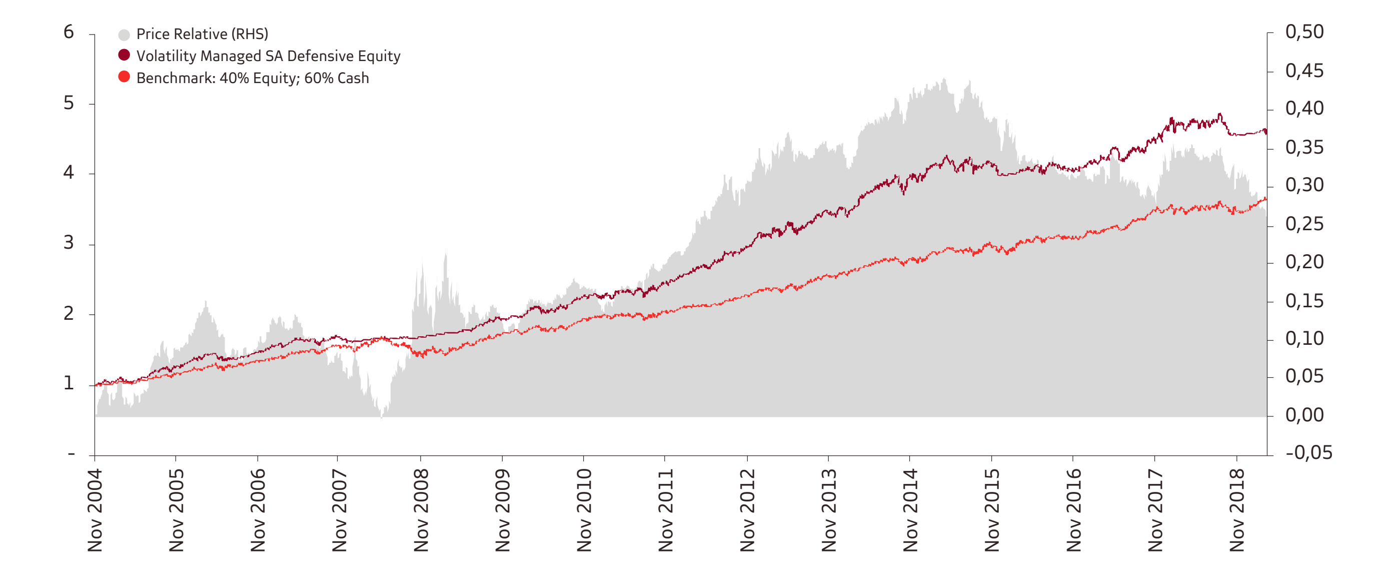
Long-term performance

Given that the Managed Defensive Equity is, by construction, a low-risk strategy, it is reasonable to compare it to an equity-cash benchmark with an allocation to equity set at 40% and the balance allocated to cash.

The relative performance in Figure 7 illustrates periods of time when the Managed Defensive Equity outperformed the equity-cash benchmark (upward trend in the price relative), as well as periods when the Managed Defensive Equity underperformed the equity-cash benchmark (downward trend in the price relative).

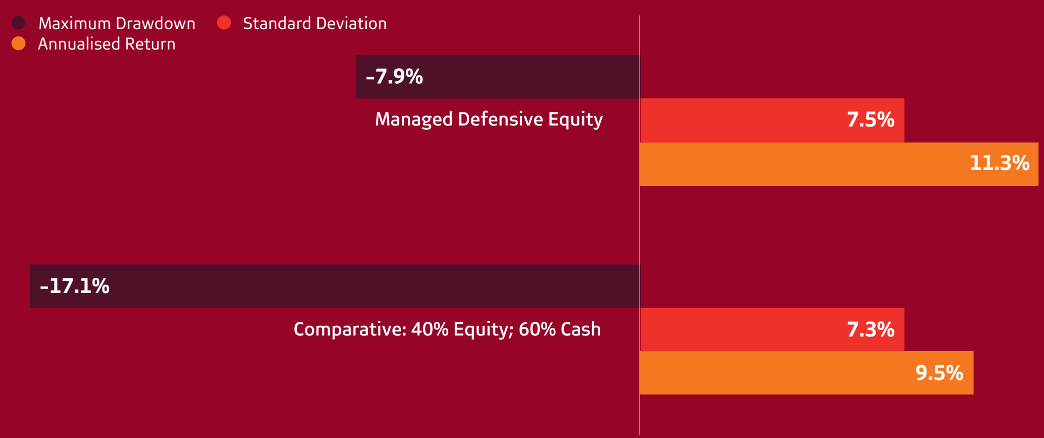
Over the November 2004 to December 2018 sample period, the Managed Defensive Equity outperformed its equity-cash benchmark, with less drawdown (see Figure 7 and Figure 8 below).

Figure 7: Managed Defensive Equity cumulative returns vs an equity-cash benchmark. The shaded grey area represents the price relative of the Managed Defensive Equity vs the equity-cash benchmark



Source: Absa/ Bloomberg, April 2019

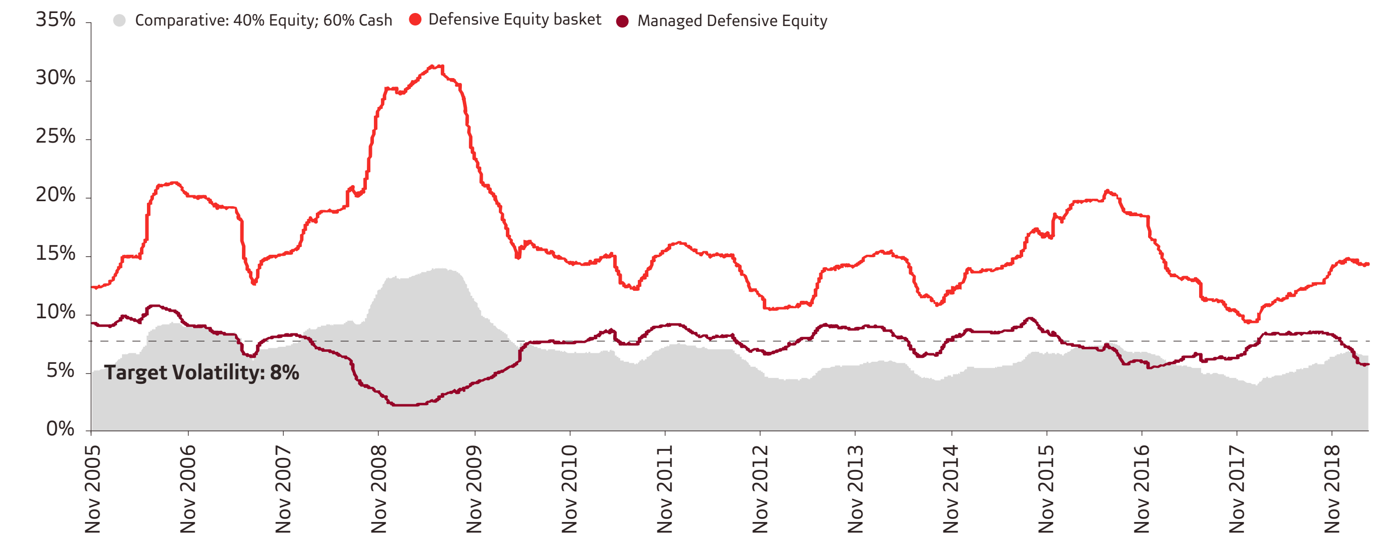
Figure 8: Maximum drawdown, standard deviation and annualised return of the Managed Defensive Equity vs an equity-cash benchmark



Source: Absa/ Bloomberg, April 2019

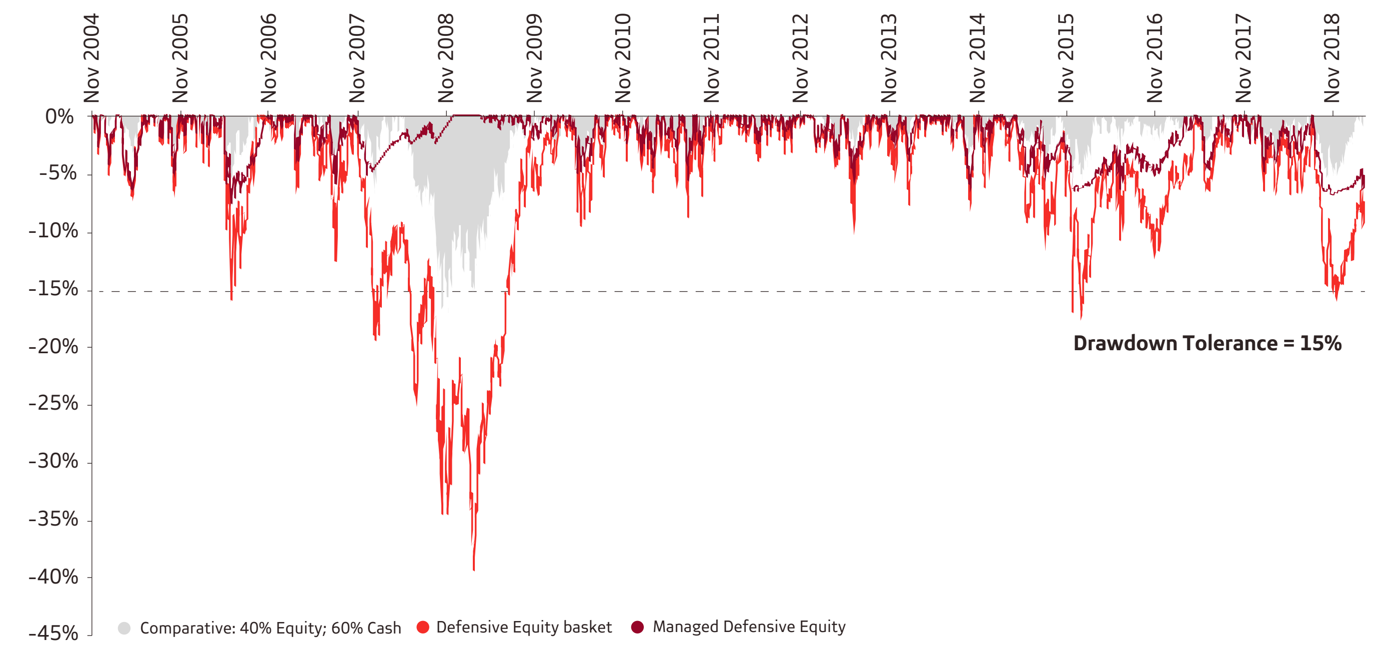
The Managed Defensive Equity is designed to target a low volatility and limit drawdown to an acceptable level. Figure 9 and Figure 10 demonstrates the reduced realised volatility and drawdown over time from applying the volatility management process to the Defensive Equity basket.

Figure 9: Realised 250-day rolling volatility –Defensive Equity basket; Managed SA Defensive Equity vs an equity-cash benchmark



Source: Absa/ Bloomberg, April 2019

Figure 10: Drawdown of the Defensive Equity basket, Managed Defensive Equity and an equity-cash benchmark



Source: Absa/ Bloomberg, April 2019

Absa Volatility Managed SA Moderate Equity Index

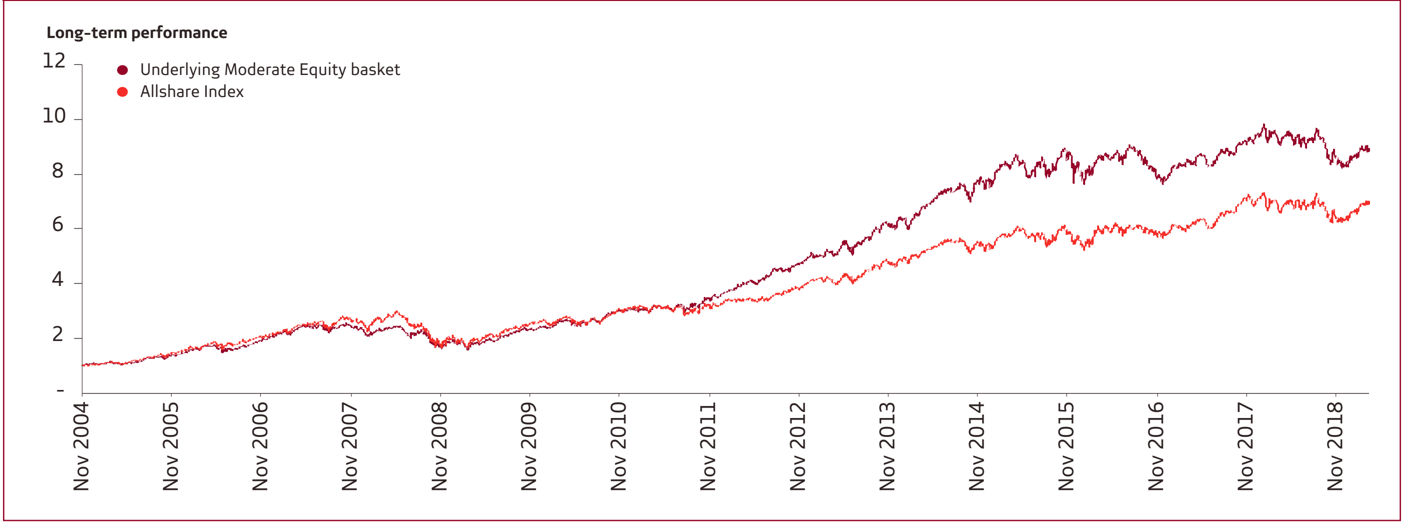
The underlying basket of shares ("Moderate Equity") of the Absa Volatility Managed SA Moderate Equity ("Managed Moderate Equity"), is based on a 50|50 low volatility and momentum strategy, where 25 shares are selected based on a combination of their low volatility and momentum attributes.

Underlying equity basket

In addition to the benefits of investing in low-risk shares, practitioners and academics alike have found that share price changes follow trends over the short term. In fact, empirical studies show that 'winner' shares (those that have recently risen in price) consistently outperform 'loser' shares (those that have recently experienced declining prices). This momentum in share prices is significant across markets and asset classes and South Africa is no exception.

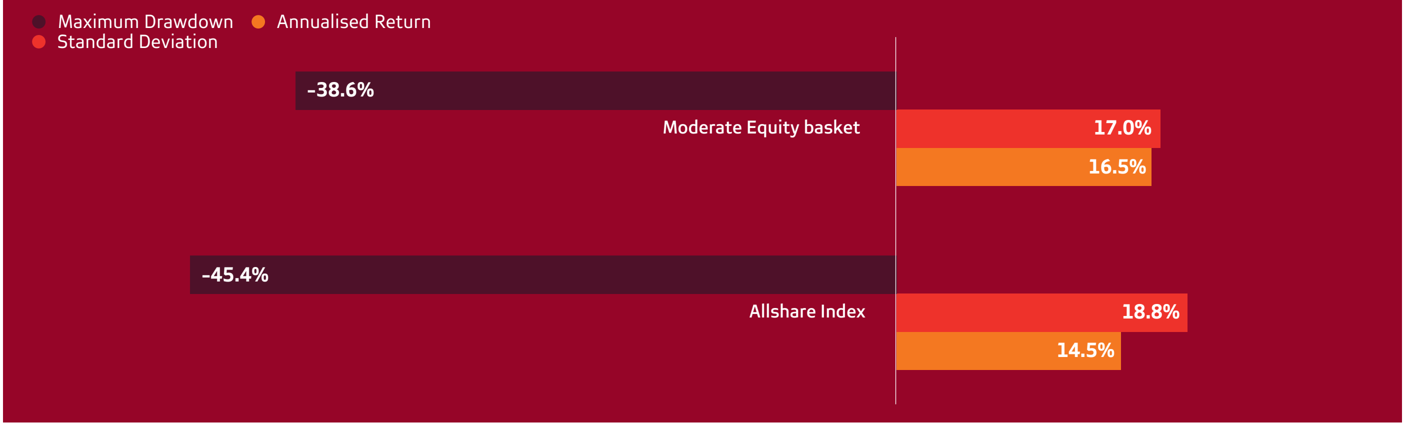
For the Moderate Equity basket, shares that exhibit the lowest volatility and highest momentum over the past year are selected. Over the November 2004 to December 2018 sample period, the Moderate Equity basket outperformed the FTSE/JSE All Share Total Return Index, with lower risk (see Figure 11 and Figure 12 below).

Figure 11: Moderate Equity basket cumulative returns vs All Share Index



Source: Absa/ Bloomberg, April 2019

Figure 12: Maximum drawdown, annualised return and standard deviation of Moderate Equity basket vs All Share Index



Source: Absa/ Bloomberg, April 2019

In addition to investing in low volatility shares, the portfolio applies an additional risk management tool in the form of a volatility target.

Parameters for volatility management

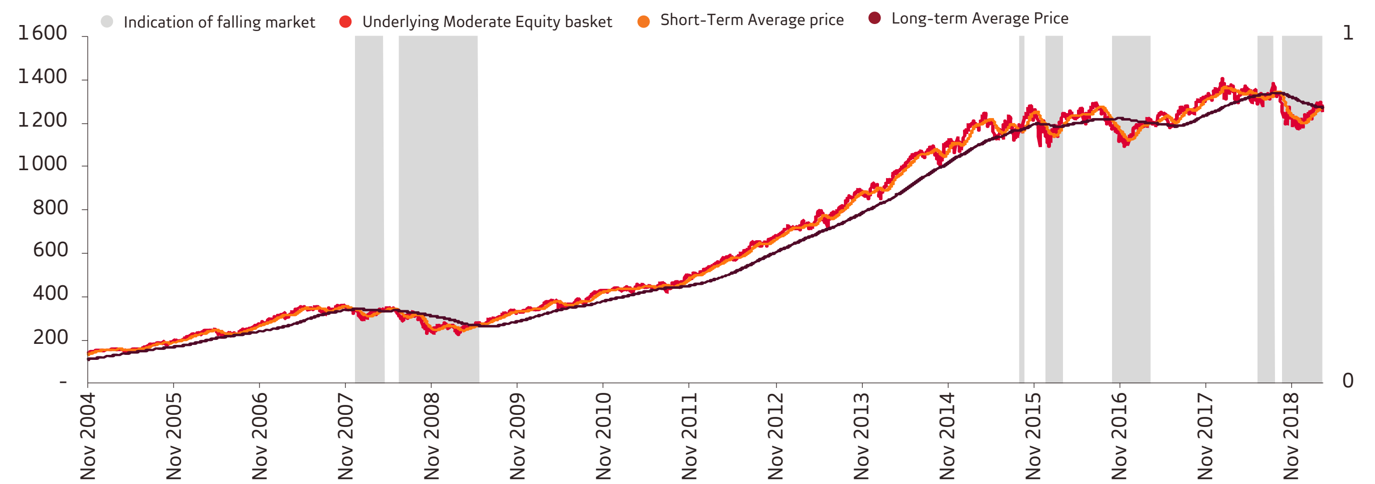
Target Volatility	15%
Drawdown Tolerance	25%
Buffer	10%
No. of shares	20

Volatility management

With the introduction of trend analysis, the allocation algorithm will move rapidly into cash in adverse equity market conditions (high volatility; downward trending). The rapid allocation back into equities in favourable market conditions (low volatility; upward trending) is also supported, while still managing the overall volatility of the Index (See Figure 13).

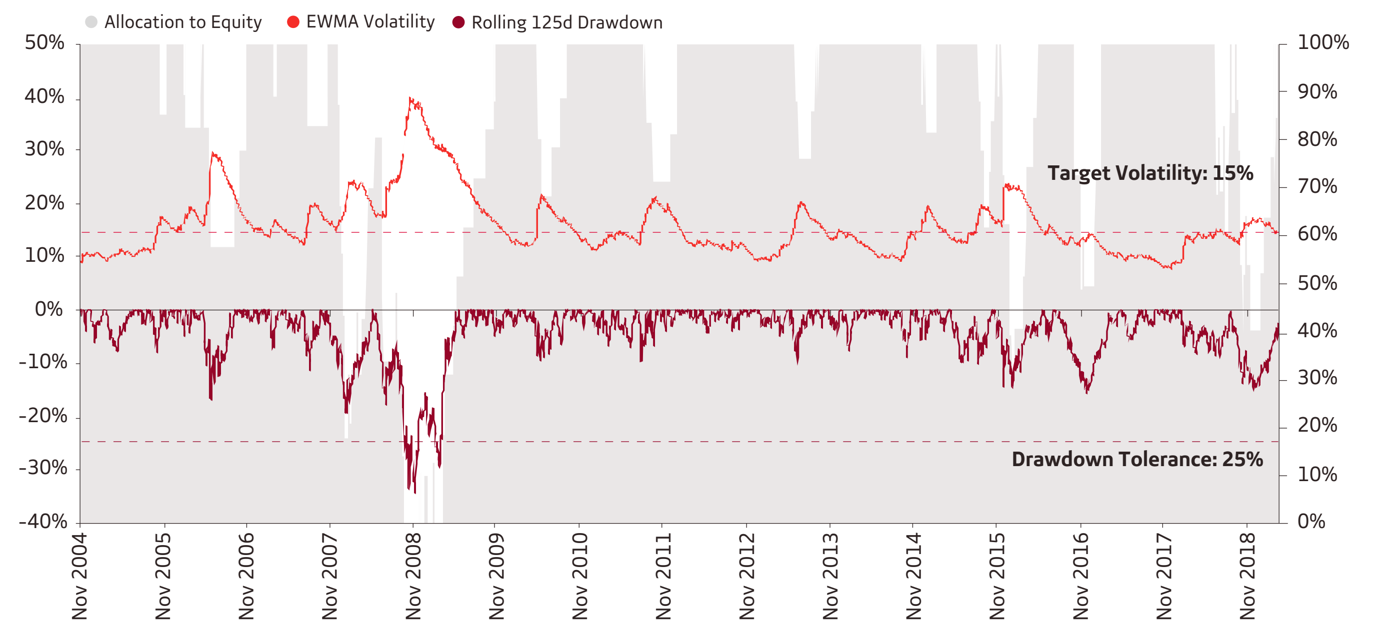
This Index is more aggressive than the Managed Defensive Index and is therefore usually more allocated to equities, although it can make a 100% allocation to cash (see Figure 14).

Figure 13: Trend analysis applied to the Moderate Equity basket. The shaded grey area represents the periods that were regarded as a falling market



Source: Absa/ Bloomberg, April 2019

Figure 14: Volatility and drawdown of the Moderate Equity basket to be managed. The shaded grey represents the resulting allocation to equity; the balance is allocated to cash



Source: Absa/ Bloomberg, April 2019

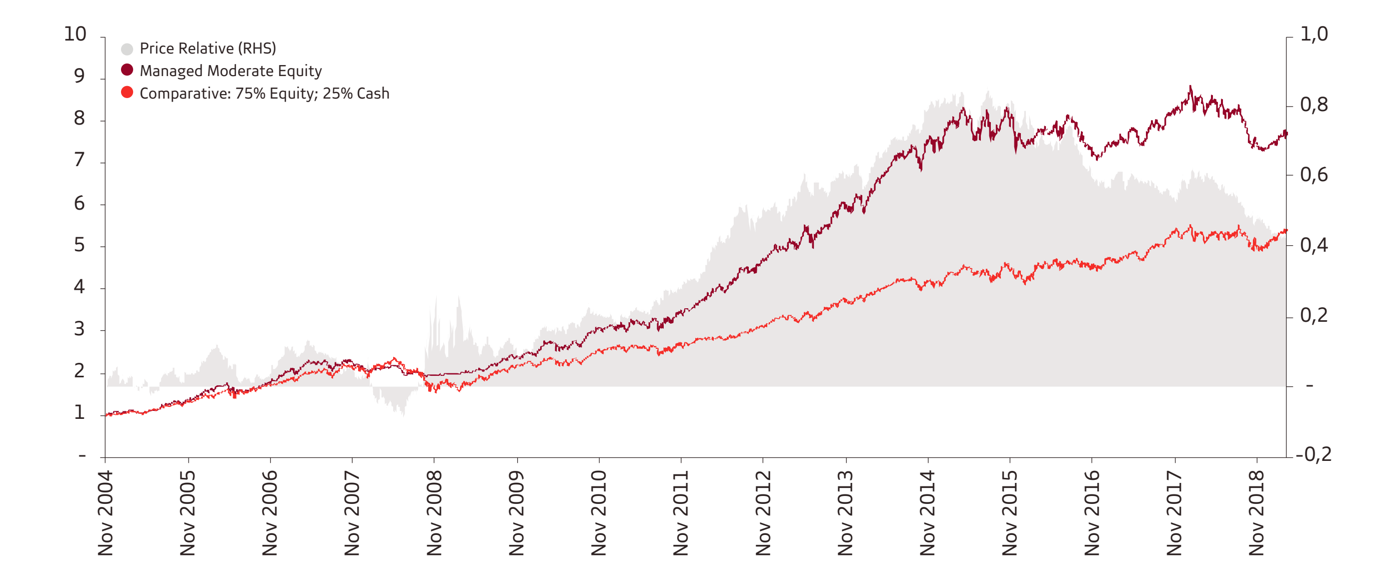
Long-term performance

Given that the Managed Moderate Equity is, by construction, a medium-risk equity strategy, it is reasonable to compare it to an equity-cash benchmark with an allocation to equity set at 75% and the balance allocated to cash.

The relative performance in Figure 15 illustrates periods of time when the Managed Moderate Equity outperformed the equity-cash benchmark (upward trend in the price relative), as well as periods when the Managed Moderate Equity underperformed the equity-cash benchmark (downward trend in the price relative).

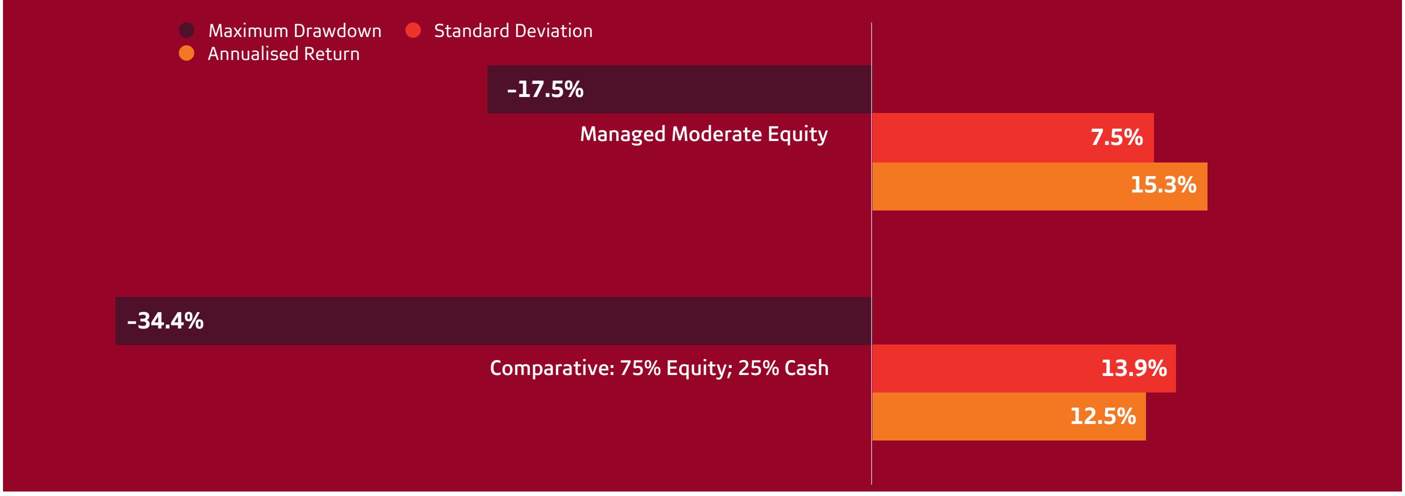
Over the November 2004 to December 2018 sample period, the Managed Moderate Equity outperformed its equity-cash benchmark, with lesser volatility and drawdown (see Figure 15 and Figure 16 below).

Figure 15: Managed Moderate Equity cumulative returns vs an equity-cash benchmark. The shaded grey area represents the price relative of the Managed Moderate Equity vs the equity-cash benchmark



Source: Absa/ Bloomberg, April 2019

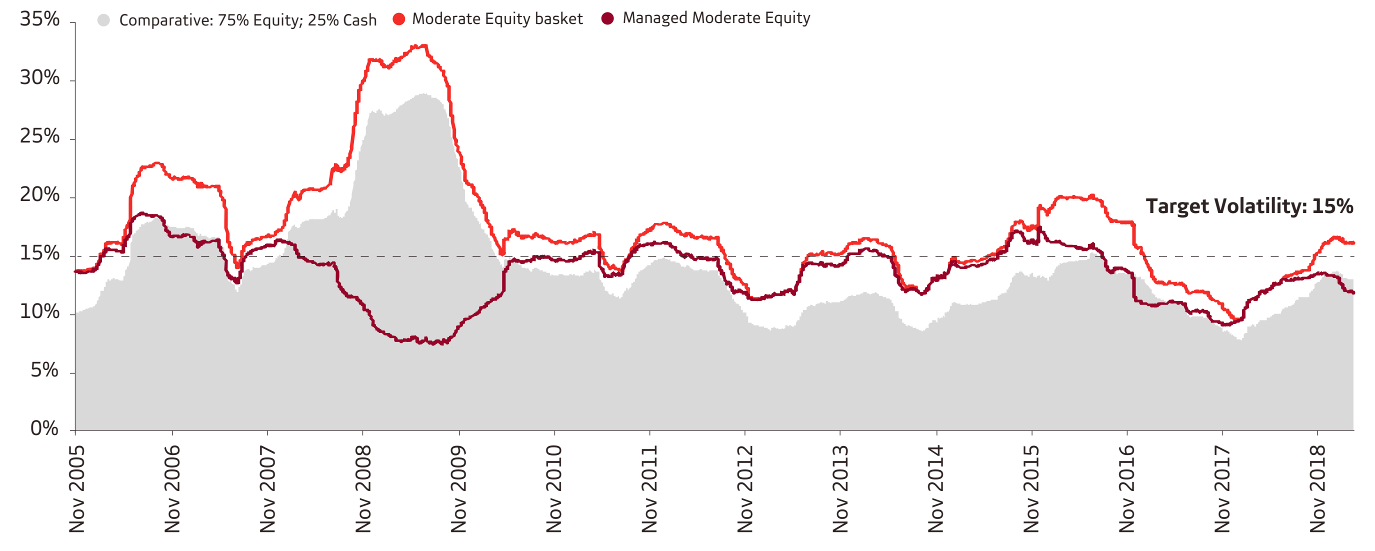
Figure 16: Maximum drawdown, standard deviation and annualised return of the Managed Moderate Equity vs an equity-cash benchmark



Source: Absa/ Bloomberg, April 2019

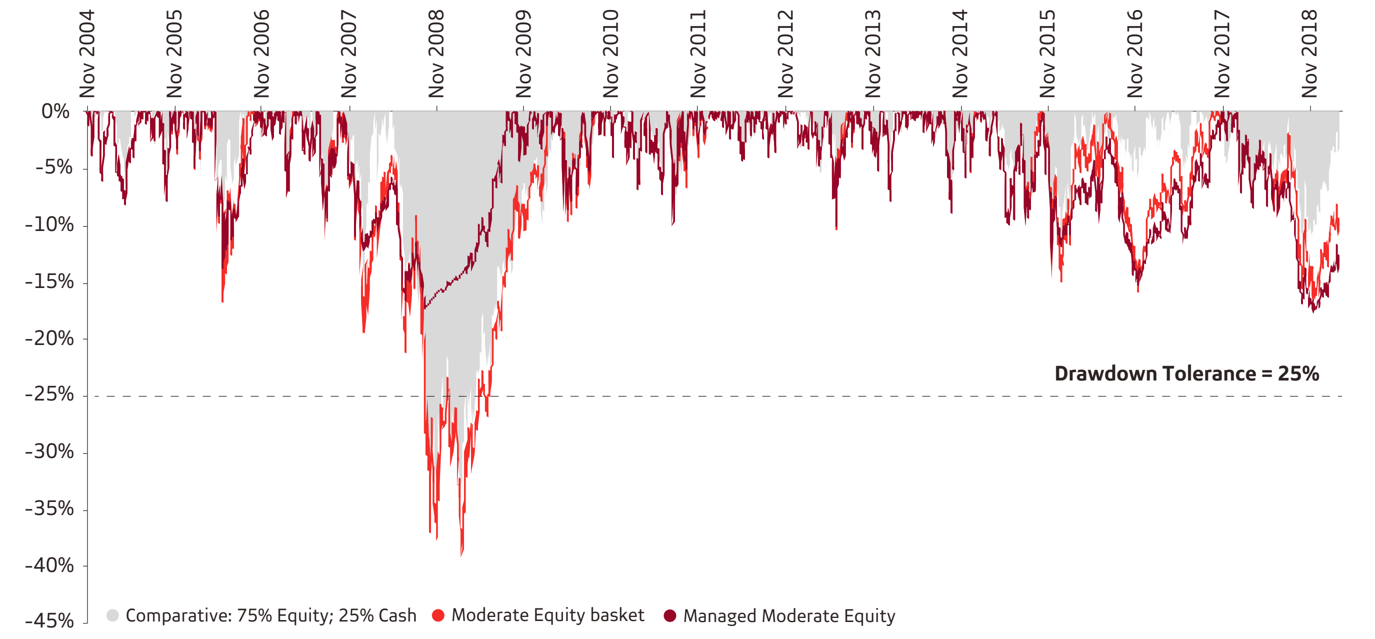
The Managed Moderate Equity is designed to manage both volatility and drawdown to remain within acceptable levels. Figure 17 and Figure 18 below demonstrate the reduced realised volatility and drawdown over time from applying the volatility management process to the underlying Moderate Equity basket.

Figure 17: Realised 250-day rolling volatility –Moderate Equity basket; Managed Moderate Equity vs an equity-cash benchmark



Source: Absa/ Bloomberg, April 2019

Figure 18: Drawdown of the Moderate Equity basket, Managed Moderate Equity and an equity-cash benchmark



Source: Absa/ Bloomberg, April 2019

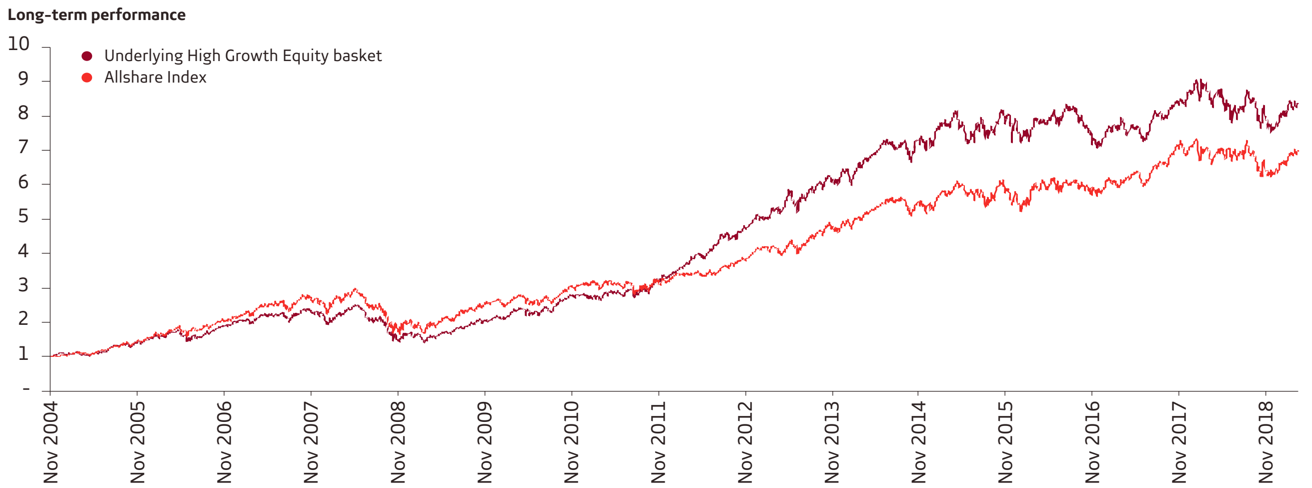
Absa Volatility Managed SA High Growth Equity Index

The underlying basket of shares ("High Growth Equity") of the Absa Volatility Managed SA High Growth Equity ("Managed High Growth Equity"), is based on a 30|70 low volatility and momentum strategy where 15 stocks are selected based on a combination of their low volatility and momentum attributes.

Underlying equity basket

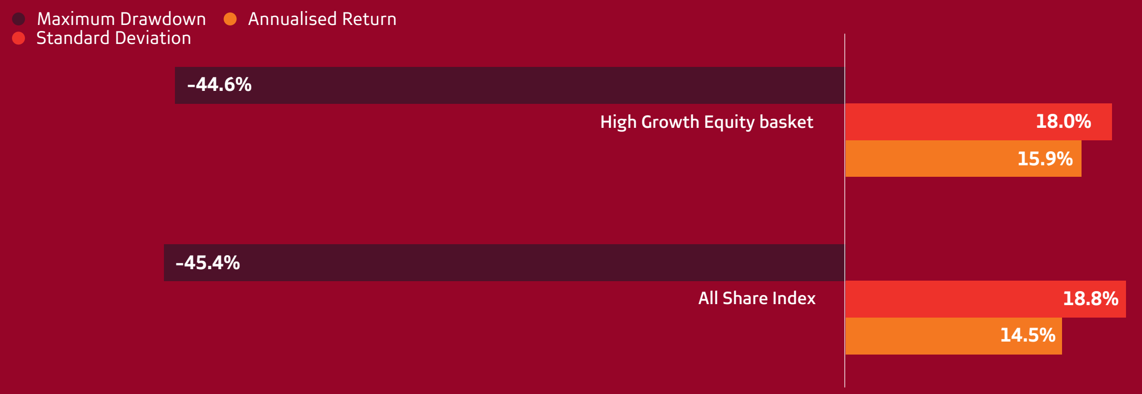
Shares that exhibit the lowest volatility (weighted 30%) and highest momentum (weighted 70%) over the past year are selected to form part of the underlying equity basket for the High Growth Equity Index. Over the November 2004 to December 2018 sample period, the underlying High Growth Equity basket outperformed the FTSE/JSE All Share Total Return Index (see Figure 19 and Figure 20 below).

Figure 19: High Growth Equity basket cumulative returns vs All Share Index



Source: Absa/ Bloomberg, April 2019

Figure 20: Maximum drawdown, annualised return and standard deviation of High Growth Equity basket vs All Share Index



Source: Absa/ Bloomberg, April 2019

Parameters for volatility management

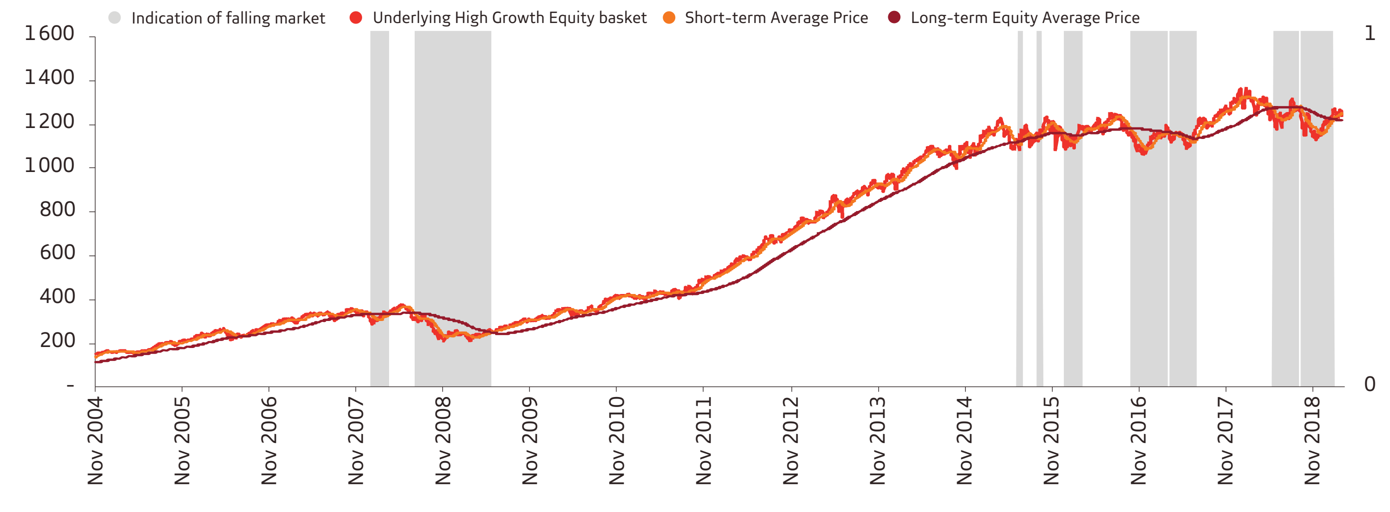
Target Volatility	20%
Drawdown Tolerance	30%
Buffer	10%
No. of Shares	15

Volatility management

With the introduction of trend analysis, the allocation algorithm will move rapidly into cash in adverse equity market conditions (high volatility; downward trending). The rapid allocation back into equities in favourable market conditions (low volatility; upward trending) is also supported, while still managing the overall volatility of the Index (See Figure 21).

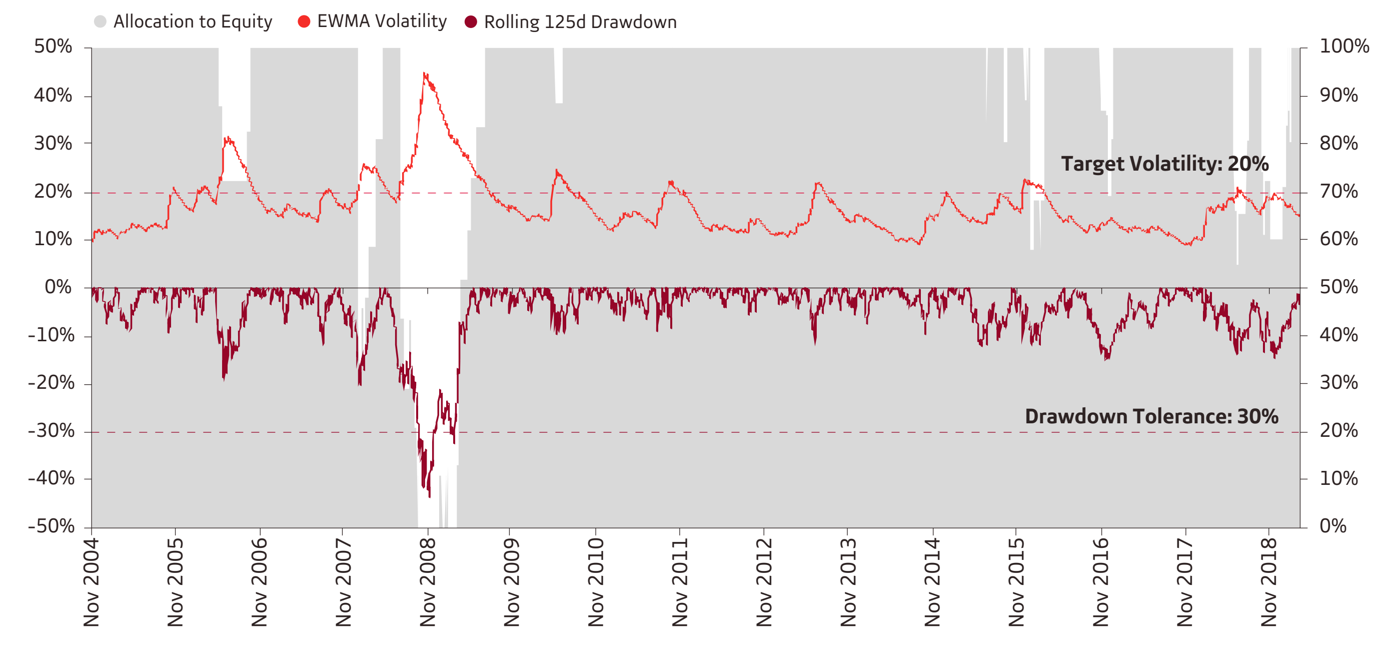
Note that given the aggressive nature of the Index, there are significant periods of time when the Index is 100% allocated to equities (see Figure 22).

Figure 21: Trend analysis applied to the High Growth Equity basket. The shaded grey area represents the periods that were regarded as a falling market



Source: Absa/ Bloomberg, April 2019

Figure 22: Volatility and drawdown of the High Growth Equity basket to be managed. The shaded grey represents the resulting allocation to equity; the balance is allocated to cash



Source: Absa/ Bloomberg, April 2019

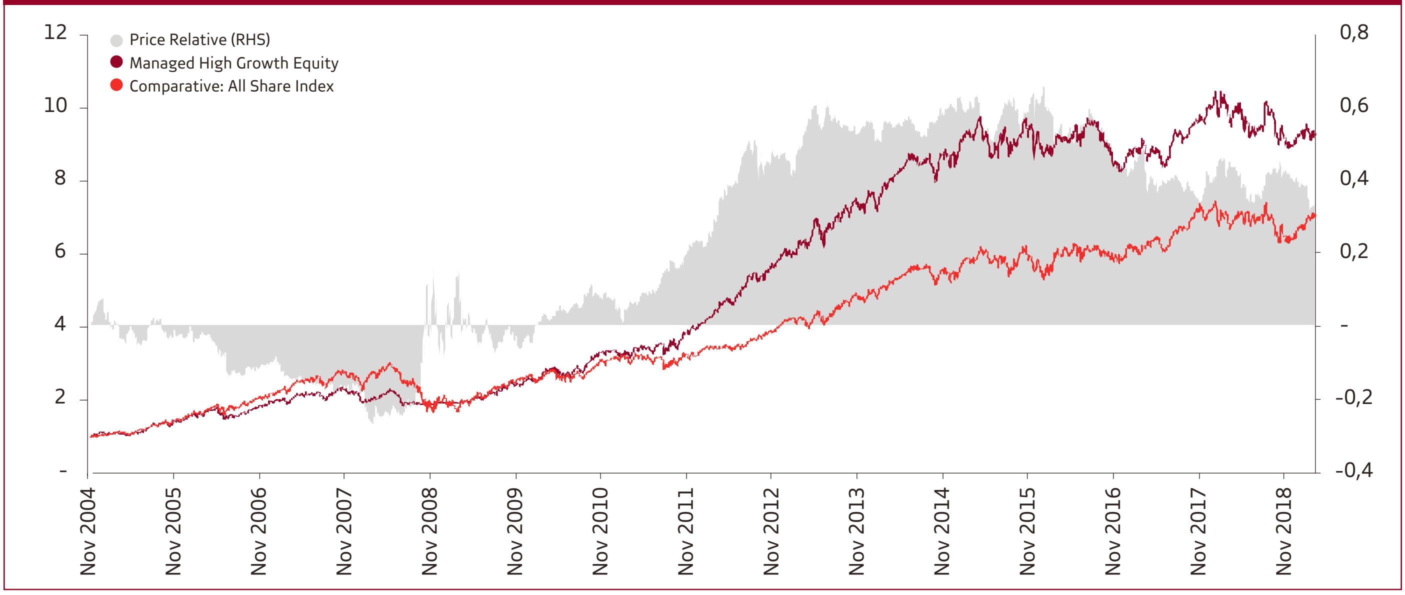
Long-term performance

Given that the High Growth Equity is, by design, a relatively aggressive strategy, it is reasonable to compare the Managed High Growth Equity Index to the FTSE/JSE All Share Index (ALSH).

The relative performance in Figure 23 illustrates periods of time when the Managed High Growth Equity outperformed the FTSE/JSE All Share Index (upward trend in the price relative), as well as periods when it underperformed the FTSE/JSE All Share Index (downward trend in the price relative).

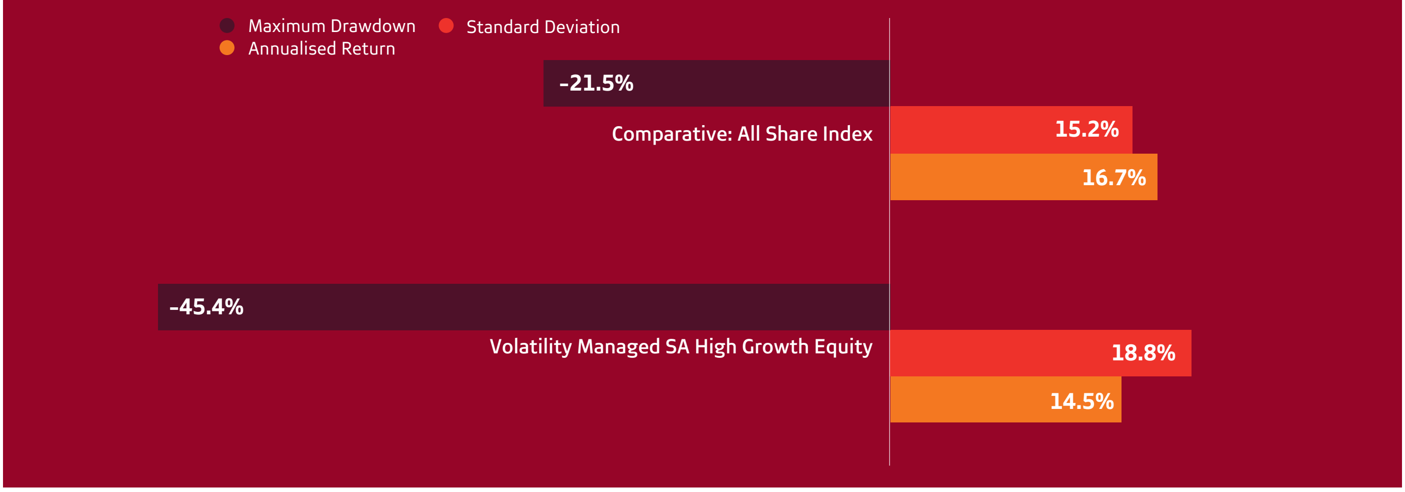
Over the November 2004 to December 2018 sample period, the Managed High Growth Equity outperformed the FTSE/JSE All Share, with lesser volatility and drawdown (see Figure 23 and Figure 24 below).

Figure 23: Managed High Growth Equity cumulative returns vs ALSH. The shaded grey area represents the price relative of the Managed High Growth Equity vs ALSH



Source: Absa/ Bloomberg, April 2019

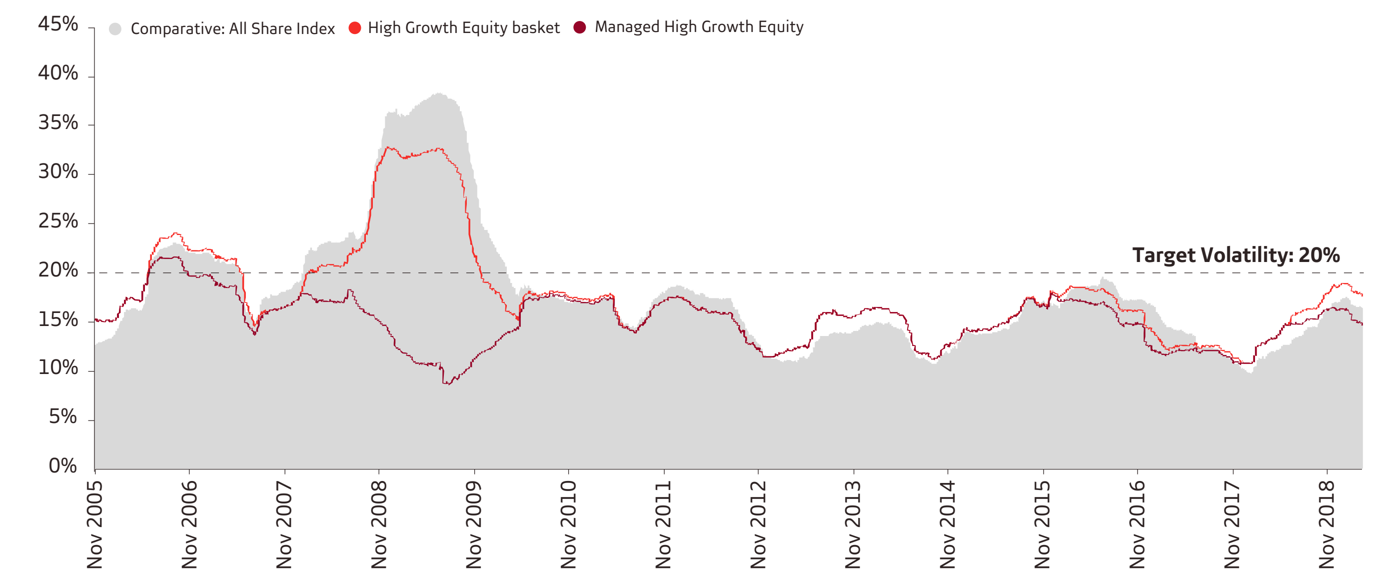
Figure 24: Maximum drawdown, standard deviation and annualised return of the Managed High Growth Equity vs ALSH



Source: Absa/ Bloomberg, April 2019

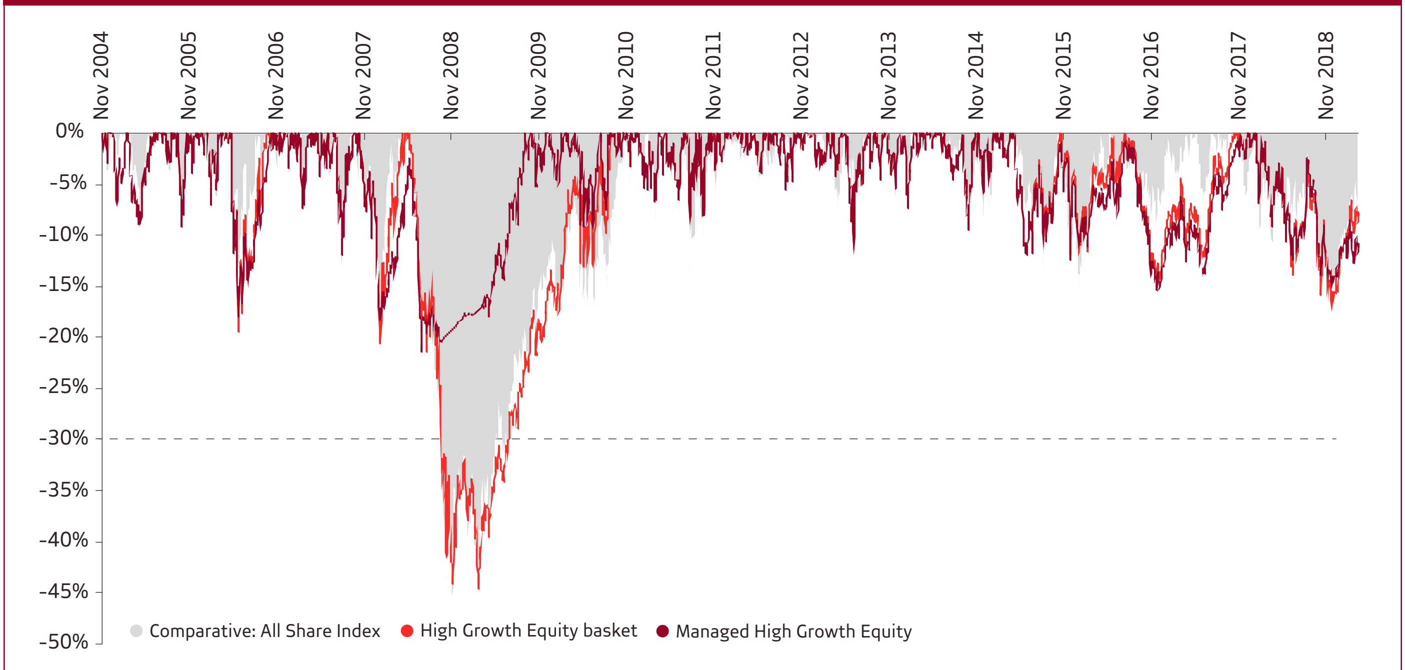
The Managed High Growth Equity is designed to manage both volatility and drawdown to remain within acceptable levels. Figure 26 and Figure 27 below demonstrate the reduced realised volatility and drawdown over time from applying the volatility management process to the High Growth Equity basket.

Figure 25: Realised 250-day rolling volatility –High Growth Equity basket; Managed High Growth Equity vs ALSH



Source: Absa/ Bloomberg, April 2019

Figure 26: Drawdown of the High Growth Equity basket, Managed High Growth Equity and ALSH



Source: Absa/ Bloomberg, April 2019

Conclusion

Spikes in equity volatility are almost always succeeded by a significant drawdown event. By managing volatility and drawdown risk, the Indices aim to improve long-term returns, while still providing a stable volatility experience over time. They enable full investment in equities in favourable market conditions, while dynamically providing protection against adverse market movements.

Given the uncertainty around equity investing, the Absa Volatility Managed SA Equity Indices provide a measure of protection from adverse equity market movements via a transparent and rules-based methodology.

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Legal disclaimer – Absa Bank Ltd

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