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This issue in brief

Evaluating and constructing equity benchmarks in the South African portfolio management context

An evaluation of commonly used South African equity benchmark alternatives demonstrates excessive levels of concentration in all cases. While the All Share Index (ALSI) comprised 161 shares as at 30 June 2002 it was found to be approximately equivalent to an equally-weighted portfolio of only 16 stocks. This measure was found to improve for the alternative benchmarks but only marginally so with the Shareholder Weighted Index (SWIX) demonstrating the lowest concentration levels with an effective number of stocks of 31.

As a consequence, in the second part of the analysis the construction of risk-optimized passive portfolios is investigated. Concentration, as measured by the effective number of stocks measure, is minimised according to a set of liquidity and regulatory (mutual and pension fund) constraints in order to generate optimised portfolios for varying fund sizes. It is found that concentration increases rapidly as fund size increases. Assuming a maximum trade-out period of 5 days at 25% of the average daily trading volume, funds smaller than R2 billion were able to achieve as much as 3 times the effective number of stocks as the ALSI. The fund size at which this level of diversification benefit can be achieved is directly proportional to the maximum trade-out period allowed. Given the aforementioned liquidity constraint, market levels of risk and concentration were reached at a fund size of R4 billion. The analysis suggests that there remains scope to improve on existing South African equity benchmarks by using the optimisation procedures adopted in this study.

Forecasting volatility on the JSE

Equity volatility, as a measure of risk, is central to the theory and practice of financial economics. This paper investigates the comparative ability of three different types of forecasts of domestic equity volatility on the Johannesburg Securities Exchange (JSE), namely the market forecast, historical volatility (naïve and 5 day moving average (MA)) and Autoregressive Conditional Heteroskedasticity (ARCH) models. Using 100 day rolling estimation windows two horizon forecasts were generated, a one day ahead and a one week ahead forecast. This paper finds that simple ARCH and naïve forecasts are relatively quite poor predictors of volatility. The more complex Generalised ARCH (GARCH) specifications are better than the ARCH specifications and that the even more complex asymmetric Threshold ARCH (TARCH) models provide the best forecasts of all the types investigated. The TARCH(2,2) model is judged to be the best specification to model and forecast domestic volatility, being relatively the most accurate and unbiased over both one day and one week ahead forecast horizons. Asymmetric models provide better forecasts than the market does for a one day ahead forecast, while for a one week ahead forecast the market forecast is just as good. The 5 day MA is a relatively accurate predictor of volatility, rivalling the GARCH models. The simple ARCH specification, the market, the 5 day moving average and the naïve forecast all over predict one day ahead domestic volatility, while all of the specifications except the TARCH(2,2) model over predict one week ahead domestic volatility.

Hedging employee stock options and the implications for accounting standards

Employee stock options (ESOs) contain several features that distinguish them from ordinary, market-traded options. This makes them difficult to price and hedge. In this paper, we assume the validity of the valuation model of Hull and White (2004), and discuss the feasibility of a static ESO hedging strategy based on a methodology described in Derman et al. (1994). We then argue that this hedging position can be used to develop an accounting model for recognising ESOs. This provides support for the International Financial Reporting Standard 2 - Share-based Payment (IASB 2003) approach, which requires that the options be valued at grant date, and not revalued subsequently. However, our strategy for compensating for an employee exit rate contradicts IFRS 2. The ESO expense should be based on all of the ESOs granted, and not only those that are expected to vest. This will result in the recognition of income if the employees leave pre-vesting. The measurement of this income should be based on the value of the options when the employee leaves, which will mirror the cash flow resulting from reducing the hedge portfolio.

The profitability of CFD day trading on the JSE

Simulation studies are reported dealing with the effects of trader skill levels and brokerage rates on returns of intraday CFD trading. The results are based on the intraday price data of the ten top capitalisation shares on the JSE. Trader skill is expressed in terms of the probability of predicting price movements correctly. The results are presented by means of two critical skill levels, namely a lower level which is highly likely to lead to ruin and a higher level which is highly likely to lead to success. It is found that both these levels depend strongly on the brokerage rate and tend to be rather high, implying that this form of trading should only be attempted by well informed traders.

Analysing some exotic options: EDS, instalment shares

We analyse the mathematical properties and characteristics of some American options known as enhanced dividend securities or share instalments. We present some factors to consider when buying these options and compare the possible profits of buying the deep-in-the-money options to buying the underlying share directly. Selling or rolling over the option is also considered. The analysis refers to gearing, the greeks and the Black-Scholes formulas. Probabilities of hitting the barrier, the effects of interest rates and the profits or losses in different scenarios are determined.