

Much Ado
ABOUT DIVIDENDS

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Nico Katzke & Charlotte van Tiddens

PRESCIENT
SECURITIES

Nico Katzke

BCom (Hons), MCom (Cum Laude)

Tel: +27 (0)21 700 3719

nico.katzke@prescient.co.za

Charlotte van Tiddens

BCom (Hons), MCom

Tel: +27 (0)21 700 3719

charlotte@prescient.co.za

Cape Town Office

Prescient House

Westlake Business Park

Otto Close, Westlake 7945

Tel: +27 21 700 3600

Fax: +27 21 700 3700

info@prescient.co.za

Much Ado About Dividends

Exploring the Performance of Dividend-Orientated Strategies in South Africa

Executive Summary:

The aim of this paper is to research dividend signals as an investment strategy. The paper first provides a thorough synopsis of the nature of dividend payouts (**what** it constitutes and **why** it is paid) - highlighting that domestically there is a large emphasis on companies paying out dividends habitually (following the UK model). We then consider the **when** - focusing on the timing of relative outperformance of globally traded systematic dividend strategies. We finally consider which dividend signals matter in SA, considering the absolute and risk-adjusted performance of systematically constructed dividend yield and dividend per share growth signal portfolios. The structure for the applied section follows.

- We construct systematic quintile portfolios dating back to 2003, in order to compare the performance (absolute and risk-adjusted) of variants of available dividend signals;
- We find that Dividend Yield (DY) and Dividend Per Share Growth (DPSG) signals are significantly improved by first filtering for the top risk-adjusted momentum stocks.
 - This makes intuitive sense since such a filter helps avoid the DY-value trap, and down weights companies that have an impaired ability to sustain future dividend payouts (as companies with weaker balance sheets and depleted cash-flows would more likely have experienced a negative price momentum).
- Accounting for the sustainability of dividends by simply filtering out companies with high payout ratios, also improve both DY and DPSG signals.

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Equity Trading

Tel: +27 (0)21 700 3797

Derivative Trading and Research

Tel: +27 (0)21 700 3710

Fixed-Interest Trading and Research

Tel: +27 (0)21 700 3732

FX Trading

Tel: +27 (0)21 700 3710

Equities Research

Tel: +27 (0)21 700 3795

Quantitative Research

Tel: +27 (0)21 700 3718

Investment Strategy

Tel: +27 (0)21 700 3714

PSec Gears and Technology

Tel: +27 (0)21 700 3717

Nico Katzke

BCom (Hons); MCom (cum laude)

Tel: +27 21 700 3719

nico.katzke@prescient.co.za

Charlotte van Tiddens

BCom (Hons); MCom

Tel: +27 21 700 3714

charlotte@prescient.co.za

1 Introduction

The aim of this paper is to critically discuss the payment of dividends by companies, and also look at its return signal content. Companies frequently embark on periodic payouts of sizeable proportions of their retained earnings. From the perspective of the company as an entity, this simply constitutes a bleeding of cash. Shareholders, in turn, elect to receive this form of compensation paid in proportion to shareholding - despite it being clear that it does not translate into a net gain. This follows as paying out dividends leads to a capital loss (as a direct result of a shrinking equity base) that, in theory, should simply equal the cash paid out. Recipients of such payouts electing to immediately repurchase shares should (again, in theory) expect to be exactly even afterwards - ignoring transaction, tax and payout costs, which would leave them worse off - thereby not requiring a free lunch being paid. Thus dividends do not constitute a windfall to the shareholder, but rather is paid for by lowered capital gains.

To this end, Modigliani and Miller (1961) proposed the *dividend irrelevance theorem* which, under certain assumptions, posit that the dividend policy of a company is irrelevant and that shareholder wealth is affected by the income a firm generates, *not* the way the firm distributes that income (by capital gains or cash payouts). Vanguard (2017) summarizes it succinctly, stating that “*the focus of high dividend-yielding equities is often their income potential, but higher yields do not necessarily translate into higher returns. This is because, for all companies, whether or not to pay a dividend is a capital budgeting decision. When a stock goes ex-dividend, its price falls by the same amount as the dividend payment. Therefore, no wealth is created through paying a dividend; rather, the payment reduces retained earnings.*”

Why then do we see companies still paying out dividends? Arguments for include, e.g., the *bird-in-hand hypothesis*, which postulates that investors prefer cash dividends (the bird in the hand) to potential capital gains (two birds in the bush) due to the uncertainty associated with returns from price movements (cf. Lintner (1962) and Gordon (1959)). This, however, implies that shareholders collectively display cognitive dissonance in framing dividend payments as a more desirable (tangible) source of income, compared to the intangible (yet equivalent) form of capital gains. While this is certainly plausible in some scenarios (specifically where stocks are illiquid), it would seem that such psychological arguments would at best only explain part of the story (markets tend not to be persistently fooled) and not apply generally in sufficiently liquid markets.

If we consider that the structure of equity holdings is a perpetual foregoing of capital with no repayment of principal, it would seem that paying dividends would be a minimal requirement to compensate a rational investor to hold company stock.¹ This would only apply, however, in sufficiently illiquid stocks where an investor might not be able to easily sell a company's stock - in which case dividend payouts would be essential to meet future liquidity needs. From this perspective, the requirement of dividends paid seems an antiquated feature of less liquid past market structures. Yet we continue to

¹ By definition, shareholders are the owners of equity - benefitting directly only when a company is liquidated or pays a dividend, or if the stock is sold at a premium.

see today, with our modern exchanges, that sufficiently liquid companies remain committed to elected cash payouts to shareholders. If we were to argue that dividends still are a function of required compensation due to the perpetual game of hot potato in holding company stock, we should similarly still be demanding the Reserve Bank's promise on currency notes to pay the bearer the relevant amount in gold. We of course no longer require this [explicit assurance of the value of the rand](#), due to our belief that at any convenient future time, someone else will accept our currency. Similarly, we expect someone to buy our stock in the future if we choose to sell.

The aim of this study is then to test whether and why dividend payout strategies indeed contain a profitable investment signal to potential investors. While a comprehensive study of this nature is largely lacking from the local market (existing studies' methodologies often do not tell us when and why certain dividend signals work, or what a systematic dividend investment strategy's returns would be), various global studies have underscored that dividends can be used as a profitable future return signal. We endeavour to fill this gap in testing various portfolios constructed based on dividend information in SA.²

The note is structured as follows: we first explore the [what](#) and then [why](#) of dividend payouts, arguing that dividends do not constitute shareholder wealth creation. We then consider the [when](#) - focusing on the timing of relative outperformance of globally traded systematic dividend strategies. We finally consider the absolute and risk-adjusted performance of systematically constructed dividend yield and dividend per share growth signal portfolios - and various other adjustment filters applied to it. The results of these backtests are discussed in Section 5, while Section 6 concludes.

2 What Constitutes a Dividend?

There are various types of cash payouts undertaken by companies, as summarized in section 7 in the appendix. In our proceeding analysis, we consider *cash dividends* as a possible return predictive signal, and further focus our attention specifically on interim, final and regular cash dividends. It thus excludes ad hoc dividend payments such as special cash dividends, and stock distributions (e.g. scrips). We do so simply as these are generally one-off payments and not a reflection of an existing dividend policy.

When declaring *cash dividends*, companies may give shareholders the option to elect scrip as opposed to receiving cash. This is different from dividend re-investment plans (DRIPs)³ in that the company retains the cash that would otherwise have been used to buy shares in the market. There are also dealing costs associated with DRIPs and the number of shares the shareholder gets will depend on the market price (when electing scrip dividends the number of

²The local Literature features several studies on the nature and scope of dividend policies in SA. Erasmus (2013) underscores the importance of the sustainability of dividends paid, while Mans-Kemp and Viviers (2015) study the relevance of the outcome dividend model in the local context. The latter authors also provide a thorough historic overview of the development of the regulatory framework guiding dividend policy in South Africa. We can also recommend Firer, Gilbert, and Maytham (2008) for a meta study on the topic in SA over the last 25 years.

³A DRIP allows shareholders to reinvest dividends cheaply. The operator will pool the cash payable to shareholders who have chosen to make use of the DRIP and then purchase and allocate the shares.

shares received is fixed). Unlike DRIPs, scrip dividends will affect the number of shares in issue.

Share buybacks: A more flexible and tax efficient form of distributing cash to shareholders is through share buybacks. Compared to ordinary cash payouts, buy-backs imply retained earnings returned to investors in the form of capital gains (as the company's purchasing of its own stock on the market serves to raise the proportion, and thus value, of shares held by investors). One clear benefit to the company is that it is more flexible when compared to the well known perils of changing dividend payout structures. To most higher net worth investors, tax benefits in the form of lower capital gains taxes also apply in most jurisdictions. It is thus no surprise that this form of earnings redistribution has gained traction in advanced economies such as the US (with the [Financial Times](#) recently reporting that announced stock buybacks in the US reached an all time high of \$437 billion). Its adoption has, somewhat surprisingly, been comparatively slow in South Africa. Wesson, Muller, and Ward (2014), e.g., found there were only 195 open market share repurchases announced in South Africa from 1999 to 2009, compared to the levels Manconi, Peyer, and Vermaelen (2014) estimated for our US, Canadian and Japanese counterparts constituting about 58%, 15% and 11% of total announcements, respectively, over the same period.⁴

The US expansion for share buybacks date back to the adoption of the Safe Harbour rule in 1982, after which ordinary dividends as a form of company earnings payouts took the backseat (Fama and French (2001) show that the proportion of companies paying cash dividends fell from 66.5% in 1978 to 20.8% in 1999). In South Africa, the repurchase landscape differs dramatically. Share repurchases have only been permitted since July 1999 when the Companies Amendment Act 37 of 1999 was implemented (Wesson, Muller, and Ward (2014)). While repurchases require shareholder approval, an important drawback preventing the accurate measurement of the value of repurchases in South Africa relates to the 3% announcement rule. According to the JSE Listing Requirements, open market repurchases only need to be reported on SENS when a company has acquired 3% of its initial number of issued shares on a cumulative basis. This makes studying the full extent of share buybacks in SA an onerous exercise (and thus omitted here), and leaves scope for share price manipulation through unreported share repurchases (specifically considering that 3% might be significant for companies with a low free-float).

3 Why Would Dividends Matter?

A common and pervasive misconception in our market is that dividend yields (DY) could be regarded as a direct source of income (or shareholder value creation), making it comparable to other sources of yield income (such as treasuries). This would only be plausible if such dividends were paid out by an external entity, and not by retained earnings. The reality is, though, that dividends are simply paid for by reducing the equity base (thus lowering the value of remaining shares held), making dividend yields incomparable to FI instrument yields. This follows simply that for a vanilla coupon paying FI instrument, the yield to maturity is known in advance, with successive coupons not offsetting the yield earned

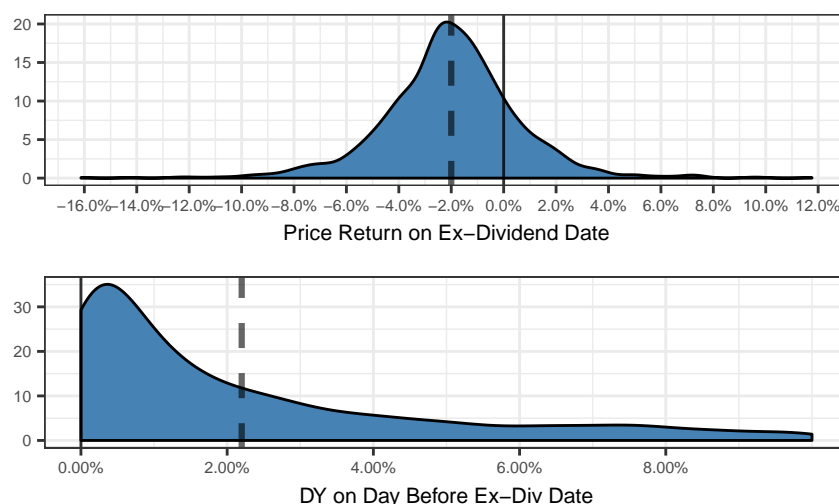
⁴For more on this topic, see Fatemi and Bildik (2012) and Von Eije and Megginson (2008).

from future coupons. For a shareholder in a company, in contrast, a 5% dividend yield in a given year might be more than offset by a capital loss of, say, 9%. This makes the argument for the attractiveness of equities over treasuries, based solely on dividend yields, inaccurate as it is only part of the equity payout. Over the long term, equities have shown to earn investors a premium over treasuries (where capital gains and dividends together over time exceed treasury yields) - but this would then have to be framed as a risk-premium, not a yield comparison argument (which is only half the story).

This nuance, however, is often not clearly communicated to investors when considering dividend yields. In contrast, dividends are often interpreted as creating shareholder value, while on the whole it simply creates liquidity. While this will no doubt be valuable to some, it creates no net value and should not be framed as doing so. Semantics here matter if it stops investors from valuing dividends for more than what it is.

The natural question then is *why* dividends would matter to shareholders. If **Modigliani & Miller (M&M)'s irrelevance theorem holds⁵**, it seems that there should be no informative signal derived from considering how profits are distributed (through cash or capital gains) as the size of a dividend should be considered completely irrelevant to the valuation of a company. M&M argued in the 1960s already that "... given a firm's investment policy, the dividend payout policy it chooses to follow will affect neither the current price of its shares nor the total returns to shareholders."

To this point, in South Africa if a company trades ex-dividend the price of the stock on aggregate drops by the amount of the dividend to be paid - implying that the one is simply swapped for the other. To show this, see Figure 1 below which shows the distribution of ex-dividend daily returns of tickers that declared final dividends since 2004.



Source: Own Calculations
N: 1337, start year: 2004, mean: dashed gray line.

Figure 1: Ex-Dividend Return and Last Day to Trade Yields

⁵For an accessible illustration of how this irrelevance can be derived from the DDM model itself, see Al-Malkawi, Rafferty, and Pillai (2010).

A common argument for the paying out of dividends include, e.g., that companies with few / no current profitable investment opportunities *should* elect to pay out earnings as dividends (thus giving the shareholder the option of deciding how to best allocate such capital). While this seems fair on the surface, in reality this could be interpreted as an indictment on the discretion and ability of management to effectively manage capital. To explain this, consider a good management team with no current investment opportunities. Paying out retained earnings would imply that in the future when good opportunities arise, management would first need to either borrow capital or raise it through a discounted rights issue; both of which would be more costly than having retained earnings on hand. If an investor doubts management's discretion and ability to wisely allocate retained capital in the future (or if the likelihood of future opportunities arising is considered slim), said investor should arguably consider selling stock as opposed to argue for paying out a dividend.

Conversely, management might plausibly elect to return capital if they believe their ability to create value is undermined by an inflated equity base.⁶ This way, companies electing to strategically return capital (by buying back shares or paying dividends) is an important and organic form of transferring capital to those with profitable opportunities. For the same token, a company choosing to habitually pay out retained earnings when profitable opportunities or sensible alternative uses exist (such as paying off debt), detracts from market efficiency.

Ultimately, shareholders should ensure management decisions are made that best serve total shareholder return (capital gains and earnings payouts). Shareholder preference should thus ideally be given to the most flexible form of strategic reallocation of capital given changing opportunity sets and varying capital requirements. To this end, share buybacks (US model) should in reality trump the often sticky and habitual structure of dividend payouts (UK model, to which SA is more aligned).

From an investment signal perspective, various studies have shown that, in fact, dividend strategies provide a useful return predictive cue (c.f. Conover, Jensen, and Simpson (2016), Cornell (2012), Chen (2009) and Damodaran (2004) amongst others). As stressed by Lintner (1962), Gordon (1963) and Fama and Babiak (1968), dividends do matter to investors (Clayman, Fridson, and Troughton (2012) provide a thorough summary of studies explaining why dividends matter to investors). Various theories have been posited to explain the persistent payout of cash by companies (such as signalling theory, agency theory, the bird-in-the-hand theory and others not discussed here). Most of the plausible theories suggested, though, have opposite arguments that cannot be discounted, leaving the reader none the wiser as to what signal is being conveyed by a particular dividend structure.⁷ It is thus important to consider the context in order to understand why different company structures might explain why a particular company has / should have a particular dividend policy. However, applying a systematic investment strategy based on dividends requires an explanation of why it should be preferable as a general signal - without individual context.

⁶Although this could be interpreted as throwing in the proverbial towel on expansion and thus a company's ability to create wealth, it may rather be framed as strategically prudent to allow shareholders to take profits through capital payouts.

⁷An undeniable caveat to the argument that dividend payouts should be a positive signal would be that it might, for the same token, signal negative prospects, such as a lack of profitable investment opportunities or self-interested decision makers. Add to this the (by definition) higher levels of solvency risk so introduced and lower levels of cash-flow, reasons for why a dividend signal should be negative abound as well.

The question thus becomes whether a company's dividend payout could be regarded as a plausible causal factor for a company's future return profile, or whether it should simply be regarded as a proxying factor for other good governance and improved balance sheet and cash-flow attributes.

We posit that the past performance of dividend-based portfolio strategies could be understood by using proxying arguments (as opposed to it being considered an attractive feature in itself). E.g., high dividend paying companies could, e.g., proxy for the quality of management structures over time (through its ability to consistently afford dividend payments), or similarly point to prudent cash-flow management capabilities. Also, an intuitive proxy for why companies with **high dividend yields** might outperform their more miserly counterparts, is that DY proxies for the **Value** factor signal. To understand this, consider the dividend yield equation below:

$$DY = \frac{EPS}{Price} \times PayoutRatio \quad (1)$$

From the equation above, if we assume a constant (or slowly changing) payout ratio, DY would simply become a function of changes in earnings yield. Figure 2, e.g., shows the 12 month net trailing dividend yield of Standard Bank relative to the log of the price since 2010. It shows the clear and expected negative correlation between DY and price over time (during a period where the dividend per share payment increased at best uniformly and moderately).

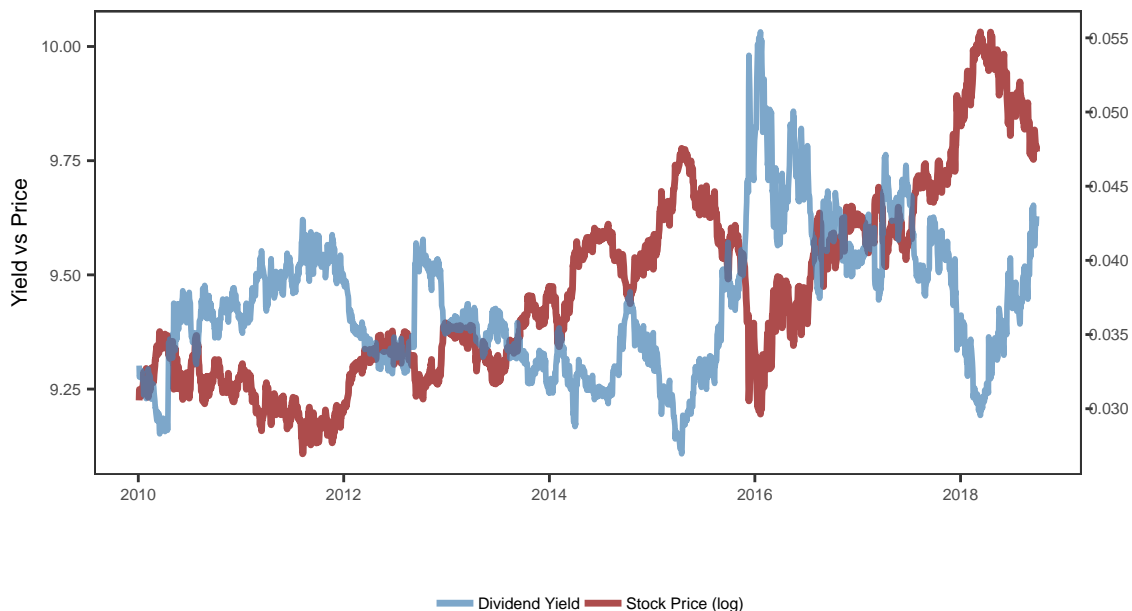


Figure 2: Standard Bank 12 Month Net Trailing Dividend Yield versus Price (log)

This implies that studies identifying return predictive power in DY might simply verify the existence of the value-signal. Value as an investment factor dates back to Basu (1977), who used the price-earnings ratio of companies to compare stock performance. Since then, many studies have confirmed the existence of a value premium, where cheap stocks outperform their more expensive counterparts over time. We show in Section 5 that this goes a long way to explaining the poor performance of the DY signal, and notably also the *Divi Index*, in South Africa since 2014.

The implication is that if DY is useful largely for it being a value proxy, a more sensible investment strategy would be to use a value measure that is calculated more directly (preferring, e.g. PE as opposed to DY). Thereby it would not require the payment of dividends as a key to its measurement (as with DY). In fact, one might plausibly argue that a quality cheap company need not necessarily pay a dividend. Unless, of course, the portfolio manager or researcher argues that cheap companies who also pay dividends is a good bet (but this needs to then be explicitly motivated as a premium itself).

The second dividend based factor signal we consider is dividend per share growth (DPSG). Compared to DY, this signal is not affected by changes in the price series (and thus not exposed to the same value trap problems), while preserving some of the same important proxies for prudent cash-flow management and good corporate financing structures. In Section 5 we also make certain key adjustments to avoid the DPSG signal being exposed to large and expensive stocks (with DPS often rising as a function of size in order to preserve past payout ratios) as well as companies paying unsustainably high dividends.

We acknowledge that our base assumption of the irrelevance of cash payout structures to investors, **and dividends acting rather as proxy signals**, is not universally accepted (especially in SA). This can be evidenced by the common emphasis placed locally on dividends as a useful signal in and of itself. It has also been noted by academics, such as Wolmarans (2003), as important to the valuation of local companies. Said author, e.g., states that “*Shareholders also prefer to receive regular dividends rather than irregular cash payments*”. The tangible form of returns (regular dividends) is thus argued to necessarily be more attractive than the “irregular” intangible form of capital gains, irrespective of its equivalence. This is, however, in contrast to what we see in the US, where Baker, Powell, and Veit (2002) show that only a small percentage of the managers of NASDAQ firms believe shareholders prefer dividends as opposed to price returns.

Analogously, we can compare dividend payments to drawing cash from an ATM. The recipient might feel wealthier from holding cash, but of course in reality the net equity level has remained the same. Withdrawn cash (or dividends) would thus only be regarded as more valuable if bank (or stock) liquidity were expected to be constrained.

For the remainder of this piece, we avoid further discussing whether dividends *should* or *should not* be paid out, rather treating the continued payout as a persistent *puzzle* (as famously suggested by Fisher Black (Black 1976)). We

instead focus on whether such capital budgeting decisions in fact provide investors with a profitable proxy signal.

4 When Would Dividends Matter?

We now step away from the *why* onto the *when* - thus studying whether dividend payments as a signal can have informative return predictive value (irrespective of whether it is due to a value- or cash-flow management proxy, or through a direct preference premium).

To achieve this, we consider the excess returns to benchmark of several globally traded dividend investment portfolios. All of the studied indexes are considered gross total return and are compared to the performance of the relevant universe benchmark in the same currency. We consider the following index series (see Table 7 in the appendix for the full list and tickers of funds considered):

- Standard and Poor's Dividend Aristocrats indexes⁸: *these indexes measure the performance of companies that have a history of consistently increasing dividends on an equal weighted basis; years of required dividend growth varies across countries.*
- MSCI High Dividend Yield indexes: *the MSCI high dividend yield indexes are designed to measure the performance of companies with high dividend yields. The indexes exclude companies that do not exhibit dividend sustainability, persistence and quality. Constituents are first screened for deteriorating fundamentals, thus attempting to explicitly avoid associated 'yield traps'. Constituents are then weighted by size.*
- FTSE Dividend Plus indexes (UK and SA only): *the constituents of the Divi Plus indexes are chosen based on the one-year dividend per share forecast and are sourced from a third party data provider (INET in South Africa). Constituent weights are determined by forward dividend yields. The UK index comprises of 50 constituents whereas the SA index comprises of 30 constituents.*

The Dividend Aristocrats indexes are thus constructed using DPSG strategies, whereas both the MSCI and FTSE indexes use measures of yield. Figure 3 shows the cumulative monthly excess returns of the selected indexes relative to the universe benchmark from which constituents are chosen. The indexes start on the date of ***inception***, *therefore cumulative excess returns for the period are not comparable across all indexes for the respective plot durations*. Details of the benchmarks as well as the dividend index start dates can be found in Table 7 below. For the South African Dividend Aristocrats index, the benchmark is replaced with the JSE All Share Index as Bloomberg's pricing data of the actual benchmark (S&P SA Composite Index) only begins in 2014.

The cumulative monthly excess returns of each of these indexes relative to their respective benchmarks can be seen below in Figure 3. Note the green and blue indexes are constructed using DY ratios, while the red lines constitute DPSG

⁸Not to be mistaken with the high yield variant. The Aristocrats indexes are generally equal-weighted portfolios whereas the high yield dividend aristocrats are weighted by dividend yield. Also the number of years of required dividend growth varies.

measures. The figure below is not entirely suggestive of a clear and consistent outperformance of dividend strategies over the entire considered period, whether using DY or DPSG, globally.

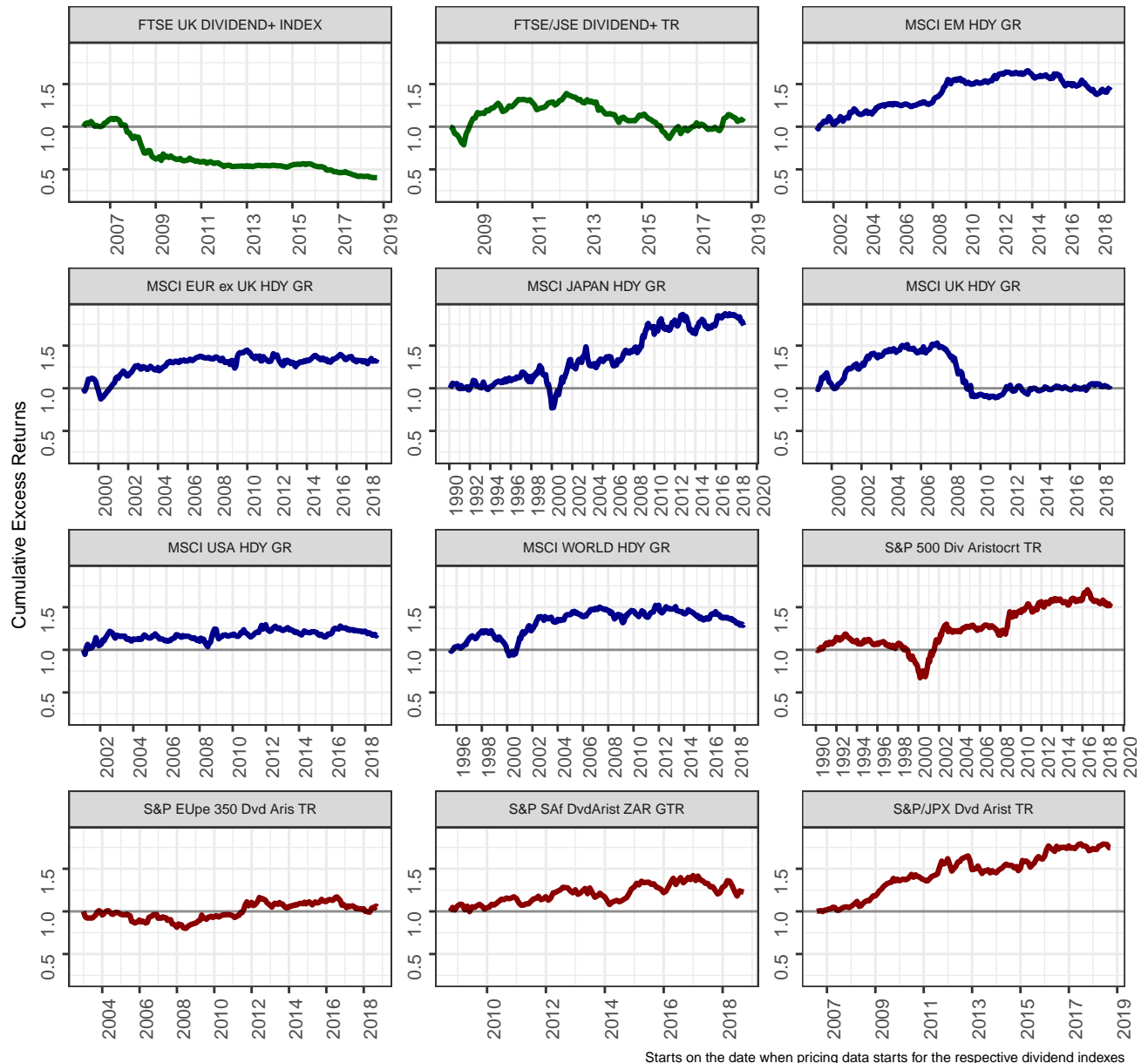


Figure 3: Global Dividend Index Performance

If we stratify these samples into different interest rate regimes and equity market stability cycles, a clearer picture emerges of when dividend signals work. First, interest rates are stratified into cutting and hiking cycles where periods of sustained rate changes (minimum of four changes) occur at least every five quarters. We also consider implied and realized equity market volatilities to proxy for different periods of market stability. After stratification, we geometrically chain the excess returns for the different periods before annualizing. This produces comparable cumulative annualized

excess return (CAER) results, defined as:

$$CAER = \left[\prod_{t=1}^n (1 + ER_t) \right]^{\frac{252}{n}} - 1 \quad (2)$$

The amount of daily data for the respective interest rate cycles is large enough to annualize, however, when the VIX, V2X or JALSH RV breach the top or bottom quintile for less than 50 trading days, the period is excluded in order to avoid annualizing small frequencies.⁹ See Figures 8 to 10 in the appendix for a visual of the periods considered in the stratification below.

Tables 1 and 2 below summarize the performance of the different dividend strategies during these stratified periods. It is interesting to note first that periods of rate cutting (hiking) is consistently associated with periods of significantly higher (lower) excess returns for dividend strategies (both DY and DPSG). In addition, the results below suggest that dividend strategies outperform during periods of market unrest and underperform during periods of market calm. In the US and South Africa, DPSG strategies tend to outperform by a larger margin than DY strategies during periods of high implied and realized volatility.

Table 1: Performance of Dividend Indexes during Hiking and Cutting Cycles

Index Name	Country	Regime	N	Geometric Mean	Median
MSCI USA HDY GR	US	Cutting	2	6.8%	6.8%
S&P 500 Div Aristocr TR	US	Cutting	3	10.8%	13.4%
S&P SAf DvdArist ZAR GTR	SA	Cutting	1	5.3%	5.3%
FTSE/JSE DIVIDEND+ TR	SA	Cutting	1	8.1%	8.1%
MSCI EUR ex UK HDY GR	EU	Cutting	3	3.9%	4.9%
S&P EUpe 350 Dvd Aris TR	EU	Cutting	2	9.2%	9.6%
MSCI USA HDY GR	US	Hiking	2	0%	0%
S&P 500 Div Aristocr TR	US	Hiking	4	-4.4%	0.3%
S&P SAf DvdArist ZAR GTR	SA	Hiking	1	-4%	-4%
FTSE/JSE DIVIDEND+ TR	SA	Hiking	1	-9.4%	-9.4%
MSCI EUR ex UK HDY GR	EU	Hiking	2	7.7%	7.9%
S&P EUpe 350 Dvd Aris TR	EU	Hiking	1	2.9%	2.9%

Table 2: Performance of Dividend Indexes during High and Low IV and RV

Index Name	Country	State	N	Geometric Mean	Median
MSCI USA HDY GR	US	High	5	-1.1%	2.9%
S&P 500 Div Aristocr TR	US	High	7	4%	2.2%
S&P SAf DvdArist ZAR GTR	SA	High	1	8.8%	8.8%
FTSE/JSE DIVIDEND+ TR	SA	High	2	5.2%	7.7%

Continued on next page

⁹A failure to exclude such short periods could imply annualising large single return periods, causing distortions.

Table 2: Performance of Dividend Indexes during High and Low IV and RV

Index Name	Country	State	N	Geometric Mean	Median
MSCI EUR ex UK HDY GR	EU	High	5	2.4%	1.9%
S&P EUpe 350 Dvd Aris TR	EU	High	4	-2.1%	0.8%
MSCI USA HDY GR	US	Low	7	-4.8%	-3.2%
S&P 500 Div Aristocr TR	US	Low	8	-4.2%	-4.3%
S&P SAf DvdArist ZAR GTR	SA	Low	3	0.8%	-0.9%
FTSE/JSE DIVIDEND+ TR	SA	Low	3	-1.8%	-3.9%
MSCI EUR ex UK HDY GR	EU	Low	7	-0.8%	2.1%
S&P EUpe 350 Dvd Aris TR	EU	Low	7	-6.2%	-4.1%

The average and median annualized cumulative excess returns of the US dividend indexes during cutting cycles indicate that dividend oriented strategies outperform when interest rates decline. Underperformance during hiking cycles is less pronounced in the US when taking into account median values. In the EU, dividend yield and growth outperform during cutting cycles (dividend growth outperforms to a larger extent), however, interestingly the results do not suggest that these strategies underperform during hiking cycles. The traded South African indexes only have observations for the most recent hiking and cutting cycles, thus explaining equality of the mean and median measures.

Although these results are interesting, portfolios traded using systematic dividend strategies do not have a long history in SA. We aim to rectify this short sample problem for SA next by constructing our own systematic dividend portfolios and showing the results of detailed in-sample backtests.

5 Which Dividend Signals Matter in South Africa?

Two approaches are commonly used to evaluate the relationship between dividend signals and returns. The first is a parametric approach (cf. Cornell (2012) and Chen (2009)) whereby excess returns are regressed onto, e.g., dividend yields. This is problematic in a local application for several reasons. The first being that the signal to **noise ratio** on regressed stock returns is low - implying that the modeler's ability to attribute return differences to a variable of interest (e.g. DY) accurately is thus severely undermined. This is often rectified by considering returns at a lower frequency (e.g. monthly or even annually, to partially control for noise)¹⁰. Also, studies using parametric techniques seek to infer statistical significance, often leaving the more applied reader with limited knowledge gained as to the actual *profitability* of considering said signal from a portfolio context. Secondly, returns tend to be non-normally distributed and have large outliers. The combination of these problems can easily lead to a small n, non-normally distributed and noisy inference series (especially in a local application) with limited practical application.

A second, more applied method that can be used to evaluate the return predictive signal of dividends, is to construct

¹⁰Cornell (2012) regresses annual real returns on dividend yields for 10 different developed countries for the period 1951 to 2012 and finds that dividend yield only acts as a significant return predictive signal in some countries. Such conclusions, however, hold limited application due to clear sample selection and temporal in-comparability issues.

subset portfolios and compare in-sample performances. While not necessarily providing readers with a parametric significance test, portfolio risk and return measures based on systematically constructed portfolios, serve to provide valuable insights. Various such applications exist in the literature. Damodaran (2004, 25) e.g. constructs top decile portfolios based on trailing DY at the beginning of each year from 1952 to 2001. For the last sample period (1991 - 2001), it is found that the highest dividend yielding portfolio outperformed the lowest by about 3%. Conover, Jensen, and Simpson (2016) find that portfolios constructed from high-dividend payers return over 1.5% more per year than non-dividend payers, in addition to having lower risk.

In what follows we use the subset approach on local data to construct backtests for dividend signal portfolios.

Methodology and Data

Our dividend portfolios below use the following methodology. First, we rebalance at the end of March and September and construct fully invested, long only portfolios. On each rebalancing date, we first take the top 100 stocks by market capitalization (MC), and then select the top quintile (20 stocks) based on the relevant signal scores (note: we ignore REITs in our analysis below)¹¹. We then apply 25bps trading costs to both buying and selling of stocks, and (where applicable) replace delisted stocks with cash. We use total return values, adjust for stock splits and other distorting effects on prices to calculate portfolio returns. We also carefully apply back-dated adjustments to dividends paid to accurately arrive at on-the-day dividends and actual closing prices when calculating our DY and DPSG measures.

We also apply at each rebalancing several portfolio optimization routines (minimum variance, equal risk contribution (ERC), mean-variance and max diversification measures), focusing our attention on the ERC measure throughout. We are happy to share the other results too if interested, although the general findings below are consistent. The optimizations are constrained to have minimum and maximum weight exposure of 0.5 and 1.5 times the equal weighted alternative. With our quintile portfolios, this implies weights ranging between 2.5% and 7.5%. Finally, Bloomberg is used throughout to download stock level data, coupled with our in-house adjustments for corporate actions.

The factor portfolios considered are defined as follows:

The Standard Dividend Yield Portfolio: uses the 12 month mean trailing dividend yield measure in its construction.

- This avoids biasing to stocks that experienced recent share price declines (negative momentum), as would be done when considering on the day DY values;
- This will be treated as the vanilla DY signal portfolio.

We construct the DY measure in-house by adding the Final, Interim and Regular Cash dividends on a rolling 18 month basis, and considering it relative to the actual prices of stocks each day considered. If either of these payments were

¹¹This follows as REITs are designed to pay out a significant proportion of retained earnings as dividends. This makes it incomparable to other stocks when considering dividend payouts.

made with a lag of more than 18 months, it resets to zero (so as to reward companies that consistently pay dividends).

The DPSG signal portfolio is constructed by considering the growth of company dividends mentioned above on a 1, 3 and 5 year basis.

- For the three and five year measure, we only consider stocks that had positive share payment growth over the period considered.
 - E.g., if a stock had a DPS decrease in year 2, even if it has an increased dividend payment over three years - we set this value to zero.
- This has the effect of rewarding consistency, but also reduces the sample set substantially if the period under consideration increases.

Momentum Adjusted DY and DPSG portfolios extend both our DY and DPSG portfolios by applying a momentum adjusted filter for each. We use the following approach to make the adjustments:

- Step 1: Rank our sample (top 100 by MC) by risk-adjusted price momentum and consider the top half.
 - **Note** that we do not use the “*traditional*” definition of momentum (12 - 1 month return as introduced by Jegadeesh and Titman), but rather use a risk-adjusted measure for momentum. Here we consider the 90 day moving average return series to the same 90 day standard deviation for each stock.
- Step 2: Rank our sample by either the DY or DPSG measure, and pick the top 20 stocks.

Sustainability Adjusted DY and DPSG portfolios extend our DY and DPSG signals by considering dividend payout ratios (DPR). DPR measures how much of a company’s profit is paid out in dividends. We construct this signal by removing from the top 100 companies the 20 with the highest DPR scores. The aim of this filter is simply to avoid the most unsustainable stocks from a dividend payment perspective - thus systematically avoiding stocks that are most likely to cut dividends in the future, leading to a reactionary capital gain loss (as commonly experienced in practice).

- Step 1: Rank our sample (top 100 by MC) by the payout ratio using normalized earnings and consider only the bottom 80 (lower DPR is more sustainable).
 - This measure is calculated by considering the fraction (percentage) of net income a firm pays to its shareholders in dividends, calculated as: Total Common Cash Dividends / Normalized Earnings.
- Step 2: Rank our sample by either the DY or DPSG measures, and pick the top 20 stocks for each.

We also compare the performance of these constructed portfolios to a standard value signal (PE) and a momentum signal, constructed as a composite 60, 120 and 240 day risk-adjusted momentum score for each stock.

We next compare the absolute returns as well as the risk-adjusted performance and drawdowns of each of these portfolios. We then consider turnover and tracking error, before briefly showing the sector exposure of some of the different strategies.

Cumulative Return Comparison

Below we show the cumulative return comparison of several different dividend portfolio strategies since 2003. For each we also show the post-crisis cumulative returns (post 2010) for comparison. We split the return series into the DY based portfolios, and also the DPSG portfolios. For both, we compare the funds to the J200 total returns (proposed benchmark), as well as the momentum (risk-adjusted) and value strategies.

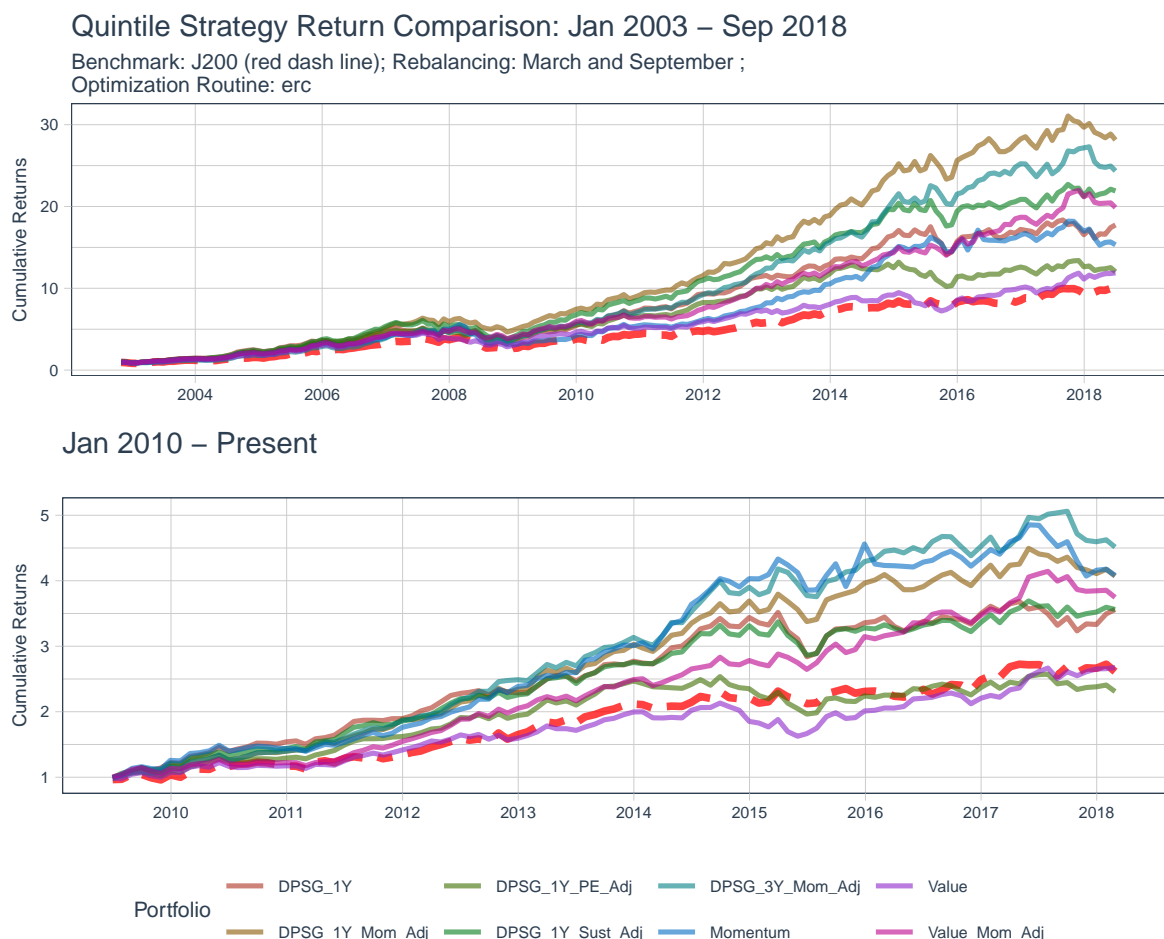


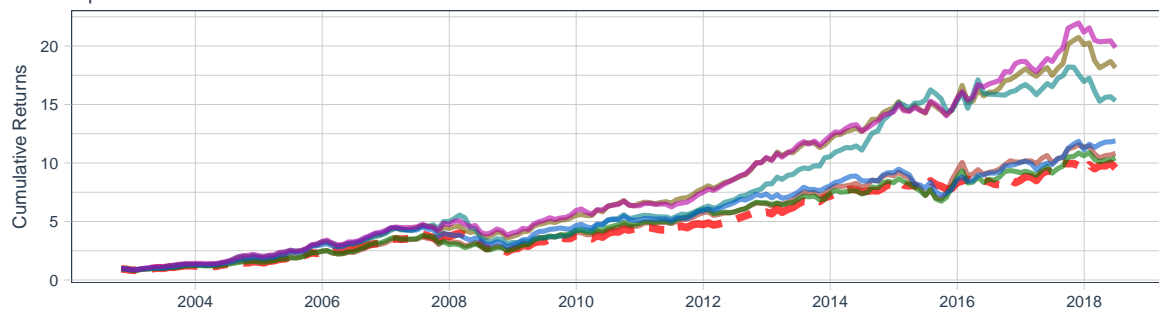
Figure 4: Quintile Strategy Cumulative Returns: DPSG Portfolios

From Figure 4 we gain some interesting insights.

- First, the top quintile portfolios ranked by DPSG 1 Year and 3 Year¹² produce significantly improved terminal values to the J200 series since 2003 (first figure), even outperforming the risk-adjusted momentum signal.
 - Further, the DPSG strategy's performance markedly improves when first accounting for momentum. The measure is also improved when first controlling for sustainability.
 - Filtering for low PE stocks (value filter) as a first step does not improve the signal's portfolio returns- making it more comparable to the value signal.
 - Also note, applying quarterly rebalancing to the DPSG momentum adjusted portfolio (not shown above) leads to higher transaction costs and a slightly worse overall performance of the momentum adjusted DPSG signal. Also, the 1 year measure performs better than both the two and three year measures (results for quarterly rebalancing and multi-year DPSG signals are available upon request).

Quintile Strategy Return Comparison: Jan 2003 – Sep 2018

Benchmark: J200 (red dash line); Rebalancing: March and September ;
Optimization Routine: erc



Jan 2010 – Present

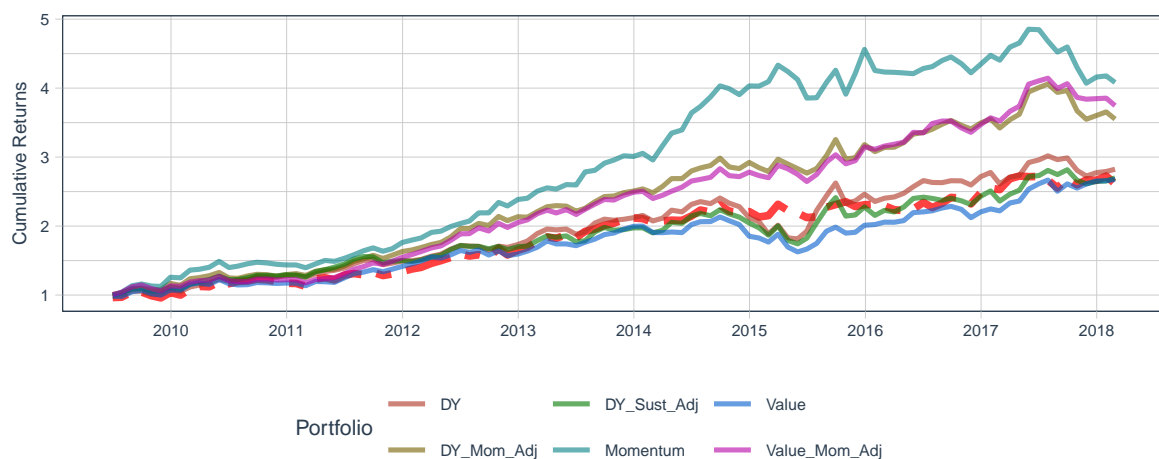


Figure 5: Quintile Strategy Cumulative Returns: DY Portfolios

¹²Our DPSG signals consider only those stocks that have increased dividend payments consistently over the relevant period.

- For the DY portfolios in Figure 7, first note the similarity between the DY and Value signals (as suggested before).
 - Both the DY and value signals have not produced profitable returns since 2014 (although value, as measured by PE, has kicked since the middle of 2016).¹³
 - If we first filter for the top stocks by sustainability of dividend payouts and risk-adjusted momentum, the DY signal is dramatically improved (particularly considering first momentum).

A valid contention to the above findings would be that these measures are simply picking up momentum, and may not be as attractive from a risk-adjusted perspective (as is the case with momentum traditionally). We find, in contrast, that the momentum-adjusted DPSG signal boasts the highest adjusted Sharpe ratio for both the full sample (since 2003) and the post-crisis period, as well as the lowest average drawdowns & Ulcer ratios during both. It also has the highest Jensen's Alpha for the full sample period.

The table below illustrates this, with the portfolios ranked by their adjusted Sharp ratios. We also show the d-Ratio¹⁴, and several other common measures that can be used to compare the performance of the funds.

Table 3: Portfolio Performance Measures: 2003 - 2018

Portfolio	Avg Drawdowns	d-Ratio	Information Ratio	Jensen's Alpha (Mod)	Returns (Ann)	Sharpe Ratio (Adj)	Ulcer Ratio
DPSG_1Y_Mom_Adj	3.9%	12.7%	0.82	0.19	23.9%	1.59	0.06
DPSG_1Y_Sust_Adj	5.1%	15.1%	0.63	0.13	21.9%	1.38	0.09
Value_Mom_Adj	5%	14.6%	0.54	0.14	21.2%	1.36	0.05
DY_Mom_Adj	5%	16.2%	0.44	0.14	20.6%	1.28	0.05
Value	6.6%	21.8%	0.15	0.07	17.4%	1.07	0.1
DPSG_1Y_PE_Adj	6.1%	21.3%	0.14	0.08	17.3%	1.06	0.08
J200	5.1%	28.5%	(Benchmark)	(Benchmark)	15.9%	1.01	0.09
DPSG_1Y	5.9%	19.9%	0.41	0.09	20.2%	0.96	0.09
Momentum	6.2%	22.4%	0.28	0.09	19.1%	0.9	0.14

Table 4: Portfolio Performance Measures: 2010 - 2018

Portfolio	Avg Drawdowns	d-Ratio	Information Ratio	Jensen's Alpha (Mod)	Returns (Ann)	Sharpe Ratio (Adj)	Ulcer Ratio
DPSG_1Y_Mom_Adj	3.2%	14.4%	0.74	0.14	17.4%	1.71	0.03
Value_Mom_Adj	3.8%	15.4%	0.55	0.14	16.3%	1.59	0.03
DPSG_1Y_Sust_Adj	3.6%	16.7%	0.56	0.09	15.6%	1.43	0.03
Momentum	3.9%	20.6%	0.57	0.14	17.4%	1.34	0.05
DY_Mom_Adj	4.2%	16.5%	0.41	0.14	15.6%	1.26	0.03
DPSG_1Y	3.9%	19.1%	0.46	0.11	15.6%	1.2	0.04
J200	4%	35.3%	(Benchmark)	(Benchmark)	11.6%	1.05	0.03
DPSG_1Y_PE_Adj	4.9%	31.4%	-0.19	0.03	10%	0.92	0.07

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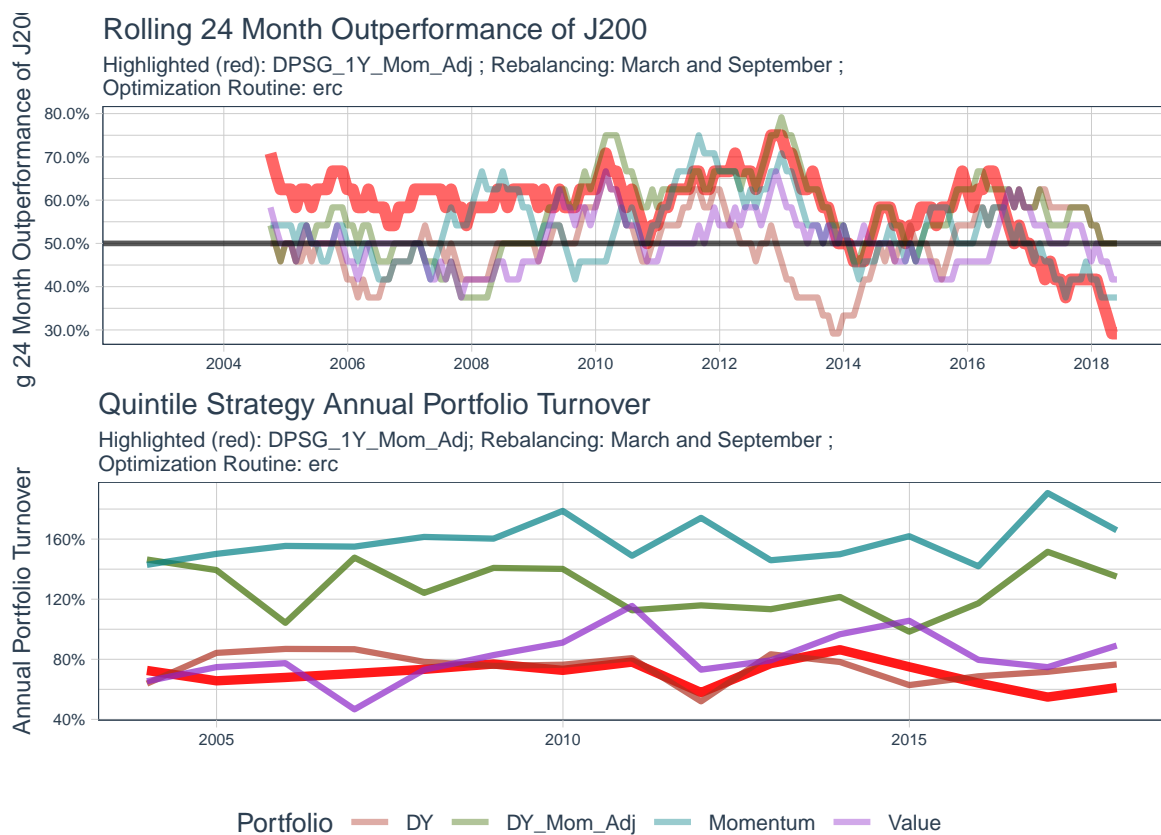
¹³This should go some way to explaining the disappointing performance of the Divi Index since its inception. It also shows that dividend yield in itself is simply a diluted measure of value, as argued before.

¹⁴The d-Ratio is similar to the Bernado Ledoit ratio (but inverted) and also takes account of the frequency of positive to negative returns. Lower measures are to be preferred.

Table 4: Portfolio Performance Measures: 2010 - 2018

Portfolio	Avg Drawdowns	d-Ratio	Information Ratio	Jensen's Alpha (Mod)	Returns (Ann)	Sharpe Ratio (Adj)	Ulcer Ratio
Value	5.3%	28.7%	0.03	0.04	11.9%	0.92	0.06

We next consider the investability and consistency of the momentum-adjusted DY and DPSG strategies. We show the portfolio turnovers as well as the percentage time the portfolio had a return above the market on a rolling two year basis. We highlight the momentum adjusted DPSG portfolio in red below.

**Figure 6: Rolling 24 Month Excess Returns and Portfolio Turnover**

From the first figure above we see that the momentum-adjusted DPSG portfolio (red line) produces a high level of consistency, with the strategy generally outperforming the J200 for the majority of months on a rolling 2 year basis. It also avoids sustained periods of underperformance, compared to e.g. the value, momentum and DY signals. It is further interesting how value has kicked and momentum has receded in the last two years (largely attributed to the strong performance of RESI stocks since 2016). Also note the comparably low consistency of the DY and value measures overall, with several periods where both have deep and sustained relative drawdowns.

From a portfolio turnover perspective, momentum adjusted DPSG also shows a moderate level of turnover - improving upon the momentum and value measures in attaining turnover consistently below 75%.

The timing of the excess performance of these strategies can now also be compared to the traded strategies discussed in section 4. We consider periods as high / low volatility when the realized volatility of the J200 was below (above) its lowest (highest) quintile for at least 50 trading days. For rate hiking (cutting) regimes, we define it as before considering hiking and cutting by the SARB. The tables below suggest that during periods of cutting and hiking interest rates, both DY and DPSG strategies tend to outperform the J200. The effect is more pronounced when cutting, which is consistent with the globally traded portfolios discussed earlier. We also see that market instability leads to a sharp underperformance in DY and DPSG, with the momentum adjusted filter reducing the severity of underperformance. Low volatility periods are generally associated with DY and DPSG underperformance, although less severe, with the momentum filter again significantly reducing the severity of underperformance.

Table 6: SA Realized Vol Strata

Table 5: SA Interest Rate Strata

Portfolio	Excess Return (Ann)	Regime
DPSG	10.5%	Cutting
DY	4.4%	Cutting
Momentum	-0.5%	Cutting
Value	10.3%	Cutting
DPSG (Mom Adj)	6.9%	Cutting
DY (Mom Adj)	5.5%	Cutting
DPSG	1.4%	Hiking
DY	1.7%	Hiking
Momentum	5.6%	Hiking
Value	-4.4%	Hiking
DPSG (Mom Adj)	6.6%	Hiking
DY (Mom Adj)	-0.1%	Hiking

Portfolio	Excess Return (Ann)	Regime	Trading_Days
DPSG	-8.6%	High	996
DY	-6.9%	High	996
Momentum	-14.7%	High	996
Value	11.1%	High	996
DPSG (Mom Adj)	-6.3%	High	996
DY (Mom Adj)	-7.9%	High	996
DPSG	-4.7%	Low	986
DY	-5.6%	Low	986
Momentum	1.7%	Low	986
Value	-1.7%	Low	986
DPSG (Mom Adj)	-0.3%	Low	986
DY (Mom Adj)	0.7%	Low	986
DPSG	6.4%	Middle	3109
DY	8.7%	Middle	3109
Momentum	6%	Middle	3109
Value	2.4%	Middle	3109
DPSG (Mom Adj)	10.4%	Middle	3109
DY (Mom Adj)	8.2%	Middle	3109

We omit a detailed discussion of the constituents and sector exposures for the momentum- and sustainability-adjusted, as well as momentum- and value- strategies. We do, however, show the most recent rebalancing period (September 2018) and show that controlling for risk-adjusted momentum leads to the DPSG signal under-weighting Consumer Goods, and over-weighting Consumer Services (exposure to financials is similar). For DY, adjusting for momentum completely removes exposure to Telecoms and Industrials, and over-weights Consumer Goods and Basic Materials. For more information on the constituents, feel free to contact us directly.



Figure 7: Sector Exposures at Last Rebalance (September 2018)

6 Conclusion

The ultimate aim of this paper is to research dividend signals as an investment strategy. We do so along the following guidelines:

- We first explore **what** dividends are and **why** shareholders elect to have it paid out.
 - South Africa follows the UK model in having high payout ratios, with companies often expected to habitually pay dividends.
 - This is in contrast to the US model of electing to pay out retained earnings through share buybacks, thereby retaining flexibility.
 - We also argue that dividend yields (DY) is simply a proxy for value, and that the dividend payout strategy of a company is ultimately a capital budgeting decision, and does not create shareholder wealth.
 - We posit that the DY and dividend per share growth (DPSG) signals should rather be used as proxying signals - with companies with sufficient cash-flow and sound corporate structures likely to pay higher dividends.
- We then look at **when** dividends matter - by stratifying economic periods into interest rate hiking / cutting cycles, and periods of high and low volatility.

-
- We then consider the performance of traded systematic dividend portfolios globally, of the S&P, MSCI and FTSE stables.
 - We find that during periods of rate cutting cycles, dividend yield and dividend per share growth portfolios generally significantly outperform their benchmarks. Also, for periods of high market volatility, these strategies become attractive. In both instances, the converse applies too.
 - Finally, we look at **which** dividend signals matter in South Africa, and suggest several modifications to the DY and DPSG signals.
 - We find that when applying a risk-adjusted momentum filter as a first step in the portfolio construction process, both the DPSG and DY signals are significantly improved.
 - In particular, the momentum-adjusted DPSG signal outperforms all the other signals considered (including value and momentum, DY and other variants of the same) both on a terminal value and risk-adjusted basis.
 - For DY, we argue that the improvement from first filtering for positive risk-adjusted momentum stocks protects shareholders from a DY-value type trap.
 - For the DPSG signal, we argue that it implicitly down-weights companies that might not be able to sustain future dividend payout growth, and thus might experience cash-flow issues in the future, and also sell-offs in a market that have come to expect dividends to increase over time.

7 Appendix

Traded Dividend Portfolios Considered

Table 7: List of Dividend Indexes and Benchmark Tickers

Ticker	Index Name	Benchmark Ticker	Benchmark Name	Index Start Date
FUDP Index	FTSE UK DIVIDEND+ INDEX	TUKXG Index	FTSE 100 TR GBP	03-October-2005
M2EFDY Index	MSCI EM HDY GR	GDUEEGF Index	MSCI Daily TR Gross EM USD	29-December-2000
M2EUGDY Index	MSCI EUR ex UK HDY GR	GDDUE15X Index	MSCI Daily TR Gross Europe Ex	31-December-1998
M2GBDY Index	MSCI UK HDY GR	GDDUUK Index	MSCI Daily TR Gross UK U	31-December-1998
M2JPDY Index	MSCI JAPAN HDY GR	GDDUJN Index	MSCI Daily TR Gross Japan USD	28-November-1975
M2USADVD Index	MSCI USA HDY GR	GDDUUS Index	MSCI Daily TR Gross USA USD	29-December-2000
M2WDHVD Index	MSCI WORLD HDY GR	GDDUWI Index	MSCI Daily TR Gross World USD	30-June-1995
SPDAEET Index	S&P EUpe 350 Dvd Aris TR	SPTR350E Index	S&P Europe 350 Gross TR	20-December-2002
SPDAUDT Index	S&P 500 Div Aristocr TR	SPXT Index	S&P 500 Total Return	29-December-1989
SPJXDAJT Index	S&P/JPX Dvd Arist TR	TPXDDVD Index	TOPIX TR Index	31-July-2006
SPSADAZT Index	S&P Saf DvdArist ZAR GTR	JALSHTR Index	FTSE/JSE AllShr Tot Rtn	19-September-2008
TJDIVD Index	FTSE/JSE DIVIDEND+ TR	JALSHTR Index	FTSE/JSE AllShr Tot Rtn	20-December-2007

Stratified Periods Considered

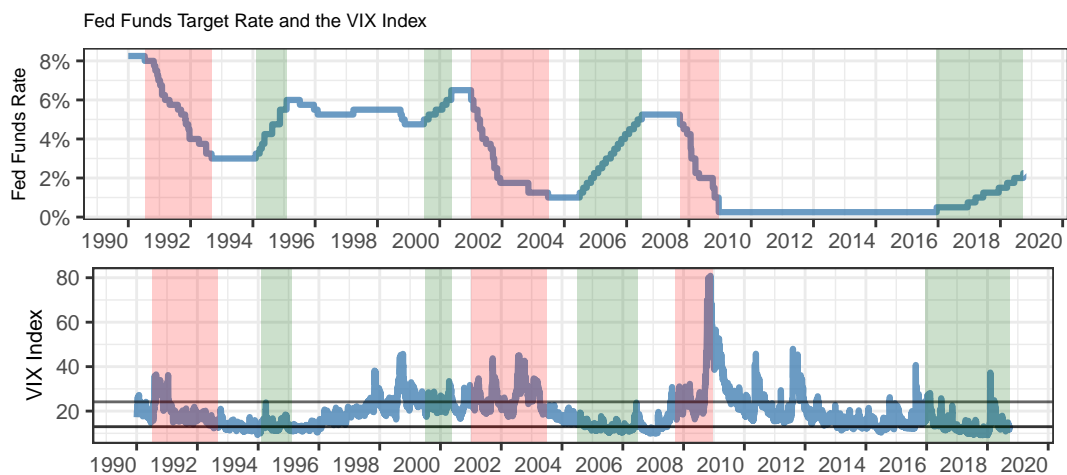


Figure 8: US Stratification

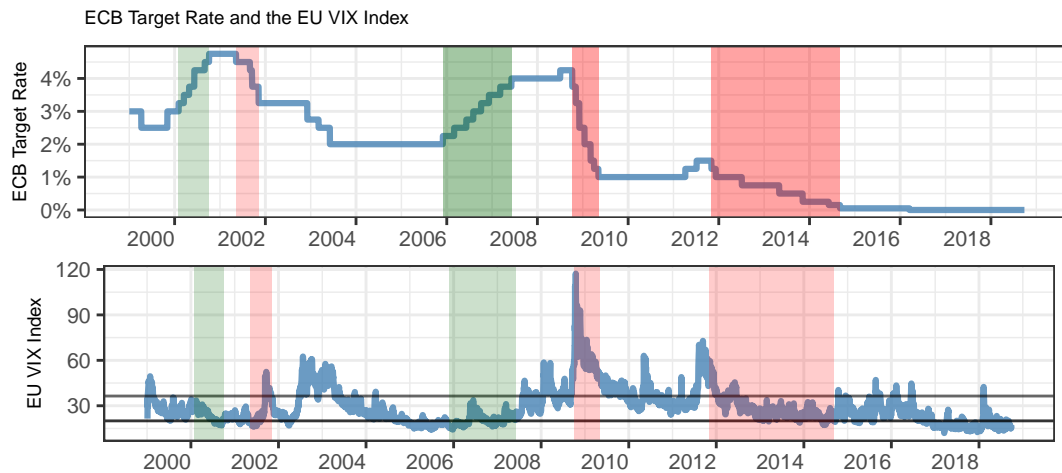


Figure 9: EU Stratification

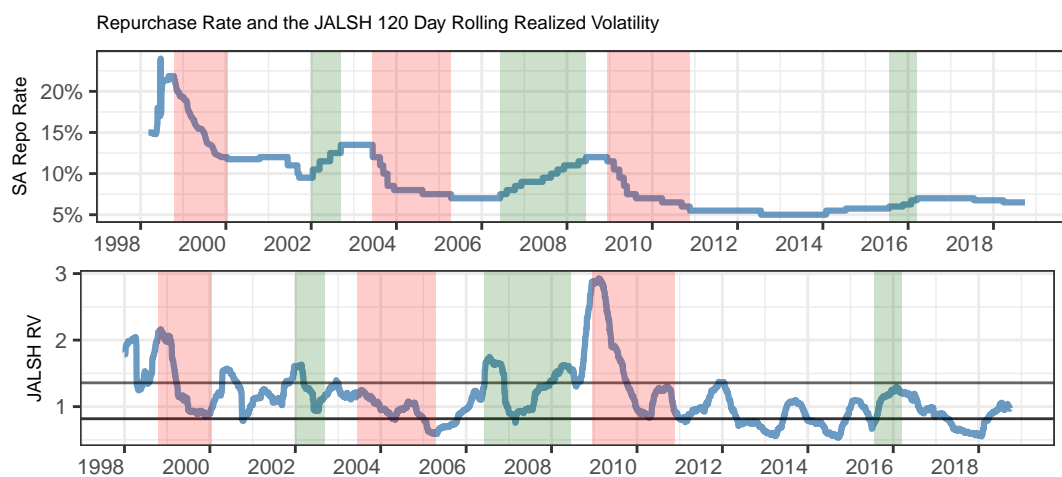


Figure 10: SA Stratification

Dividend Definitions

Bloomberg has two main categories for distributions: Cash Dividends and Stock Dividends. Various kinds of distributions appear under these definitions that do not necessarily only apply to ordinary issued shares (the only security type that we consider in our study). In the next two subsections we define the types of distributions that fall under these categories and in some cases provide additional information.

Our sample only comprises of final, interim and regular cash dividends. These dividends are categorized by Bloomberg as Normal Cash Dividend Distributions

Cash Dividend

- **Final:** dividend declared for the financial year-end
- **Interim (includes 2nd interim, 3rd interim and 4th interim):** dividend paid after a reporting period (eg. quarterly or semi-annually)

-
- **Special Cash:** dividend declared for the financial year-end or interim period over and above the normal dividend
 - **Regular Cash:** a dividend distribution made in cash
 - **Omitted:** A company has elected to skip a scheduled payment
 - **Discontinued:** The discontinuance of dividend payments on an ongoing basis
 - **Interest on Capital:** interest paid on fixed income instruments
 - **Income:** mutual fund dividends, in most cases
 - **Liquidation:** a distribution of a companies assets to shareholders during (interim) or after delisting (final)
 - **Return of Capital:** a non-taxable cash payment to investors from the company that represents a return on invested capital as opposed to a dividend
 - **Memorial:** a special dividend. For example a company celebrating an anniversary might pay a memorial dividend
 - **Proceeds from sale of shares:** a distribution of cash to shareholders after selling shares. For example this may occur when the company sells the shares of a shareholder who was not eligible to receive shares in an offering and then distributes the proceeds to shareholders
 - **Cancelled:** the cancellation of a previously declared dividend
 - **Return Premium:** special cash dividend paid from a special reserve
 - **Preferred Rights Redemption:** a company pays a dividend in exchange for previously issued preferred rights

Stock Dividend

- **Bonus:** also known as a scrip or capitalization issue. Shareholders are given additional stock in proportion to their holdings
- **Scrip:** a free issue or bonus of shares
- **Stock Dividend:** portion of a company's retained earnings that are distributed to shareholders in stock. The JSE treats stock dividends as a capitalization issue

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