

Abstracts of articles in other South African journals

INVESTMENT ANALYSTS JOURNAL

Arendse, J, Muller, C & Ward, M (2018). The winner takes it all: outperformance drives subsequent flow in South African unit trusts. *IAJ* 47(1), 1–14

The relationship between unit trust (mutual fund) performance and subsequent investment flows into and out of funds has been the focus of many international studies. Emerging markets, which are characterised by higher risk, weaker institutions, volatile economies and fewer participants, provide an attractive opportunity to examine the flow-performance problem in the context of higher arbitrage costs.

This study builds on the findings in the literature of the flow-performance relationship and aims to examine in more detail, and to quantify, the inflow into funds which outperform. The flow-performance relationship is important for investment businesses to understand because of the significant implications this has on the profitability of funds.

The research applies a portfolio time-series methodology to Morningstar's South African fund data, using a buy-and-hold analysis. Two unit trust categories are tested, namely General Equity and Multi-asset High Equity funds, and within each category, single manager funds and fund of funds are tested separately.

Funds are ranked by their past performance over an optimised 14-month look-back period, and assigned into quintiles. Net flows into each fund in the subsequent quarter are then determined, and the process rolled over on a quarterly basis from 2000 to 2015. We find convincing evidence from an emerging market perspective that equity funds need to perform in the top quintile to attract funds, and observe that relative performance to peers is more important to investors than performance relative to other benchmarks. One additional inference is that the South African unit trust industry is set to face consolidation.

Leite, P & Cortez, MC (2018). The performance of European SRI funds investing in bonds and their comparison to conventional funds. *IAJ* 47(1), 65–79

This paper evaluates the performance of European SRI fixed-income funds domiciled in France and in Germany compared to characteristics-matched conventional funds. Fund

performance is evaluated by means of conditional multi-factor models that allow for both time-varying risk and performance. The results show that SRI balanced funds perform similarly to conventional funds, whereas SRI bond funds significantly outperform their peers. The outperformance of SRI bond funds seems more related to their government (and not their corporate) bond holdings. Compared to conventional funds, SRI funds are significantly less exposed to bonds issued by the countries most affected by the Euro sovereign debt crisis, which is consistent with more conservative and long term-oriented investment strategies.

De Mingo-Lopez, DV & Matallin-Saez, JC (2018). Institutional investment management: An investor's perspective on the relation between turnover and performance. *IAJ* 47(2), 81–94

The main aim of this study is to analyse the relationship between turnover and performance in institutional investment management. For a sample of US equity mutual funds during the period January 1999–December 2014, we show that high-turnover funds do not beat low-turnover funds, since their performances are no different, or even significantly lower. Moreover, we show that investing in past high-turnover mutual funds provides investors with significantly worse results than investing in previously low-turnover funds. Investors aiming to enhance their risk-adjusted returns should therefore consider the turnover ratio level in their fund investment decisions.

Lim, H & Mali, D (2018). Does relative efficiency matter? An analysis of market uncertainty. *IAJ* 47(2), 127–48

In this paper, we examine whether relative efficiency provides useful information for investment decisions. We find that efficient firms have lower levels of stock price volatility compared to inefficient firms. The results suggest that market participants consider relative efficiency when making investment decisions. This finding is consistent with investors speculating in inefficient firms due to potential stock return opportunities that increase the uncertainty levels of inefficient firms. Next, we test whether higher levels of investment and disinvestment in inefficient firms are due to potential investment opportunities. We find a positive relation between stock price volatility and market returns. Moreover, we find a negative relation between stock returns and relative efficiency. These findings show that inefficient firms provide high-risk, high-return potential investment opportunities; and efficient firms can be considered low-risk, low-return investment opportunities.

Zaremba, A, Umutlu, M & Maydybura, A (2018). Less pain, more gain: Volatility-adjusted residual momentum in international equity markets. *IAJ* 47(2), 165–91

We offer a new type of momentum strategy—the volatility-adjusted residual momentum (VARMOM)—which is based on average past residuals scaled with their volatility. We demonstrate its application for international asset allocation within 51 country indexes and 888 industry portfolios from developed and emerging markets. The VARMOM trading strategy notably outperforms and subsumes a standard momentum strategy, delivering Sharpe ratios that are two to three times higher. The VARMOM is particularly strong across portfolios characterised by high limits to arbitrage and following bull markets, supporting

the behavioural explanation of momentum. The results are robust to alternative portfolio construction methods as well as the inclusion of trading costs and control variables. They are also valid for several subperiods and subsamples.

McKane, G & Britten, J (2018). Liquidity and size effects on the Johannesburg Stock Exchange (JSE). *IAJ* 47(3), 229–42

This study explores the existence of a liquidity premium on the Johannesburg Stock Exchange (JSE) and its potential interaction with the well-documented size effect. It builds on the stream of South African literature that examines liquidity as a standalone factor and adds further weight to its existence. Over the 2000–2015 sample period, this study finds evidence of a significant liquidity effect. Importantly, the liquidity premium is found to be separate from the size effect. Furthermore, the liquidity premium captures a different underlying effect than the value premium. The efficacy of Liu's (2006) Liquidity-Augmented Capital Asset Pricing Model (CAPM) as a useful asset-pricing model for the cross-section of returns on the JSE is examined and found to perform better than the Fama-French 3-Factor model.

Solanki, K & Seetharam, Y (2018). Is investor sentiment a relevant factor in determining asset prices? *IAJ* 47(3), 243–57

The APT framework allows for a multitude of risk factors to be priced into asset returns, implying that it can be used to model returns using either macroeconomic or microeconomic factors. As such, the APT allows for non-traditional factors, such as investor sentiment, to be included. A macroeconomic APT framework was developed for nine countries using the variables outlined by Chen, Roll, and Ross (1986) and investor sentiment was measured by the FEARS index (Da, Engelberg, & Gao, 2015). Regression testing was used to determine whether FEARS is a statistically significant explanatory variable in the APT model for each country. The results show that investor sentiment is a statistically significant explanatory variable for market returns in five out of the nine countries examined. These results add to the existing APT literature as they show that investor sentiment has a significant explanatory role in explaining asset prices and their associated returns.

Semnarayan, P, Ward, M & Muller, C (2018). The investment return puzzle on the Johannesburg Stock Exchange (JSE). *IAJ* 47(3), 258–71

Firms that invest into positive net present value projects should outperform firms that do not invest. Surprisingly, several studies on United States data have found a negative relationship between capital investment and subsequent shareholder return. There are conflicting explanations for this negative relationship. The present study also confirmed a significant negative relationship between capital investment and subsequent shareholder returns in the South African developing market conditions. Over the period from 1992 to 2017, shares on the Johannesburg Stock Exchange with lower investment rates consistently outperformed shares with higher investment rates, exhibiting similar behaviour to the US. We find that the negative investment return is significantly associated to the firm's book-

to-market value consistent to the rational-based q-theory of investment with real options explanation.

Schwalbach, JBM & McClelland, D (2018). An analysis of short put strategies and their role in asset allocation. *IJJ* 47(3), 272–83

Fully-collateralised short put strategies have been found by Ungar and Moran (2009) to have similar return and improved risk characteristics when compared to broad market ETF equity exposure, resulting in an improved risk-return relationship. This paper analyses the risk and return characteristics of multiple fully-collateralised short put strategies, varying by moneyness and maturity, and the impact of introducing these strategies to the traditional 60/40 equity/bond mix. The findings indicate that greater time-to-maturity generally reduces returns and increases risk, making the shorter 30-day strategies superior. Incrementally changing the level of moneyness from 10% out-of-the-money (OTM) to 2.5% in-the-money (ITM) increased returns up until 2.5% ITM, at the expense of increasing risk and drawdown monotonically. When viewing the strategy as part of a wider asset allocation decision, the OTM strategies in general displayed much lower correlations with equity than their ATM or ITM counterparts. Specifically, the greatest risk/return performance was achieved at 5% OTM contract strategies, suggesting that OTM strategies complement equity holdings. This was verified when the traditional 60/40 equity/bond portfolio was compared to an equivalent portfolio which replaced half of the equity holdings with various short put strategies.

De Moor, L, Liu, F & Sercu, P (2018). Myths about fundamental indexing. *IJJ* 47(4), 304–26

Fundamental indexing starts from the observation that in a value-weighted portfolio, any overpricing affects the stock's portfolio weight upward and its typical return downward, and vice versa; but on average the 'drag' on the portfolio's expected return caused by this negative interaction is avoided if weights are based instead on accounting-based instruments for true value. We find that the drag effect is statistically and economically unimportant. Our empirical work avoids regression-based alphas, which are flawed by demonstrable instabilities in the exposures.

JOURNAL OF SOUTHERN AFRICAN STUDIES

Jesle, C (2018). Why work? Do we understand what motivates work-related decisions in South Africa? *JSAS* 44(1), 27–42

Why do people work? In South Africa, where over 50 per cent of working age adults do not have jobs, this question drives to the heart of efforts to encourage employers to create jobs and workers to persist in costly job searches. Much scholarship on unemployment focuses on getting wages right, but employers and employees cite many non-monetary reasons for their employment-related decisions. Popular discourses have over-simplified and moralised work-related decisions to reinforce problematic stereotypes about supposed 'lazy' workers. This article analyses ethnographic fieldwork in peri-urban KwaZulu-Natal to identify

a category of motivations for work-related decisions that both employers and employees emphasised: ‘right’ relationships. By identifying differences between the two groups’ moralities of appropriate relationships, and the factors inhibiting each group from achieving such relationships, this article points to causes of and potential cures for high unemployment as well as racial, ethnic, and class tensions that infuse discussions of unemployment. This article offers new ways of thinking about employment that move beyond minimum wage adjustments, job-creation incentives for employers, and skills training for would-be workers by identifying motivating factors that are too often ignored.

MANAGEMENT DYNAMICS

Coetzee, R, de Villiers, J & Nel, D (2018). Active share, tracking error and the cost of active management: South African general equity unit trusts. *MD* 27(3), 2–13

This study uses active share (the measure developed by Cremers and Petajisto, 2009) and tracking error (the traditional measure) to characterise the active management undertaken by 114 general equity unit trust funds in South Africa from 2008 to 2015. None of the strategies described by these measures yields statistically significant risk-adjusted return outperformance. The active expense ratio and active alpha for each of the funds are then estimated (assuming that their passive components can be administered at the cost of the unit trust index fund closest to it in terms of tracking error). On average, the funds do not deliver superior returns to compensate for the extra cost of active management. Individual managers who can produce additional performance for the additional cost would be exceptional, and investors should realise that they themselves would need exceptional skill to be able to identify such managers.

MEDITARI

Ratia, M (2018). The new era of business intelligence: Big data potential in the private healthcare value creation. *MEDAR* 26(3), 531–46

As the health care sector is changing rapidly, there is a growing need to develop new ways to make data-driven decisions, especially at the organisational level. Data utilisation, like business intelligence (BI) activities, benefits health care organisations. The purpose of this paper is to study the potential of Big Data and the utilisation of BI tools in creating value in the private health care industry in Finland.

Intellectual capital (IC) components and Möller et al.’s (2005) work on value capabilities are used as a framework to point out the roles of data utilisation and BI tools in value creation. Thematic interviews enable understanding of the value creation based on Big Data potential and utilisation of BI tools in the Finnish private health care industry.

The findings will provide an understanding of the existing data sources and BI tools used in private health care. In addition, it provides an insight into the future-oriented Big Data

potential, which can create new business concepts. The approach provides valuable insights for value identifying the future needs of data utilisation and creates an understanding on the current state within the private health care sector.

Data-driven value creation is one of the most discussed topics in private health care sector. By analysing the current data-source utilisation, challenges with data and BI tool utilisation and the future vision and development roadmaps, the authors gain a better understanding of the IC components and value creation capabilities.

SOUTH AFRICAN JOURNAL OF ACCOUNTING RESEARCH

Nel, R (2018). Investor tax-driven preferences for dividends and share repurchases of listed companies. *SAJAR* 32(1), 71–87

Tax reform in South Africa has been extensive since 2011, with the amendment of ‘dividend’ as defined, followed by the introduction of dividends tax and consecutive increases in the applicable tax rates. Extant literature predominantly focuses on periods prior to these reforms and understates the role of taxes in a choice between dividends and share repurchases. The purpose of this article is to enunciate the increased role of taxes in a preference for dividends and share repurchases as a result of tax reform. An exploratory study was performed in which the nominal after-tax value of a R100 dividend or share repurchase was calculated for an individual, corporate and fund investor over a period of tax reform. A tax differential was then calculated to quantify the magnitude of changes over the different periods. Evidence of higher tax differentials from tax reform in 2011, which also resulted in certain tax-induced preferences for dividends and share repurchases. The change in tax-induced preferences is submitted as an indication of the increased role of taxes as a result of the reform. It is submitted that a corporate shareholder is the most affected by the tax reform based on the category taxpayer with the highest tax differentials since the tax reform in 2011.

Willows, GD & Rockey, JA (2018). Share price reaction to financial and integrated reports. *SAJAR* 32(1), 174–88

This study analyses whether significant cumulative average abnormal returns (CAAR) are observed before and after the release of financial results and integrated reports. The study was completed through the use of event study methodology, based on the capital asset pricing model for the top 40 companies listed on the Johannesburg Stock Exchange, over the period from 2012 to 2015. The study finds evidence of statistically significant CAAR. Furthermore, there appears to be stronger market reaction to the release of financial results than integrated reports. The resulting conclusion highlights the lagging trend of share price movements in relation to financial statement releases, while clarifying the lack of any noticeable reaction to the release of integrated reports. The study provides insight into market reaction and, given the increased research on the value of the integrated report, creates an awareness that is important for application of accounting practice.

SOUTH AFRICAN JOURNAL OF BUSINESS MANAGEMENT

Heydenrych, C & Luiz, JM (2018). Regulatory interaction with the long-term insurance industry in pursuit of market stability and financial inclusion. *SAJBM* 49(1), DOI: <https://doi.org/10.4102/sajbm.v49i1.9>

This study explores how the financial regulator through interaction with the long-term insurance industry can give effect to greater market inclusion and financial stability. It follows a qualitative approach and we interview both industry representatives and the regulator. The results show that there is a possible tension between the regulatory objectives of market stability and financial inclusion and that an unbalanced focus on either objective could adversely affect the other. It suggests that the best way to ensure this balance is for industry, the regulator and government to coframe issues, rather than being obliged to rely on the regulator to draft regulation in isolation. The entry level (base of the pyramid) insurance market may require a different paradigm to ‘usual’ insurance constructs and this requires a more innovative approach from all stakeholders. The findings highlight strategic measures that may assist regulators in giving effect to greater market inclusion without prejudicing the stability of the market.

Szczygielski, JJ, Enslin, Z & du Toit, E (2018). An investigation into the changing relationship between the gold price and South African gold mining industry returns. *SAJBM* 49(1), DOI: <https://doi.org/10.4102/sajbm.v49i1.232>

It is accepted that the gold price impacts on the value of gold mining companies. Previous studies have shown that, in financial crises, gold is considered a ‘safe haven’ investment in developed markets.

The aim of the study is to investigate whether an investment in gold mining stocks do provide gold price-linked safe haven benefits to investors in an emerging economy. An understanding of the possible safe haven benefits of their companies’ stocks and the variables that influence these benefits would be valuable to managers of gold companies when endeavouring to maximise shareholders’ wealth through hedging and investment decisions.

Regression analysis is applied to investigate the relationship between gold mining returns, the gold price and the rand–dollar exchange rate within a multifactor model motivated by the arbitrage pricing theory. The results indicate that there is a strong, yet changing, relationship between the gold price, the rand–dollar exchange rate and gold mining returns. This study extends the understanding of the changing South African gold mining industry in a world that is still recovering from the global financial crisis.

SOUTH AFRICAN JOURNAL OF ECONOMIC MANAGEMENT SCIENCES

Patel, K, Mohamed, A & van Vuuren GW (2018). A regression and comparative study of United States and South African yield curves using principal component analysis. *SAJEMS* 21(1), DOI: <https://doi.org/10.4102/sajems.v21i1.1626>

Volatile markets and economic environments can significantly distort the shape and smoothness of yield curve movements. This study explores the influence of movements in United States interest rates on South African interest rates. This study aims to identify the main underlying movements present in the United States and South African yield curves and to further determine the dominant factors that are responsible for driving South African interest rate movements. The principal settings for the study were the United States and South African markets representing, respectively, a developed and developing market. Principal component analysis was used to discern the major drivers of developing and developed market interest rates. The findings show that the principal component analysis technique is able to effectively classify and quantify the movements of yield curves across both markets in terms of three main factors, namely level, slope and curvature shifts. During certain periods, South African yield curve changes were largely driven by variations in United States interest rates and the rand/dollar exchange rate. Results also demonstrated that a volatile market and economic environment can significantly distort the shape and smoothness of yield curve movements.

Erasmus, M & Kean, H (2018). Private hospital expenditure and relation to utilisation: Observations from the data. *SAJEMS* 21(1), DOI: <https://doi.org/10.4102/sajems.v21i1.1658>

This study contributes to the detailed understanding of the drivers of medical scheme expenditure on private hospitals in South Africa over 2006–2014. This is important in the context of various regulatory reforms that are being considered at present. The aim is to provide an updated analysis and description of the drivers of medical scheme expenditure on private hospitals in South Africa. The setting is the private hospital market, South Africa. Data from the three largest private hospital groups – which account for approximately 70% of the South African private hospital market share – are collected, aggregated and analysed. This study uses targeted descriptive and exploratory analyses, relying on a residual approach to hospital expenditure. It is found that over time medical scheme beneficiaries, on average, are being admitted to private hospitals more frequently, as well as staying in hospital for longer during each admission. The data also indicate that over time older people are being admitted to hospital more often. This study's findings contradict previous assertions that it is only prices driving increased medical scheme expenditure on private hospitals.

Jordaan, LA, de Klerk, M & de Villiers, CJ (2018). Corporate social responsibility and earnings management of South African companies. *SAJEMS* 21(1) DOI: <https://doi.org/10.4102/sajems.v21i1.1849>

Enron was considered a strong corporate social performer when their infamous accounting scandal emerged in 2000. Literature suggests that companies use corporate social responsibility (CSR) to disguise corporate misconduct.

This study examines one type of corporate misconduct, namely, earnings management (EM). Prior studies have found significant associations between CSR performance and EM; however, none of these studies controlled for CSR disclosure. This study unbundles the effects of CSR performance and CSR disclosure on EM, to examine the relationship between CSR performance and CSR disclosures and EM of listed South African companies.

A company included on the Socially Responsible Investment (SRI)1 index is used as an indicator of CSR performance. Four measures of CSR disclosure are used. The study tests both CSR performance and CSR disclosure against both real earnings management (REM) and accrual-based earnings management (AEM). *CSR performance and earnings management:* Companies with better CSR performance were more likely to engage in EM through income increasing discretionary accruals. This suggests that managers who inflate earnings may engage in CSR activities to avoid unwanted scrutiny from stakeholders. Companies with better CSR performance were less likely to engage in REM, suggesting that managers with better CSR performance regard the management of earnings through accruals that reverse in the next period less incriminating than managing earnings through actual company resources. *CSR disclosure and earnings management:* Companies that integrated their CSR disclosures more into their annual report engaged less in income decreasing discretionary accruals, suggesting that managers with incentives to make more CSR disclosures to reduce information asymmetry will also be less inclined to manage earnings.

Nanziri, EL & Leibbrandt, M (2018). Measuring and profiling financial literacy in South Africa. *SAJEMS* 21(1), DOI: <https://doi.org/10.4102/sajems.v21i1.1645>

Microeconomic theories of financial behaviour tend to assume that consumers possess financial skills necessary to undertake related financial decisions. We investigated this assumption by exploring the distribution of financial literacy among South Africans.

In the absence of a standard measure, a financial literacy index was constructed for the country using data collected on attitudes (towards), access to and use of financial services over the period 2005–2009. In a multivariate regression analysis, we used the index to examine the extent to which differences in financial literacy correlate with demographic and economic characteristics.

The index revealed substantial variation in financial literacy by age, education, province and race. Overall, demographic characteristics contributed up to 10% of the financial literacy differences among individuals in South Africa.

These results can be used to guide policy makers where to place more emphasis in terms of financial education for South Africans.

Willows, GD, Burger, T & West, D (2018). A comparison of retirement saving using discretionary investment and Regulation 28. *SAJEMS* 21(1), DOI: <https://doi.org/10.4102/sajems.v21i1.1995>

There is growing uncertainty in global society with regard to how retirement savings should be approached. The primary reason for this is that most societies do not save enough and their citizens run out of money during retirement.

This study investigates whether the limitations imposed by Regulation 28 of the Pension Funds Act of South Africa encourage optimal asset allocation and reduce investment risk for retirement savings when contrasted with discretionary investment. The study looks at hypothetical individuals who are subject to tax and retirement consequences as administered by South African legislation. A quantitative risk and return analysis was performed while considering two hypothetical investors who are identical in all aspects other than their choice of investments. The findings indicate that Regulation 28 is effective in reducing the investment risk of retirement savings; however, it may also force the investor to sacrifice wealth. Depending on the tax bracket in which the investor sits, discretionary investment may be preferential to investing in a retirement fund under the mandate of Regulation 28.

Gossman, KA & Hayes, M (2018). An investigation into the ability of the reverse yield gap to forecast inflation and economic growth in South Africa. *SAJEMS* 21(1), DOI: <https://doi.org/10.4102/sajems.v21i1.1638>

Monetary policy in South Africa is carried out by the South African Reserve Bank (SARB) with the aim of keeping inflation within a target range of 3%–6%. The SARB uses a variety of models to aid them, with the core model being the most significant. The primary aim of this research is to determine whether the reverse yield gap (RYG) contains information that could be useful to the SARB when making monetary policy decisions. The authors found no evidence that similar studies on the RYG have previously been done in the South African context. Since the yield curve has been found to be significant in South Africa at forecasting economic growth, yet insignificant in Europe, the results for this research may too be different to the global experience. The authors tested for linear relationships between the RYG and economic growth and inflation over the period 1960–2014.

The results indicate that a slight linear relationship may exist in the case of economic growth, with the RYG based on earnings yields showing better out-of-sample forecasting abilities. Further investigation indicates that the linear relationship is stronger during times of economic upturn. The results for inflation forecasting, however, show no signs of a reasonable linear relationship. There is evidence for the SARB to consider whether the RYG can replace other economic variables in its core model without loss of predictive ability. Interestingly, this study found evidence to suggest that the RYG has an inverse relationship to future economic growth in South Africa, which is not what was expected.

Madaree, S (2018). Factor structure of South African financial stocks. *SAJEMS* 21(1), DOI: <https://doi.org/10.4102/sajems.v21i1.2001>

The financial sector within the locally listed equity market is an important component of the economy. Understanding the inherent risks of this sector is vital from a portfolio risk management perspective, as such insights can aid in protecting against capital loss in the event of exposure to risk factors in this sector.

The study aims to identify and explain the principal risk factors over time inherent to the financial stock sector of the locally listed equity market, accompanied by explaining the volatility of such principal risk factors. The study looks at financial sector stocks within

the South African listed equity space from June 2007 to March 2017. The methods used to perform such an investigation were twofold, namely, factor analysis to statistically identify risk factors latent in a basket of financial sector firms and generalised autoregressive conditional heteroscedasticity (GARCH) analysis to examine the volatility of the principal risk factors. The findings suggest that the heterogeneity of risk factors within the financial sector has burgeoned in the past five years, explaining a large proportion of risk during this period. However, over the long-term, banks appeared to have been the main factor driving risk within the financial sector, explaining around 55% of risk. The volatility of banks was most noticeable during business cycle falls that were underpinned by known economic or political instability. Banks have been the riskiest factor within financial sector firms over the past decade, explaining more than 50% of risk in recent years and notably susceptible to economic and political uncertainty.

Moyo, B (2018). An analysis of competition, efficiency and soundness in the South African banking sector. *SAJEMS* 21(1), DOI: <https://doi.org/10.4102/sajems.v21i1.2291>

The banking sector plays an important role in economic activity: it mobilises savings and channels them to productive sectors thus encouraging the efficient allocation of resources. The competitive nature of the environment under which the banking sector operates is of paramount importance. The main aim of this study was to investigate the relationship between competition, efficiency and soundness in the South African banking sector. The setting for this study was the South African banking sector. We used a data set of 17 local and international banks for the period 2004–2015 and stochastic frontier models to analyse efficiency. Results show that the impact of competition on efficiency depended on the measure of competition used. When using the Lerner index there was a negative effect of competition on efficiency while the opposite was true when using the theoretically robust Boone indicator. In the case of bank soundness, competition using the Boone indicator is negatively related to the Z score, implying that competition enhances bank soundness and these results supported the prudent and efficient management hypothesis.

Heymans, A & Santana, L (2018). How efficient is the Johannesburg Stock Exchange really? *SAJEMS* 21(1), DOI: <https://doi.org/10.4102/sajems.v21i1.1968>

There are various studies that confirm the efficiency of the Johannesburg Stock Exchange (JSE), implying that there are no opportunities for active portfolio managers to earn excess returns over the long run.

The aim of the research is to prove that the sub-indices on the JSE go through cycles of efficiency and inefficiency even though the JSE as a whole might be considered informationally efficient. Although the JSE as a whole can be considered to be weak-form efficient, portfolio managers are not bound to investing in large liquid stocks alone. Many aggressive funds allow managers to also allocate a portion of their portfolio to smaller stocks. This has implications when considering the efficiency of the stocks being selected. Given the impact efficiency has on portfolio selection, we test for the adaptive market hypothesis using a representative sample of stock indices by means of the automatic variance ratio test, the

Chow–Denning joint variance ratio and the joint sign test on the JSE. Our results confirm that some of the smaller, and in some instances younger, indices are not always as efficient as the all share index, thus allowing portfolio managers with an active management approach some opportunities to profit from informational inefficiencies in the market. The practice of active management by portfolio managers in the South African market seems to defy logic if one considers the fact that the JSE as a whole is at the very least weak-form efficient. By proving that some of the sub-indices that make up the all share index are inefficient most of the time, this article shows that the phenomenon of active portfolio managers is less of a surprise.

SOUTH AFRICAN JOURNAL OF ECONOMICS

Muchiri, S & Garen, J (2018). Social transfer benefits and retirement decisions: Evidence from South Africa. *SAJE* **86**(1), 23–52

Population aging poses a new challenge to the fiscal sustainability of social security programs around the globe. As life expectancy increases, among other reasons, many governments in developed countries have begun to reform key features of their programs, such as increasing the eligibility age for access to social benefits. However, as in the case of South Africa, some opt to decrease the eligibility age for access to such pension benefits. The South African old age pension, which is one of the most expansive cash transfers in developing countries, puts a significant monthly cash transfer in the hands of its recipients. This cash transfer is conditioned on age and a means test that is very generous to most South Africans. In this paper, we seek to understand the impact of such an increase in non-labour income on the labour force participation of older men by exploiting a phased-in reduction in pension eligibility age. We estimate that, at the median predicted market wage, pension age-eligibility reduces the probability of labour force participation by approximately 9.85% points for single males and 15.45% points for married males.

Fedderke, J & Liu, Y (2018). Inflation in South Africa: An assessment of alternative inflation models. *SAJE* **86**(2), 197–230

We consider the relative empirical performance of a range of inflation models for South Africa. Model coverage is of Phillips curve, New Keynesian Phillips curve, monetarist and structural models of inflation. Our core findings are that the single most robust covariate of inflation is unit labour cost. We further decompose unit labour cost into changes in the nominal wage and real labour productivity. The principal association is a strong positive relationship between inflation and nominal wages, while improvements in real labour productivity report only a relatively weak negative association with inflation. Supply-side shocks also consistently report an association with inflation. As to demand-side shocks, the output gap does not return a robust statistical association with inflation. Instead, it is growth in the money supply and government expenditure which return robust and theoretically consistent associations with inflationary pressure.

Kabundi, A & Mbelu, A (2018). Has the exchange rate pass-through changed in South Africa? *SAJE* **86**(3), 339–60

This paper uses the two-stage exchange rate pass-through (ERPT) framework instead of the direct pass-through (PT) from the exchange rate to consumer inflation to assess the variation in the ERPT for South Africa from 1994 to 2014. The paper uses rolling-window estimation to examine the possibility of change in the ERPT over time. In addition, it investigates the asymmetric behaviour of the ERPT over the business cycle. The results indicate that the ERPT for South Africa is complete in the first stage but incomplete in the second stage. It implies that retailers do not pass all the cost to consumers. The first-stage ERPT has declined slightly since the Global Financial Crisis. Weak domestic demand and possibly the concentration of firms in the manufacturing sector are the main forces behind this low PT. Moreover, there is evidence of asymmetry in the first-stage ERPT in that it tends to rise in the upturn phase of the economy compared to the downturn. The second-stage ERPT shows a considerable decline since the adoption of the inflation-targeting regime. Similar to the first-stage case, the PT is muted in the downturn but rises in the expansionary phase by about 10%.

SOUTH AFRICAN JOURNAL OF HIV MEDICINE

Geffen, N & Welte, A (2018). Modelling the human immunodeficiency virus (HIV) epidemic: A review of the substance and role of models in South Africa. *SAJHM* **19**(1), DOI: <https://doi.org/10.4102/sajhivmed.v19i1.756>

We review key mathematical models of the South African human immunodeficiency virus (HIV) epidemic from the early 1990s onwards. In our descriptions, we sometimes differentiate between the concepts of a model world and its mathematical or computational implementation. The model world is the conceptual realm in which we explicitly declare the rules—usually some simplification of ‘real world’ processes as we understand them. Computing details of informative scenarios in these model worlds is a task requiring specialist knowledge, but all other aspects of the modelling process, from describing the model world to identifying the scenarios and interpreting model outputs, should be understandable to anyone with an interest in the epidemic.

SOUTH AFRICAN MEDICAL JOURNAL

Nuttall, J & Pillay, V (2018). Characteristics and early outcomes of children and adolescents treated with darunavir/ritonavir-, raltegravir- or etravirine-containing antiretroviral therapy in the Western Cape Province of South Africa. *SAMJ* **108**(2), 105–10

There is an increasing need for third-line treatment regimens in HIV-infected children with antiretroviral treatment (ART) failure. Data are limited on darunavir/ritonavir (DRV/r)-, raltegravir (RAL)- and etravirine (ETR)-containing regimens in treatment-experienced children from resource-constrained settings receiving these drugs as part of routine care.

OBJECTIVE. To describe the characteristics and early outcomes of treatment-experienced children (<20 years of age) in the Western Cape Province of South Africa treated with DRV/r-, RAL- or ETR-containing regimens.

METHODS. This was a retrospective review of treatment-experienced children receiving a DRV/r-, RAL- or ETR-containing regimen as recommended by a paediatric expert review committee, based on HIV drug resistance testing.

RESULTS. Thirty-five children of median age 8.8 years (interquartile range (IQR) 5.5–11) who had received ART for a median of 6.9 years (IQR 5–9.9) and started a DRV/r-, RAL- or ETR-containing regimen were included. Before starting such a regimen, the median CD4+ lymphocyte count and HIV-1 RNA level were 405.5 cells/ μ L (IQR 251.5–541) and 28 314 copies/mL (IQR 5 595.5–120 186.5) (log 4.5 (IQR 3.7–5)), respectively, in 24 subjects with available results. After a median of 2 years (IQR 1.3–4) on treatment, 29/30 (96.7%) and 23/30 (76.7%) subjects with available results had HIV-1 RNA levels of <400 and <50 copies/mL, respectively.

CONCLUSIONS. This study found DRV/r-, RAL- and ETR-containing regimens to be effective in a group of treatment-experienced children and adolescents with multidrug-resistant HIV. Although the treatment regimens in this study were individualised based on HIV genotyping results, further research evaluating the safety and efficacy of standardised third-line treatment regimens in children of all ages is needed.

Legotlo, TG & Mutezo, A (2018). Understanding the types of fraud in claims to South African medical schemes. *SAMJ* **108**(4), 299–303

Medical schemes play a significant role in funding private healthcare in South Africa (SA). However, the sector is negatively affected by the high rate of fraudulent claims.

OBJECTIVES. To identify the types of fraudulent activities committed in SA medical scheme claims.

METHODS. A cross-sectional qualitative study was conducted, adopting a case study strategy. A sample of 15 employees was purposively selected from a single medical scheme administration company in SA. Semi-structured interviews were conducted to collect data from study participants. A thematic analysis of the data was done using ATLAS.ti software (ATLAS.ti Scientific Software Development, Germany).

RESULTS. The study population comprised the 17 companies that administer medical schemes in SA. Data were collected from 15 study participants, who were selected from the medical scheme administrator chosen as a case study. The study found that medical schemes were defrauded in numerous ways. The perpetrators of this type of fraud include healthcare service providers, medical scheme members, employees, brokers and syndicates. Medical schemes are mostly defrauded by the submission of false claims by service providers and syndicates. Fraud committed by medical scheme members encompasses the sharing of medical scheme benefits with non-members (card farming) and non-disclosure of pre-existing conditions at the application stage.

CONCLUSIONS. The study concluded that perpetrators of fraud have found several ways of defrauding SA medical schemes regarding claims. Understanding and identifying the types

of fraud events facing medical schemes is the initial step towards establishing methods to mitigate this risk. Future studies should examine strategies to manage fraudulent medical scheme claims.

Long, LC et al. (2018). Can routine inpatient mortality data improve HIV mortality estimates? Inpatient mortality at an urban hospital in South Africa. *SAMJ* **108**(10), 870–5

South Africa (SA) has one of the world's largest HIV treatment programmes, to which a dramatic increase in life expectancy has been attributed. However, there continue to be concerns regarding the reporting of HIV-related mortality in SA, which varies by source. As accurate HIV mortality estimates are key to measuring the success of the national programme as well as identifying areas for improvement, we propose a complementary approach to monitoring changes in HIV-related mortality using routine inpatient records to examine trends in causes of death and HIV status over time.

OBJECTIVES. To investigate the feasibility of this approach by calculating mortality due to natural causes in the medical ward of a hospital during 2010 by HIV status.

METHODS. We conducted a cross-sectional study of inpatient mortality at a regional hospital in Johannesburg, SA, analysing all deaths due to natural causes among adult medical ward inpatients. Cause of death was recorded from the mortuary register. HIV status was ascertained directly from the mortuary register or from laboratory tests specific for HIV diagnosis or monitoring.

RESULTS. Of 1 167 inpatients who died, the majority were HIV-positive (58%). HIV positivity among males (55%) was slightly lower than that among females (61%), and HIV-positive patients were younger (median 40 years) than those who were HIV-negative (56 years) and of unknown HIV status (68 years). 'Infections and parasites' was the most common cause of natural death (29%). On average, HIV-positive patients were admitted for slightly longer (mean 10.5 days) than HIV-negative patients (9.6 days) and those of unknown HIV status (8.9 days), yet HIV-positive inpatient deaths accounted for the majority (62%) of the total bed days.

CONCLUSIONS. Even with widespread access to antiretroviral therapy, the majority of inpatient natural deaths at a large public sector hospital in 2010 were of HIV-positive patients and were probably related to HIV. In view of the importance of accurate data on causes of death, both for the HIV programme and to track other diseases, large-scale expansion of this approach over a longer period should be considered.

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Visagie, J (2018). On the interchangeability of barrier option pricing models. *SASJ* **52**(2), 15–171

An important question when modelling option prices is which of the multitude of option pricing models to use. In this paper, the calculation of barrier option prices is considered. These exotic options are found in many financial markets the world over. It is demonstrated numerically that it is possible to replicate (with a high degree of accuracy) the barrier option prices obtained from one model by making use of a different model; these models are referred to as ‘interchangeable’. Tests for the interchangeability of barrier option pricing models are developed and applied. However, the tests developed are not specific to barrier option pricing models and can also be applied to the prices of other exotic options.