realindex INVESTMENTS

Price Effects during Dividend Periods: Alpha, Cash Flow and Tax

Australian Edition

Realindex Team

For Institutional Investors only

June 2023

We investigate the pervasive but misunderstood price effects of stocks in the period surrounding their dividend payments. Known as "dividend run up" (DRU), we observe a positive excess return from tilting towards dividend paying stocks in the month (or slightly longer) prior to the ex-date. There are two separate effects to consider: the cum-dividend price run up, and the ex-dividend price drop off.

Note that this effect is often thought to be a tax effect specific to Australia. Investors who hold stocks that pay franked dividends in theory "go on strike" from selling for 45 days surrounding the dividend ex-date, in order to capture the franking credit along with the cash dividend. This creates price pressure which drives up prices. While this supposition appears to be at least partly true, the same effect manifests itself in unfranked dividend payers in Australia, and in many other markets around the world. There is more to this than just maximising dividends and franking. Note that this paper looks only at Australian stocks. Later work will extend it to other markets around the world.

Dividend run up falls within the group of insights associated with recurring corporate events with predictable returns. They have been extensively documented in the academic literature, including Frazzini and Lamont (2006), Heston and Sadka (2008), Barber and Odean (2013), Hartzmark and Solomon (2013, 2019), and Bessembinder and Zhang (2014). These studies largely concentrate on US stocks. Grant, Westerholm, and Wu (2018) study this area (and the dividend imputation/franking credits process) in Australia, so that study is probably closest to this one.

These studies show that this return predictability is difficult to attribute to risk factors. Potentially, it is more consistent with what is known as catering theory[1] - demand for distributions creates persistent price pressures (for example, as a "sellers strike") that revert after the event. This combines with the well-known dividend "drop-off" when stock price falls to reflect the reduced size of the firm.

Recurring firm events are interesting in terms of whether patterns in returns result from risk or mispricing. Exposure to risk is generally thought to arise from the economic properties of firms and their business operations. Many of these sources map to slow-moving firm traits that cannot be directly linked to recurring events, as most firms do not radically change their business plans frequently.

This does not rule out all risk-based explanations, but it does limit the set of risk-based alternatives. For risk to explain these patterns, one explanation could be that firms must become risky only in certain periods of the year as a result of either the recurring events themselves or something else that occurs on the same repeated schedule. There is also an argument that investors will earn a reward for taking the risk of a negative earnings surprise over results (and so dividend payment) periods.

[1] Originally from Baker and Wurgler (2004). A list of all references appears at the end of this paper.

What is Franking?

Much of the story regarding price effects nearing dividend periods in Australia is attributed to a combination of the effect of the cash dividend payment and the franking credit (or dividend tax credit imputation) that attaches to many dividends. This regime is not unique to Australia, but it is rare.[2]

Each company pays tax on its income at the corporate tax rate (30% in Australia), and the income is then partly or fully disbursed to shareholders as cash dividends. The individual shareholders then pay tax on the cash dividend at each individual's personal tax rate.

In effect, this means that the income earned by the firm is taxed twice in the hands of the shareholder. It is the aim of the franking credit system to reduce or remove this "double counting".

In operation, individual shareholders (Australian residents for tax purposes) include the total (grossed up) dividend in their total income, and the personal tax is calculated on this total. The franking credits are then offset against this tax payable.[3] The franking credit therefore forms part of the shareholders income and is in demand in the same way as the dividends themselves.

Further to this, investors can claim the franking credit even if they pay no tax. In other words, it is not just a tax offset – it is income that should be valued accordingly.

Market behaviour

There has been a dramatic increase in funds searching for equity yield, especially over the years since the GFC. Low interest rates have effectively cut opportunities for fixed income market yield, so investors have gone in search of yield in equity markets. This has manifested itself in a proliferation of yield type ETFs and other yield seeking funds offered by investment managers.

Equity income funds that earn yield through other means – for example, buy-write strategies – have delivered very good yield returns as well, without the need for yield harvesting. However, while they are most consistent in yield delivery and take less active dividend cash flow tilts, certain challenges arise - they can be perceived as being more complex in nature as compared to funds that simply tilt towards yield.

Having an alpha model based tilt is one approach to capturing this effect, but there are subtleties in how this should be properly applied. For example, if the portfolio is to buy cum dividend stocks, what does the strategy use or sell to fund this trade? (For example, by selling a slice of the rest of the portfolio?) Or, should an alpha model allow for better performance in one market segment - large caps, for example?

Further, to avoid missing any dividends, dividend seeking yield funds have sometimes put in place a physical "no sell" bar (or at least a high hurdle to selling) in the lead up to the cash dividend ex-date. This could be more prevalent in Australia, where the aim can also be to avoid missing franking credits, which require holding the stocks for a minimum window of 45 days surrounding the ex-date.

[2] Full imputation systems like that described here exist only in a few countries. Other countries – for example, the UK – have a partial imputation system, where credits for some corporate tax credits can be applied to reduce personal tax payable on the cash dividend received.

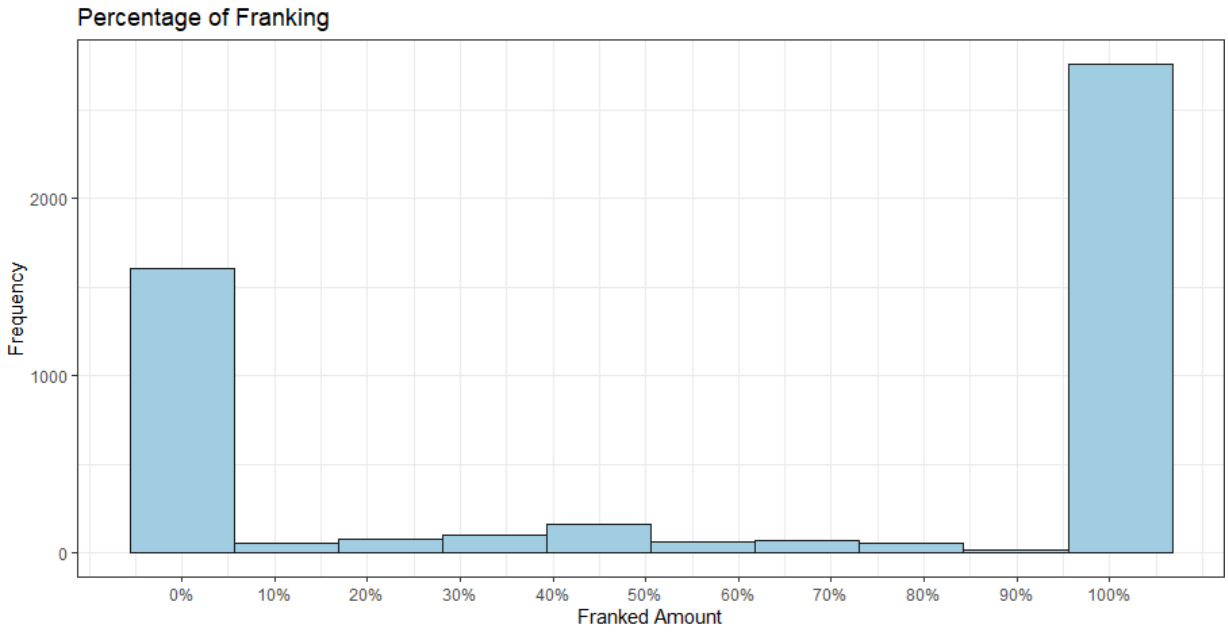
[3] If the total franking credits exceed the tax payable, the difference can be redeemed as a tax refund. This means the franking credit has equal value to all Australian-domiciled investors, irrespective of their tax rate. Note that offshore (no-Australian domiciled) investors cannot claim the franking credit.

One last point that is quite important - the 45 days only needs to span the ex-date. The start and finish dates can be anything from T-45 to T+1, to T-1 to T+45. In a somewhat self-fulfilling prophecy, investors most commonly use the T-45 to T+1 window, in order to capture the dividend run up as well. If the dividend run up is indeed driven by a sellers' strike, then those sellers have actually induced the dividend run up, to which they then gravitate.

Data

We start by outlining the data we use here. We chose all stocks in the ASX300 between January 2012 and December 2022.[4] All interim and full year dividends are included – note that special dividends are excluded. The ex-date (when the dividend is actually paid) is captured, as is the level of franking (between 0 and 100%). Of companies that pay dividends, roughly 54% of companies pay fully franked dividends, 33% pay full unfranked dividends and 12% pay a fractional level of franking. Chart 1 below shows this.

Chart 1: Histogram of number of dividend observations in our sample, by franking percentage deciles



Source: Realindex, FactSet. Date range: Jan 2012 – December 2022

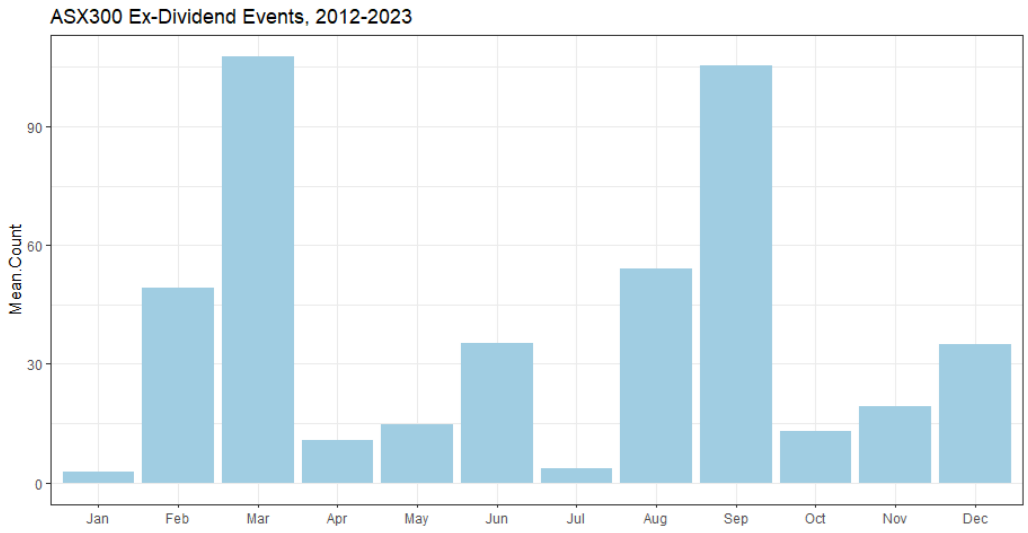
We also collect the price and total returns for each stock (but not after tax) and reconstruct the index return over the same periods from stock returns and weights. Finally, the risk factor exposures (size, value and beta) for each stock and the risk factor returns allow us to examine the excess return of this investment strategy over and above these factors.

[4] Extending the data set back before 2012 is possible but we have concentrated on just the last ten years or so as it represents the low inflation and interest rate regime following the GFC. We could look further into the past to examine time series trends, but this is left to future work.

Some summary stats on dividends in Australia.

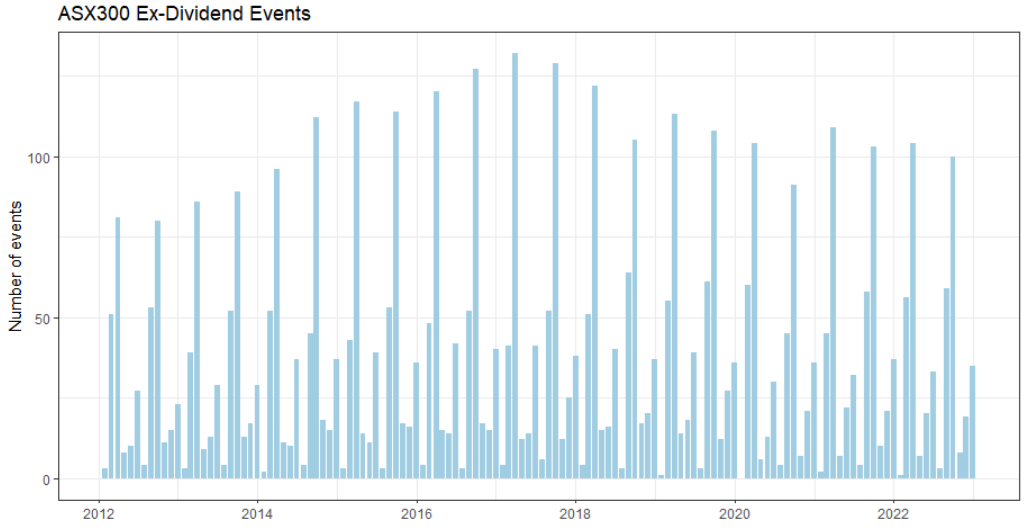
Most companies pay dividends twice per year in Australia, following the interim and final reporting periods. Most firms final reports are at end of the financial year in June, and interim reports are midway through the financial year, in December. This means that most dividends are paid in February-March (mostly interim) and August-September (mostly final). Other firms pay dividends at other times during the year, but the number is much smaller. Charts 2 and 3 show the monthly distribution of all dividend payments during our sample and the full time series (in each case, the number of dividend events, not the dollars paid).

Chart 2: Monthly frequency of dividend payments



Source: Realindex, FactSet. Date range: Jan 2012 – December 2022.

Chart 3: Time series of dividend events

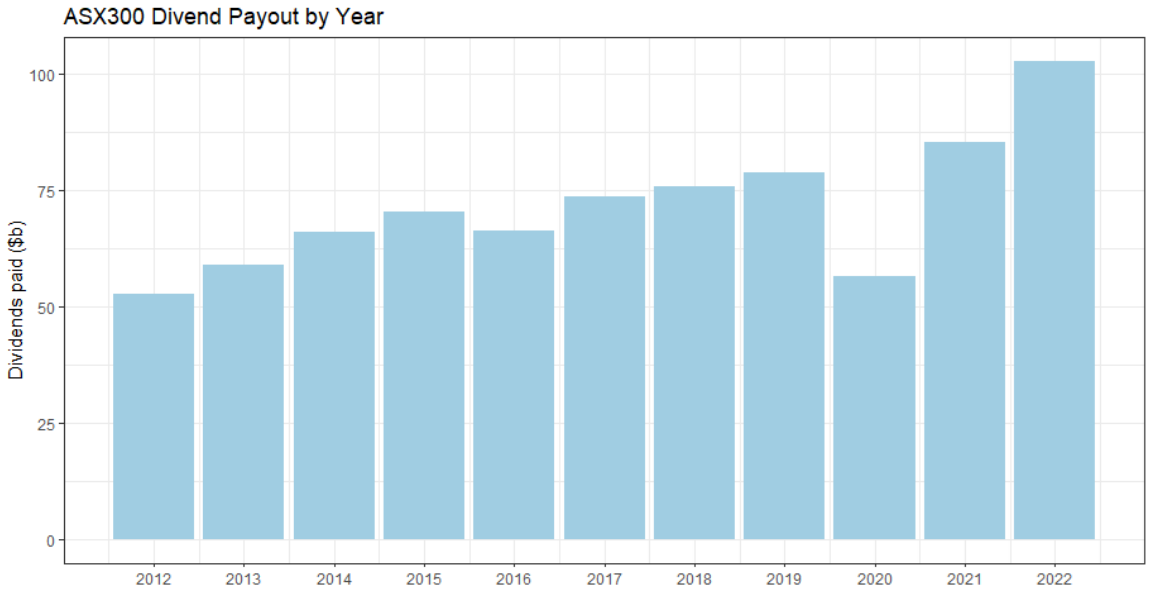


Source: Realindex, FactSet. Date range: Jan 2012 – December 2022

The amount of dollars paid out per year or month grows over time, as expected. Chart 4 below plots this. While the COVID related dip in 2020 (when banks suspended dividends) is evident, dividend payments by the ASX300 companies have grown every year. In 2022, more than AUD$100 billion was paid out in dividends. Note that there is a much-discussed relationship between dividends and inflation – dividends usually comprise a larger proportion of stock returns in periods of high inflation than in low inflation. The questions we need to ask – do dividend paying stocks act more like an inflation hedge than non-dividend paying stocks? Is this part of the performance of Value as a style?[5]

During periods of higher inflation, as we are experiencing now, demand for dividends could well be expected to increase. In periods of stagnant economic growth, this is also likely to be true (although only for firms that pay dividends out of earned cash flows and do not engineer higher dividends at the expense of future growth).

Chart 4: Aggregate dollars paid as dividends in the ASX300 by calendar year[6]

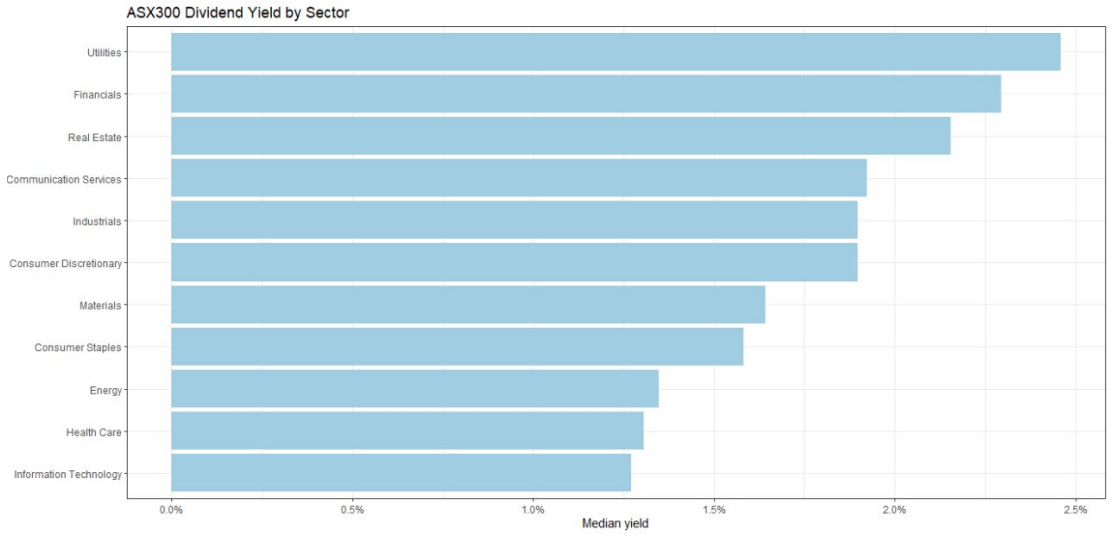


Source: Realindex, FactSet. Date range: Jan 2012 – December 2022

[5] www.dividend.com. This is still an area of open debate and future work may look into it.
[6] These are purely interim and final dividends. Special dividends and payments associated with other corporate actions are not included.

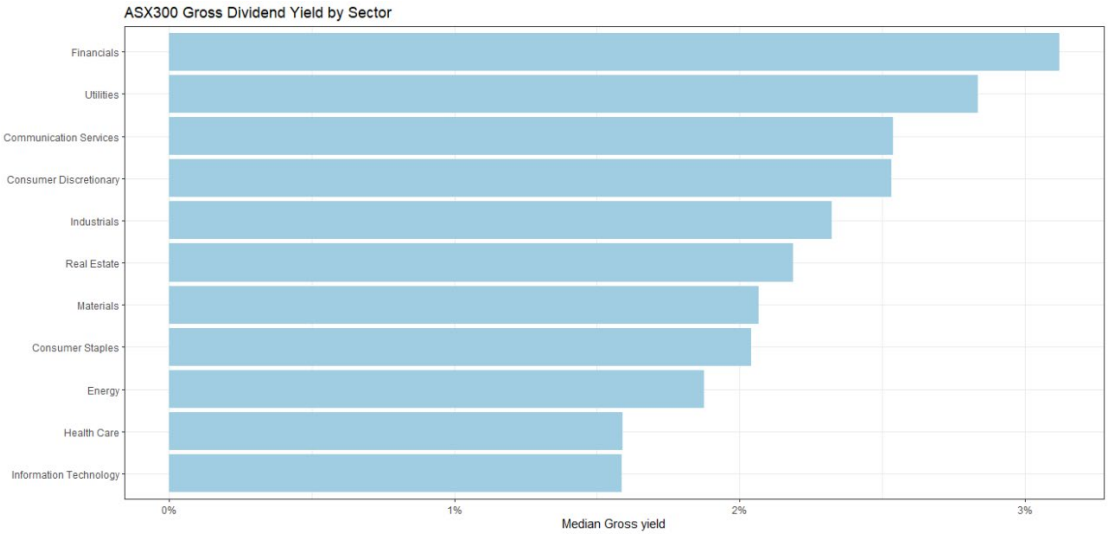
Dollars paid as dividends are known to be heavily tilted towards a few sectors in Australia, notably the four large cap banks, some large cap industrials like Wesfarmers and Telstra, and big miners like BHP and RIO. However, dividend yield by sector is much less skewed. Chart 5a shows the cash yield by sector for each dividend period, averaged over the sample period, which ranges from about 1.3% for Health Care up to about 2.5% for Utilities. That is, the chart shows the median dividend yield *at the time the dividend is paid (twice a year in most cases)*. The annualised dividend yield will consequently be approximately twice this value. Chart 5b shows the same breakdown but with the median dividend yield grossed up[7] for franking credits. Clearly, Financials have the highest grossed up dividend yield.

Chart 5a: Dividend yield (not annualised) for each dividend event, split by sector



Source: Realindex, FactSet. Date range: Jan 2012 – December 2022

Chart 5b: Grossed up dividend yield (not annualised) for each dividend event, split by sector

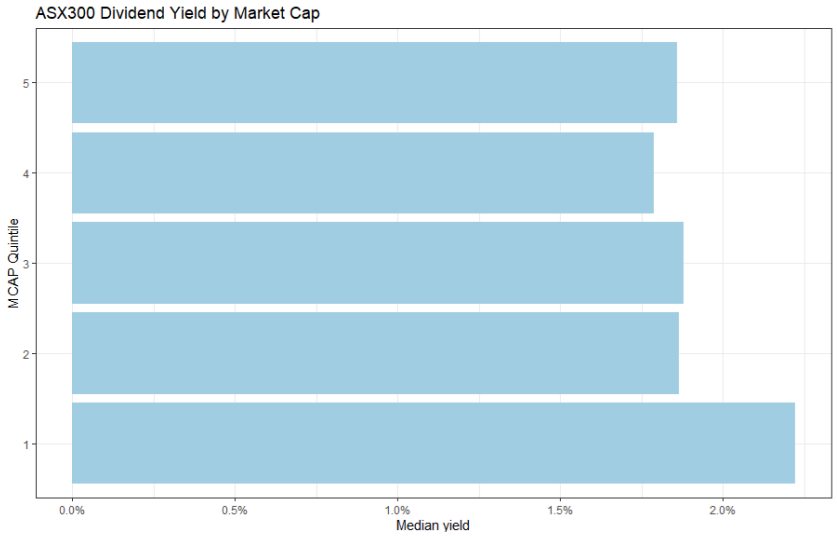


Source: Realindex, FactSet. Date range: Jan 2012 – December 2022

[7] gross_div = unfranked_div + (franked_div / 0.7). This assumes a 30% corporate tax rate.

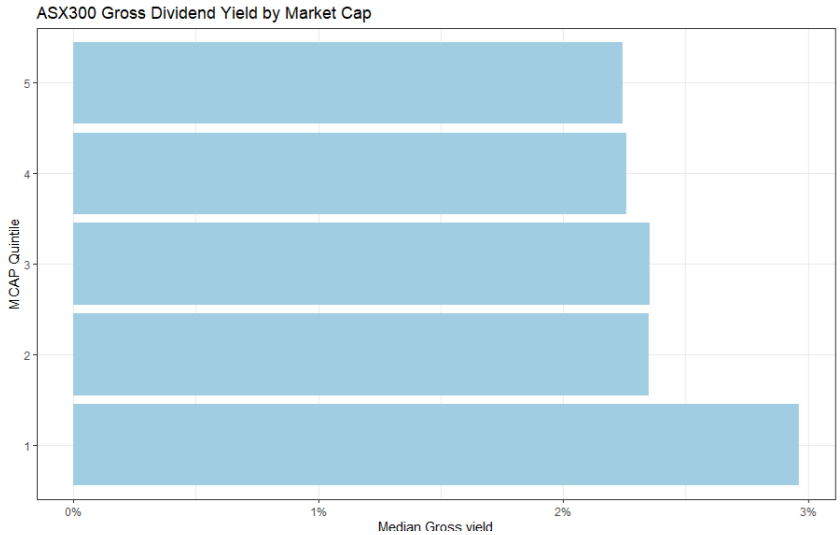
We can split up the data in the same way by market cap. Chart 6a shows the dividend yield by market cap quintiles (quintile 5 - top of the chart is the smallest). Again, note that this is the dividend yield at the dividend event (usually twice per year). Largest cap stocks have the highest yield. Chart 6b shows the same but for grossed up dividend yield.[8]

Chart 6a: Dividend yield (not annualised) for each dividend event, split by market cap quintiles (quintile 5, smallest cap, is at the top)



Source: Realindex, FactSet. Date range: Jan 2012 – December 2022

Chart 6b: Grossed up dividend yield (not annualised) for each dividend event, split by market cap quintiles (quintile 5, smallest cap, is at the top)

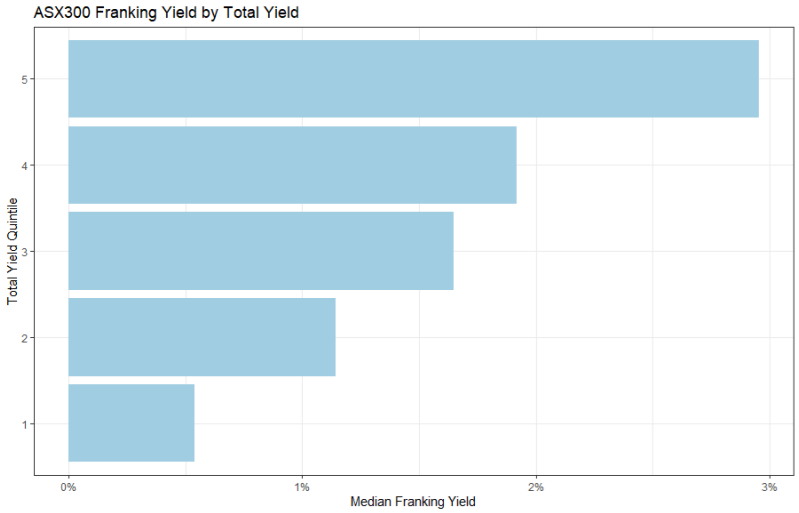


Source: Realindex, FactSet. Date range: Jan 2012 – December 2022

[8] It can be that interim and final dividends are different, with the final being larger on average. This might mean that run up behaviour is different between interim and final. While we acknowledge that this is perfectly feasible, for simplicity we have ignored it here.

Finally, Chart 7[9] shows the amount franking credit contributes to total (grossed up) annualised dividend yield, from the highest grossed up dividend yield to the lowest. That is, the highest 20% of grossed up annualised dividend yield payers have *almost 3% of their yield* due to franking credits.

Chart 7: Contribution of franking credit yield to total grossed up annualised dividend yield, ranked from highest to lowest total grossed up annualised dividend yield.



Source: Realindex, FactSet. Date range: Jan 2012 – December 2022

What is an excess return?

In evaluating whether the dividend run up generates an excess return, we need to define what that last term means. In other words, excess to what?

There are quite a few models of excess return we can use. Each has a different interpretation and stems from an underlying investment strategy which acts as an alternative to the dividend run up. Four models we could use:

- Excess to market

  This is simply asking the question of whether the return to the dividend run up strategy exceeds the alternative investment strategy of holding the broad based market benchmark. That is, capital employed in the dividend run up strategy could have been employed in buying the benchmark.

- Excess to sector

  Instead of the alternative being the market, a more reasonable alternative strategy for the investor would be investment in the same sector.

[9] Note: Chart 7 shows *annualised yield* (not by event as in the charts as above). Since interim yields are on average lower than final, sorting by events would have interim yield sin the lower quintiles and final in the higher quintiles, which defeats the purpose of the chart.

- Excess to market multiplied by stock beta

  In model 1, we don't take into account the risk (specifically, the beta) of the stock, which could materially influence the outcome. For example, higher beta stocks will on average get a return tailwind in an upmarket and a headwind in downmarket. Adjusting for beta removes this dependence and more correctly matches "apples with apples".

- Excess to a risk model

  The market is just one risk factor that might drive returns – others include the size of the stock, its Value characteristics, and its price momentum. A dividend run up return in excess of all four factors is much more robust and less dependent on other drivers of returns.

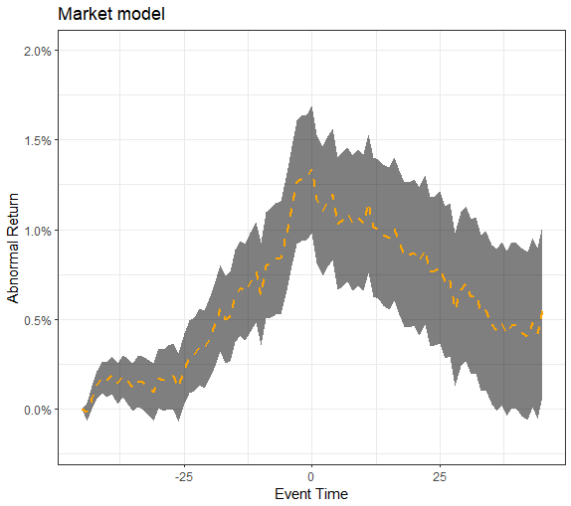
In our results below, we discuss the results using model 1 and model 4 only.

If we see dividend run up perform well against the market but poorly against the risk model, we can surmise that much or all of the return to the strategy is driven not by the dividend run up but by the risk factors. Indeed, this is what we see below.

Event Studies: The Basic DRU effect

We now arrive at our results. We show event study charts from T-45 to T+45 (where T is the ex-dividend date) plotting the equally weighted average total return (that is, including the cash dividend[10]) and including two standard error bounds about that average. This assumes that we know the ex-date with certainty a minimum of 45 days before it occurs. This may not in fact be the case in practice.[11]

Chart 8: Average excess return (model 1) from dividend run up (not annualised). The shaded area in the two standard deviation error range.



Source: Realindex, FactSet. Data date range: Jan 2012 – December 2022

[10] But not the franking credit at this stage

[11] Further to this, during the COVID crisis Australian banks suspended dividends for a period. The effects we see here are not driven by this, in fact any alpha model based on this shows lost performance over this period.

Clearly, a dividend run up effect exists *on average* in excess of the market return. Buying the stock 45 days prior to the payment of the dividend gives an almost 1.5% return (not annualised) to the ex-date. The stock then sells off sharply against the market – the well-known "dividend drop off" – as the market prices in its reduced economic size. The return retracement (even with the cash dividend) is about 1% (or two-thirds of the run up) by T+45.

Next, we take a closer look at these effects by splitting them up by yield and market cap, and by taking into account risk factors. The results are paid out below, but in summary, what do we see?

Both dividend run up and drop off effects are larger in small caps, although they still exist in larger caps.

Dividend run up is somewhat larger, and the drop off effect is smaller, in lower yield (that is, more expensive) stocks. However, reversing that trend, high yield stocks show a strong run up as well. They also drop off strongly ex-dividend as well.

Taking into account risk factors (using excess return model 4) reduces the dividend run up effect sharply, suggesting that much of the effect comes from a tilt towards some or all of these risk factors.

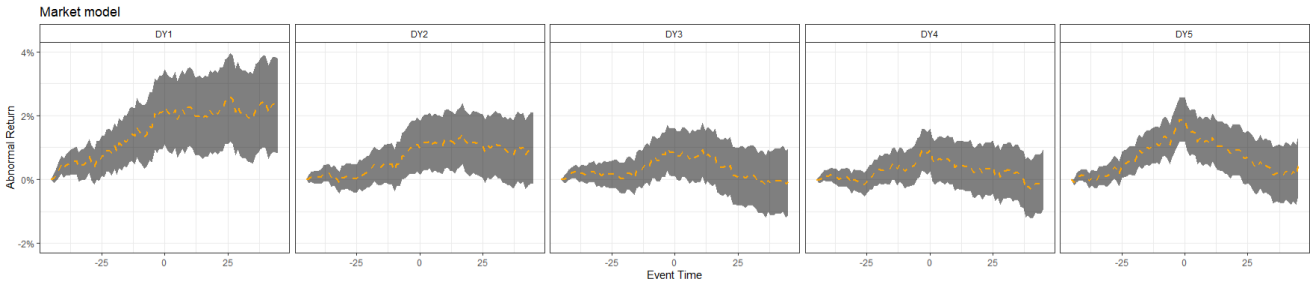
The impact of risk factors on dividend run up is felt across all yields. The ex-dividend drop off is also reduced to nearly zero under model 4, so risk factors are also influential here.

Chart 9a shows this result separated into quintiles by forecast dividend yield, which shows that there is little dividend run up for moderate yield stocks (middle three quintiles) but is strong for the largest and smallest yield stocks. The drop off after the ex-date is increasingly significant as yield increases. For lower yield stocks, we see a stronger dividend run up and no drop off.

Let's concentrate on the run up period for a moment. The lack of run up in moderate yield stocks, of course does not mean that the cash yield is less – just the excess stock return *before* the ex-date is lower. This is perhaps a little surprising at first glance, as it suggests that moderate dividend yield payers do not face the same sellers strike as low and high yield names. This may be a result of the recognition and "pricing in" of the dividend run up effect by investors.

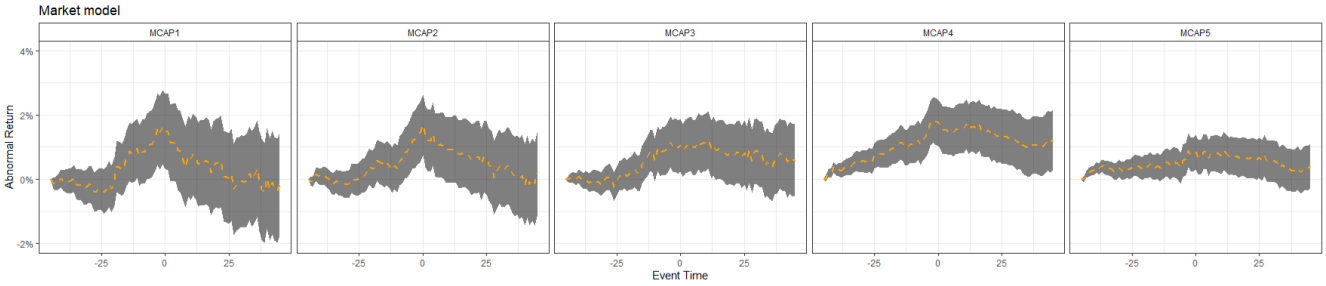
On the other hand, for stocks that pay a higher yield, the drop off is larger, as expected.

Chart 9a: Excess return (model 1) in dividend yield quintiles



Source: Realindex, FactSet. Data date range: Jan 2012 – December 2022

Chart 9b: Excess return (model 1) in market cap quintiles

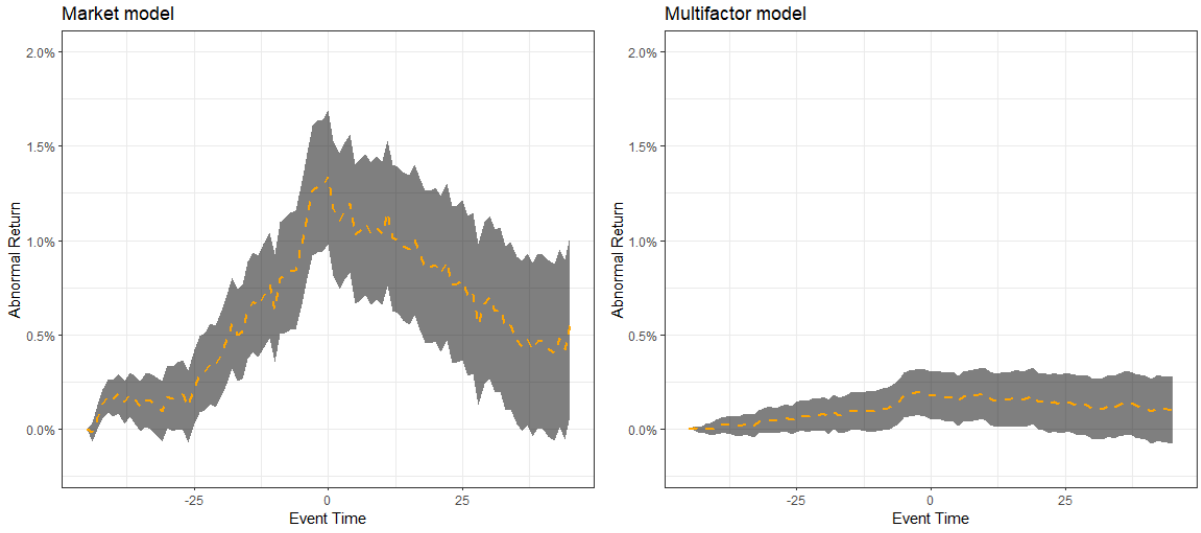


Source: Realindex, FactSet. Data date range: Jan 2012 – December 2022

Chart 9b looks at the excess return to the dividend run up effect in market cap quintiles. We see that small caps have both a strong cum-dividend run up and a strong ex-dividend drop off. As market cap increases, the run up reduces and the drop off falls as well. For the largest cap stocks, the run up is a little in excess of the market, but the drop off is also small.[12]

We have seen that there are size (measured as market cap) and value (measured as dividend yield) effects in both the dividend run up and the drop off after the dividend is paid. This suggests that much of the return effect we see is due to the risk factors of size and value. With this question in mind, Chart 10 shows our original excess return profile (excess to model 1, just the market) and also shows the excess return profile against the full risk model (excess to model 4).

Chart 10: Comparing excess returns. Left hand chart is excess to market (model 1), right hand side is excess to the risk factor model (model 4, note the scale).

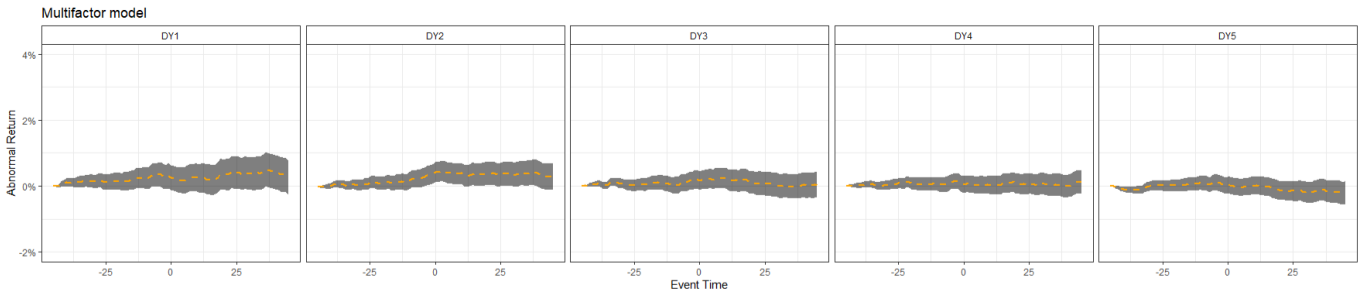


Source: Realindex, FactSet. Data date range: Jan 2012 – December 2022

[12] This size effect could also be due to a liquidity premium usually attached to small caps, although we do not explore this here.

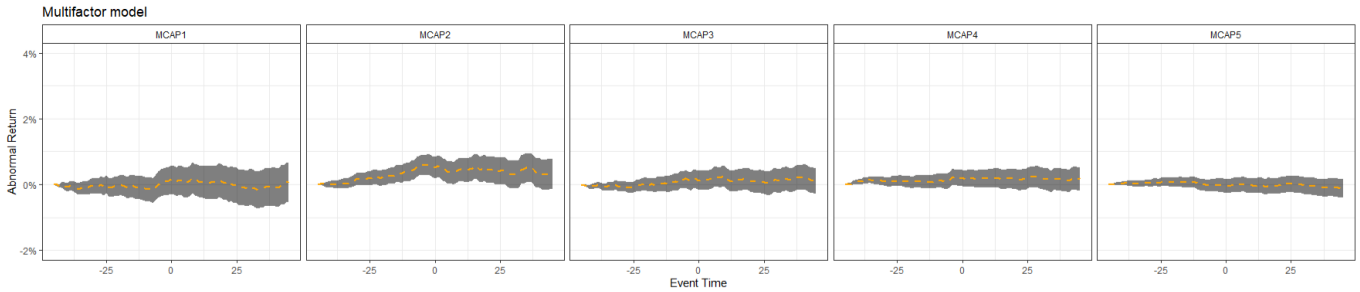
The effect is skewed towards the higher yield names. Chart 11 repeats Chart 9 but with excess returns from model 4. The y-axis scale has been kept to illustrate the reduction in excess return.

Chart 11a: Excess return (model 4) in dividend yield quintiles (note the scale)



Source: Realindex, FactSet. Data date range Jan 2012 – December 2022

Chart 11b: Excess return (model 4) in market cap quintiles (note the scale)



Source: Realindex, FactSet. Data date range: Jan 2012 – December 2022

The results are quite stark. When the risk factors are taken into account, across all stocks, the dividend run up almost disappears, and the drop off does disappear. A naive strategy of tilting towards dividend run up will largely mean a tilt to certain risk factors, which may or may not be the intention of the strategy. These effects are clearly dependent on yield as well, as Chart 11 shows. Run up is much smaller and reduces with yield, and drop off is also very small - but is still present and is larger for high yield.

It is important to note that these last charts *do not discount* the existence of the dividend run up effect. On the contrary, we have found much of its source. *What we have shown is that the dividend run up effect is alive and well, but living in risk factors*. If the investor is comfortable taking on tilts towards expensive small caps (for example), then they can capture a dividend run up return in excess of the market. Said another way, any premium earned from a DRU alpha will be driven by high and low market cap, and low dividend yield names. (So note that a simple aggregate tilt towards expensive small caps doesn't mean a strong dividend run up!)

Finally, in building a strategy to capture this effect, we need to separate the effect into two pieces and see if each can be applied:

> The first is as a risk adjusted alpha model component. Excess returns do seem to exist, albeit reduced, when risk factors are removed. Implementation in a risk controlled alpha model demands that any new alpha signal not be subsumed by risk factors. So we need to build and test an alpha model in the environment. Given what we have seen above, it is unlikely to look very much like the raw tilt towards stocks that simply outperform the market.
>
> The second is as a portfolio overlay. Mechanical portfolio constraints or actions can be put in place to deliberately capture the dividend run up, after the model driven portfolio has been created. For example, a "no sell" could be applied to any stock with an upcoming dividend. This will, of course, twist the portfolio exposure away from the implementation potentially intended by the alpha model, but that may be the intent, and may be part of the strategy design if demanded by a client. The demand for this will depend on client tax rates, benchmarking and operational implementation issues. Knowledge of tax lots is also important, as franking credit calculations depend specifically on the units owned and will vary from client to client.

The first is a standalone alpha source, and so Realindex plans to apply it to its Australian equity alpha model. The second is more selective, being available to Realindex clients who wish to use it but not being applied to all funds.

A simple alpha model[13]

Realindex is looking at various ways to implement dividend run up as an alpha source. Suffice to say, it is not as simple as a "switch on at T-45 and switch off at T" alpha model at a stock level. (Here, T is the ex-dividend date.) To examine this, we construct exactly this simple long-short model whose only signal is to rotate into dividend paying stocks in the period T-45 to T, while shorting all non-dividend paying stocks to fund it.

Some results from this simple strategy are below, but in summary:

- It creates high turnover and has a short horizon.
- The risk exposures (see above) in the portfolio move around significantly.
- Attribution of the outperformance extracted shows that it is highly dependent on risk and style factors.
- However, good alpha (outperformance) is still generated.
- Realindex research suggests that this simple model can be substantially improved.

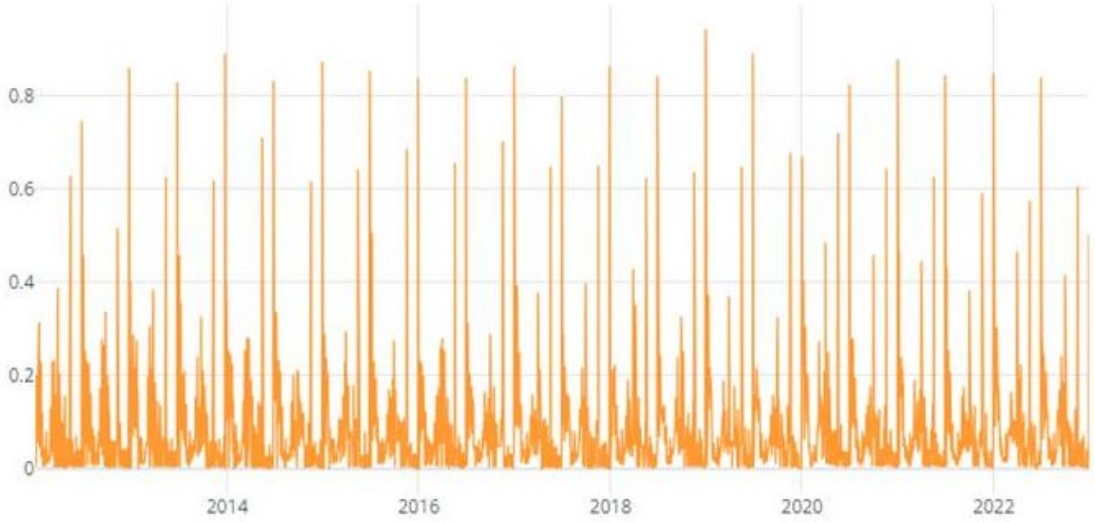
[13] We have assumed here that we know the future ex-dividend dates with certainty. In practice, this is not exactly the case, even when the supposed T-45 period starts. The earlier we get before the ex-dividend date, the less certain we become, leading to the need for a forecasting model. We leave this to practical implementation.

Chart 12 below supports these statements by showing the cumulative outperformance, the episodic turnover and the beta exposure of the strategy over time.

Chart 12a: Cumulative alpha from simplest dividend run up alpha model

Source: Realindex, FactSet. Date range: Jan 2012 – December 2022

Chart 12b: Periodic turnover



Source: Realindex, FactSet. Date range: Jan 2012 – December 2022

Chart 12c: Beta exposure of dividend run-up strategy

Source: Realindex, FactSet. Date range: Jan 2012 – December 2022

Note the drawdown in the strategy during the initial COVID period, when dividends for many stocks (mostly banks) were suspended. Turnover (as expected) is very episodic during the year, clustered in the dividend periods of Feb-Mar and Aug-Sep. Finally, note that the recurring negative market beta of the factor is caused by the stock portfolio that needs to be sold to fund the dividend run up stock purchase. As the strategy needs to be dollar neutral, any dividend run up stocks held need to be funded by selling a basket of all other stocks[14].

[14] In the extreme case (see late 2020), a single dividend run up stock holding is funded by shorting almost the entire market (and so beta goes to near -1).

Summary

The predictable event of dividend payments leads to pervasive excess returns before and after the event. There are a variety of explanations for these, centering on price pressure from the behaviour of sellers wishing to capture the dividend or (in Australia) any franking credits.

However, the simple application of a "no sell" in portfolio construction or a simplistic alpha model tilt misses important features and can lead to tilts towards unwanted risk exposures and high turnover. We have explored these and can draw some high level conclusions:

- Excess to the market's return, both dividend run up and drop off effects are larger in small caps, although they still exist in larger caps.
- Also excess to the market's return, both high (good value) and low yield (more expensive) stocks show a larger dividend run up than for intermediate yield firms. For low yield stocks, the drop off effect is smaller than other stocks but for high yield stocks, the drop off ex-dividend is strong as well.
- Taking into account risk factors[15], the dividend run up effect reduces sharply, suggesting that much of the effect comes from a tilt towards some or all of these risk factors. For example, a tilt towards dividend run up in expensive small caps will earn a better return than the simple application of a broad based dividend run up strategy. Or, said another way, much of the return seen in the dividend run up strategy comes from embedded tilts to risk factors like size and value.
- This risk factor effect in dividend run up is felt across all yields. The ex-dividend drop-off is also largely subsumed by these risk factors.

Future work will look at the dividend run up (and potentially drop off) in offshore markets. These effects appear to exist even in the absence of a dividend franking regime.

---

[15] Like beta, value, market cap and momentum

References

Baker, M. and J. Wurgler, 2004, A Catering Theory of Dividends, *Journal of Finance*, 59(3): 1125-1165

Barber, B. and T. Odean , 2013, The Behaviour of Individual Investors, *Handbook of the Economics of Finance*, Vol 2B: 1533-1570

Bessembinder, H. and F. Zhang, 2014, Predictable Corporate Distributions and Stock Returns, *Review of Financial Studies*, 28(4): 1199-1241

Frazzini, A. and O. Lamont, 2006, The Earnings Announcement Premium and Trading Volume, NBER Working Paper #13090

Grant, A.R., Westerholm, P. J. and W. Wu, 2018, Imputation Credits and Trading Around Ex-Dividend Day: New Evidence in Australia, *University of Sydney Working Paper*

Hartzmark, S.M. and D.H. Solomon, 2013, The Dividend Month Premium, Working Paper, *https://ssrn.com/abstract=1930620*

Hartzmark, S.M. and D.H. Solomon, 2018, The Dividend Disconnect, *Working Paper, https://ssrn.com/abstract=2876373*

Heston, S. and R. Sadka, 2008, Common Patterns of Predictability in the Cross-Section of International Stock Returns, *Working Paper, https://ssrn.com/abstract=1108452*

Disclaimer

This material has been prepared and issued by First Sentier Investors (Australia) IM Ltd (ABN 89 114 194 311, AFSL 289017) (FSI AIM), which forms part of First Sentier Investors, a global asset management business. First Sentier Investors is ultimately owned by Mitsubishi UFJ Financial Group, Inc (MUFG), a global financial group.

This material is intended to provide general information to 'wholesale clients' (as defined in the Financial Markets Conduct Act 2013) only. It is not intended and may not be provided or passed on to individuals who qualify as 'retail clients' (as defined in the Financial Markets Conduct Act 2013). This material does not take into account the objectives, financial situation or needs of any particular person or institution.

Any opinions expressed in this material are the opinions of the individual author at the time of publication only and are subject to change without notice. Such opinions: (i) are not a recommendation to hold, purchase or sell a particular financial product; (ii) may not include all of the information needed to make an investment decision in relation to such a financial product; and (iii) may substantially differ from other individual authors within First Sentier Investors.

To the extent permitted by law, no liability is accepted by MUFG, FSI AIM nor their affiliates for any loss or damage as a result of any reliance on this material. This material contains, or is based upon, information that FSI AIM believes to be accurate and reliable, however neither MUFG, FSI AIM nor their respective affiliates offer any warranty that it contains no factual errors.

Any performance information is gross performance and does not take into account any ongoing fees. No allowance has been made for taxation. Past performance is not indicative of future performance.