FORSYTH BARR

NEW ZEALAND EQUITY RESEARCH

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The Cost of Capital Conundrum
When TINA Came to Our Shores

AARON IBBOTSON CFA
aaron.ibbotson@forsythbarr.co.nz
+64 9 368 0024

ASHTON OLDS
ashton.olds@forsythbarr.co.nz
+64 9 368 0127

ANDY BOWLEY
andy.bowley@forsythbarr.co.nz
+64 4 495 8246

ANDREW HARVEY-GREEN
andrew.harvey-green@forsythbarr.co.nz
+64 4 495 8185

FORSYTH BARR RESEARCH TEAM
fb.research@forsythbarr.co.nz
+64 4 499 7464

This year the NZ market has experienced its sharpest drop on record, -27% in 12 trading sessions, and then its fastest recovery in over 30 years, +38% in four months. +2% YTD does not do this year justice. We have taken a hard look at all the input values in our Weighted Average Cost of Capital (WACC) calculations. Our changes imply an average reduction of WACC by ~1%, which all else equal increases the DCF based component of our price targets by c.25% and our average price target by around half of that, but there are large variations. Our reduced WACC assumptions is based off our estimated implied Market Risk Premia of c. 6% and a risk free (RF) rate of 1.3%. We will roll out updated cost of capital estimates throughout earnings season but also want to emphasise that "all else" is not equal.

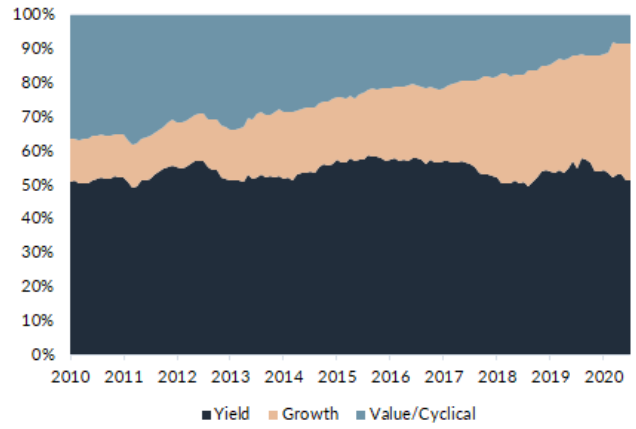
Lopsided nature of the S&P/NZX 50 creates a cost of capital conundrum

The COVID-19 bifurcation into winners and losers, in combination with an ultra-low interest rate environment, has exacerbated the lopsided nature of the S&P/NZX 50. Half of the index now consists of defensive yield stocks; two (in a relative sense) defensive growth stocks that have fared very well through the COVID-19 crisis make up a further third. The yield universe is highly interest rate sensitive, driving implied cost of capital down for the whole index, additionally it drives the Beta (correlation) up for the defensive names. The Beta for MEL is now above 0.9 relative to the S&P/NZX 50 compared to 0.3 vs MSCI world.

The "internationalisation" of NZ capital markets

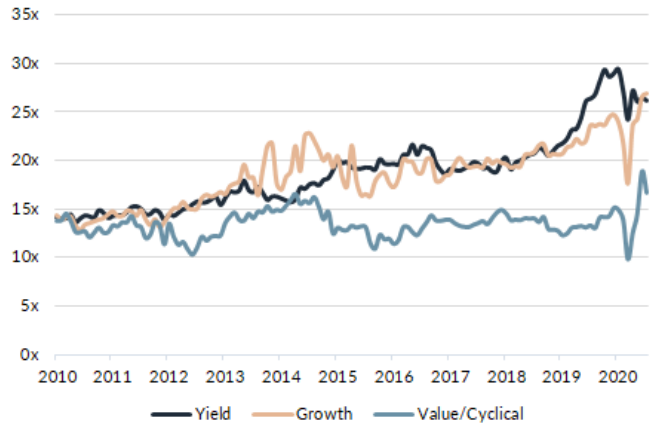
The difference between interest on NZ Government bonds and that of international ones has shrunk meaningfully over the last few years at the same time as international ownership of NZ stocks has increased meaningfully. As a consequence the "There Is No Alternative" (TINA) trade has arrived on our shores, and it may not be over yet. NZ capital markets with its lopsided index full of yield and structural growth is primed for the TINA trade. Our analysis suggest that the current implied market risk premium for New Zealand is around 6%, but with a wide range from 5%–6.5% depending on methodology. This is not particularly high in an international context, and with the low (and declining) correlation to MSCI world, NZ could very well continue to be perceived as an attractive market for international investors searching for slim pickings within the yield and growth universe.

Figure 1. The S&P/NZX 50 is getting increasingly lopsided...



Source: Forsyth Barr analysis, Datastream

Figure 2. ...contributing to record high earnings multiples



Source: Forsyth Barr analysis, Datastream Note: P/E's are medians

The cost of capital conundrum

The NZ market has experienced its sharpest drop on record and its fastest recovery in over 30 years. Behind the dramatic gyrations in the market, some longer trends have been accentuated; the last decade's trend of growth stocks squeezing value/cyclical out of the S&P/NZX 50 has accelerated and the re-rating of yield has continued.

The S&P/NZX 50 is a highly unusual index, to our best knowledge it has the highest proportion of yield stocks in the world, with about 50% of the index made up of traditional yield stocks; REITs, Utilities, Telecom and infrastructure. This compares to MSCI world where these stocks make up less than 10%. It also has two high P/E growth stocks with defensive characteristics (food and healthcare) that now make up >30% of the index. Relatively defensive growth in the form of aged care make up another 7% of the index. Financial, Consumer Discretionary, Industrial, Energy, Materials and Information Technology, traditional high beta sectors that make up over 60% of the MSCI world, barely feature at all.

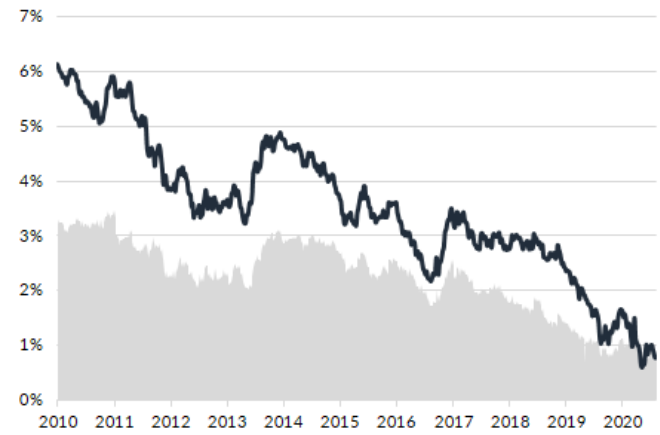
The lopsided nature of the NZX creates a cost of capital conundrum

The lopsided nature of the NZ market creates a cost of capital conundrum. The observed Equity Beta relative to the S&P/NZX 50 for an interest sensitive defensive yield stock like MEL (putting the recent Smelter closure aside for now) is above 0.9, unheard of for a similar company listed in a more typical market, while it is 0.3 vs the MSCI world. This matters because of two other long term trends; falling and converging interest rates and increased foreign ownership of the S&P/NZX 50.

Figure 3. Foreign ownership of NZ market has increased

Source: Forsyth Barr analysis, Stats NZ Portfolio Investment

Figure 4. NZ 10 year government bond rate and spread to global 10 years

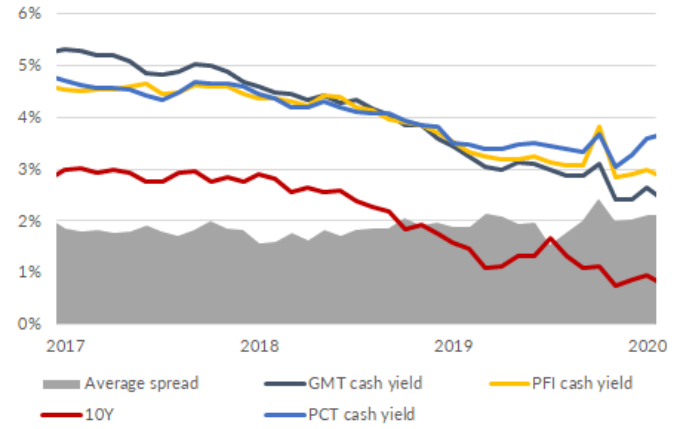


Source: Forsyth Barr analysis, Eikon Note: Spread is NZ minus average of JP, USA, Germany

Low interest rates and the dominant yield universe

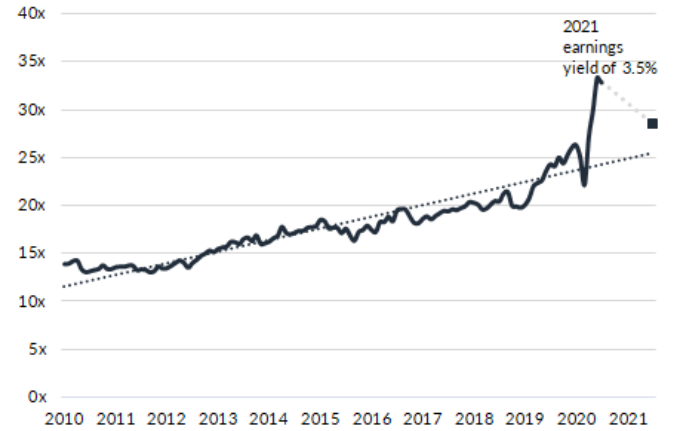
The falling RF rate and its convergence with international interest rates has visualised the defensive nature of the NZX in no uncertain terms. The P/E of the yield universe in NZ has near enough doubled over the last decade, which, together with FPH's and ATM's re-rating and growth, has driven the market weighted P/E of the NZX up by 50% over the last 3 years, far outpacing any re-rating observed in international indices.

Figure 5. REITs cash yields vs NZ 10 year



Source: Forsyth Barr analysis, Eikon

Figure 6. Derived S&P/NZX 50 Market weighted P/E (inverted earnings yield)

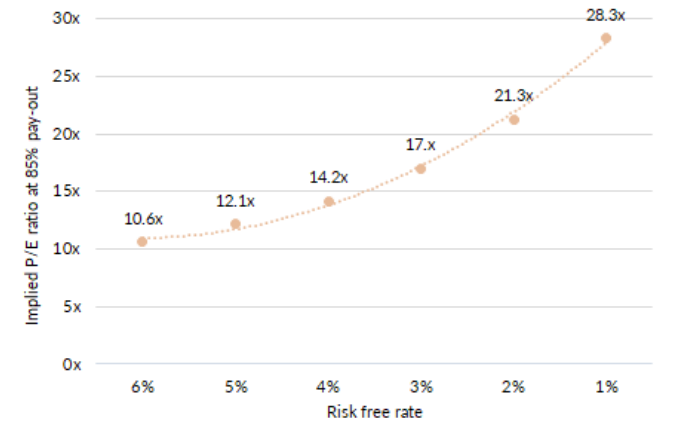


Source: Forsyth Barr analysis, Datastream Note: 1/0.035 implies P/E of 28.6x

The performance of the yield universe, as the name suggests, is to a large degree driven by dividend yields, and more precisely the spread between the risk free rate and dividend yield. The ultimate yield sector (REITs) has tracked the change in the risk free very closely with net yield spreads holding steady around 2% as government long bond yields have declined from 3% to 1%.

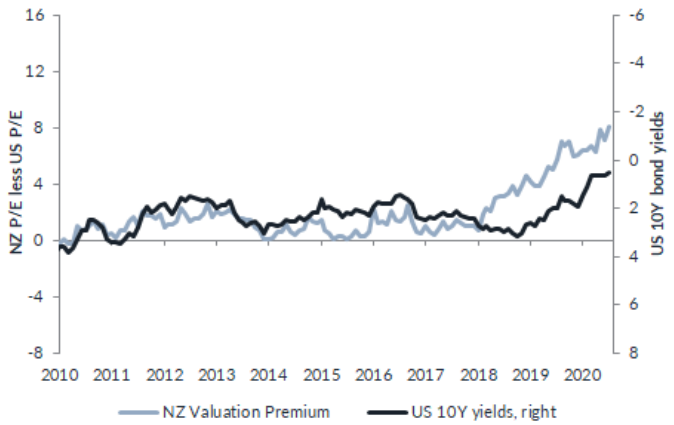
Utilities did the same until the uncertainty around the future of the New Zealand Aluminium Smelter took over the agenda. This significant (and logical) re-rating of such a substantial part of the NZX has created our first conundrum; the risk free rate is an increasingly important driver of the NZX while the impact on (theoretical) COE for the NZX is smaller.

Figure 7. Implied P/E vs RF (constant spread and pay-out)



Source: Forsyth Barr analysis

Figure 8. NZ a beneficiary of declining yields

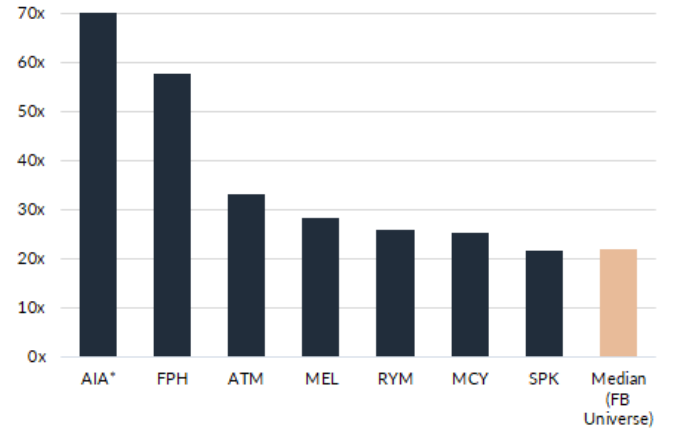


Source: Forsyth Barr analysis, Datastream

The many issues that distort the contour when we value companies

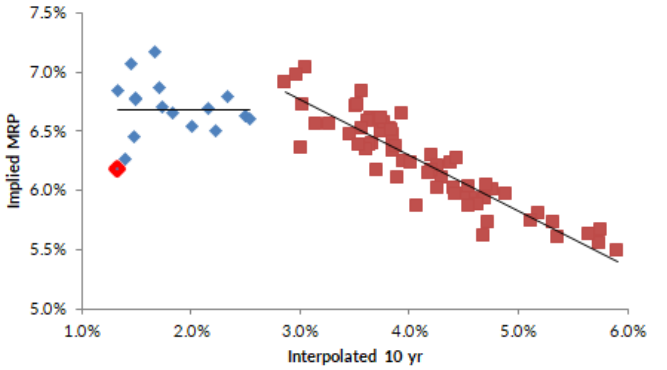
There are many lies we tell ourselves when we come up with our valuation, call it practical short cuts. Perpetual growth; constant tax rates; listed equities = investible universe, to mention a few. One such "practical short cut" is that all investors into the NZ markets are domestic and that all those (you) only invest domestically. This is a reasonably good approximation that is becoming increasingly problematic. Meridian (MEL) with its Beta above 0.9 (against the S&P/NZX 50) is a good case in point. MEL's Beta against MSCI world is 0.3. An international investor is thus facing a dramatically different cost of capital vs a domestic investor, applying the same market risk premia (MRP).

Figure 9. P/E of MSCI included stocks vs market (FBe)



Source: Forsyth Barr analysis, Note: AIA > 100x, FB estimates

Figure 10. Constant growth, median P/E, implied MRP until 10 year government bonds reached 2% (red dots) vs after (Blue dots)



Source: Forsyth Barr analysis, Datastream, Note: Consensus estimates; Red denotes 2013 - Feb 19, Blue denotes March -19 until July-20, Red circle is July 2020

The period from 2013–2018 was categorised by steadily falling interest rates and relatively stable median P/Es. This created a relatively stable relationship between long risk free bond yields (illustrated above by the interpolated 10 year) and implied MRP/ TAMRP. In Figure 10 above we try to illustrate what happened when TINA arrived in NZ; the dominance of the yield universe in combination with the 10 year NZ bonds falling below 2% has caused the relationship to completely break down.

No clear answers, only compromises

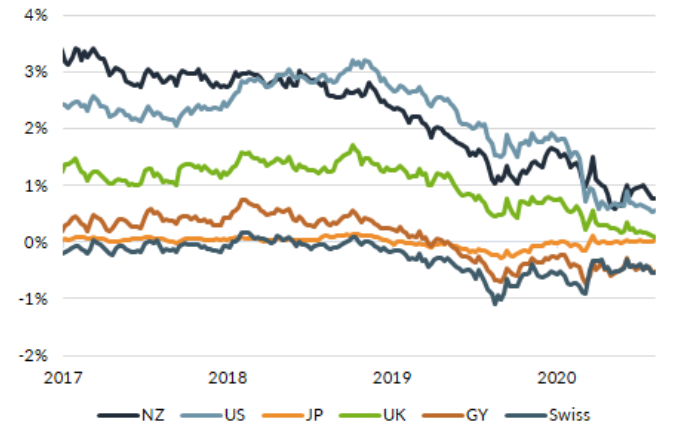
A reader having reached this far may be excused for expecting us to deliver an answer to the conundrums outlined above. However, we do not have answers of how to factor the above in, they are mere observations which help us inform our view of how to think about cost of capital. We approach cost of capital with the spirit of being approximately right rather than exactly wrong. At the end of the day we are trying to solve for what the marginal investors need to compensate for the risk of owning equity, something that is changing day by day and does not have a perfect answer. The input values into our WACC, MRP, RF and tax/imputation are based on three basic principles

1. The risk free rate may not make sense but it is still the counterfactual both in theory and, as we have seen with the yield universe, in practise that we have to work with.
2. In aggregate the market is approximately right. Thus our first approach is to figure out what the market is telling us rather than telling it that we think it has got wrong. There are situations when we see strong value or view the market as over-priced. But those situations primarily relate to fundamentals, i.e. earnings, returns, growth rather than cost of capital per se.
3. The NZ market is made up of domestic and international investors. They together determine the cost of capital, there is no perfect solution as to how to factor this. But as an example, we have chosen to give some weight to imputation credits enjoyed by domestic investors but not full. We also work with a "dirty" bottom up asset Beta in calculating our Equity betas rather than solve for 1.

How do we think about risk free interest rates in the context of 100 year low rates?

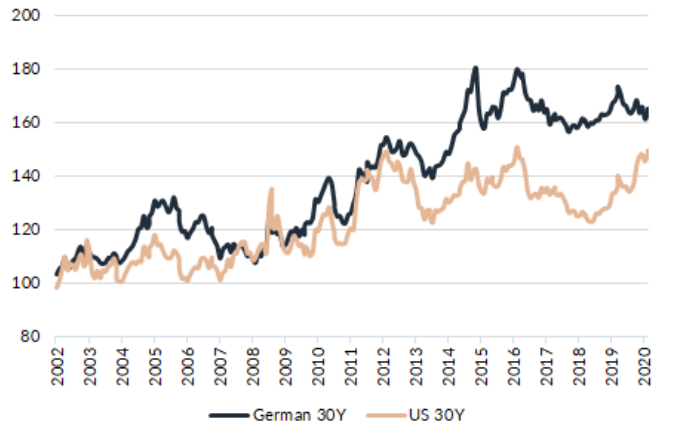
NZ's 10 year government bonds are comfortably below 1% and in several European countries long bonds have crossed into negative territory. From a fundamental perspective this is difficult to get your head around; that money today is worth more than money tomorrow is one of the corner stones of all financial theory.

Figure 11. 10 year yields



Source: Forsyth Barr analysis, Eikon

Figure 12. Price of a 30 year US and German bond



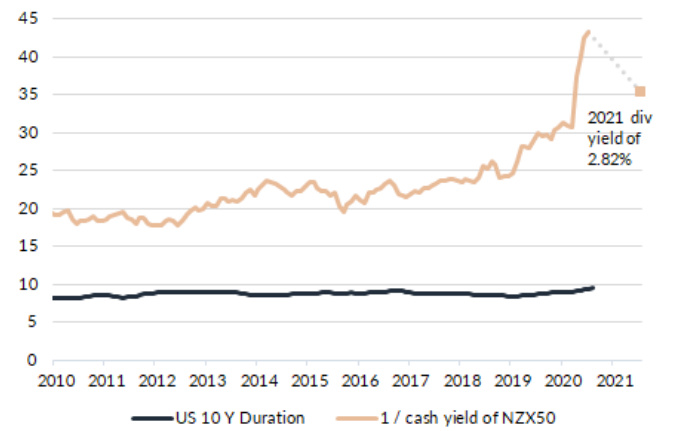
Source: Forsyth Barr analysis, Eikon

The argument against using these ultra-low interest rates for valuation purposes are very valid; (1) they are ultra-low in no small part due to extensive Quantitative Easing (QE); the (ultra) low interest rates are thus not a "true" reflection of investor preferences but could best be described as a short squeeze; and (2) it is a Ponzi scheme/speculative bubble, and investors don't buy a bond with a 1% (or negative) YTM because this is a genuine reflection of their preference curve but because they believe they can sell the bond tomorrow at an even lower yield.

Yet, we find the arguments in favour to be stronger. First and foremost, whether we "accept" it or not, the ultra-low, risk-free rates are spreading across the listed debt universe like wildfire. Over 60% of the world's listed debt is currently yielding below 1% and less than 20% is yielding above 2%, down from over 50% 18 months ago. Secondly, the low interest rates have had a direct and significant impact on equities, most clearly observed amongst the yield sensitive REITs. Finally, from a theoretical perspective, the risk free rate (and its derivatives in the debt market) remains the alternative for investors; equities, all else equal, will look more attractive.

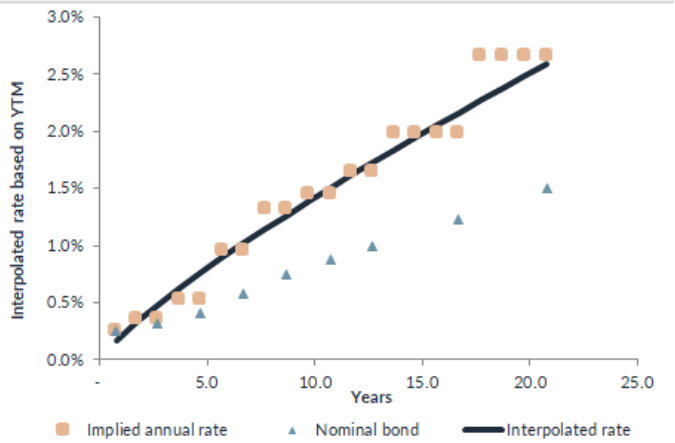
A less discussed aspect of the risk free rate and its application to equity valuations is the increased mismatch between the duration of the "traditional" risk free rate, the 10 year government bond, and that of the equity markets.

Figure 13. Duration of 10 year Gov bond and inversed div yield



Source: Forsyth Barr analysis, Eikon

Figure 14. Interpolated risk free rate



Source: Forsyth Barr analysis, Eikon

The duration, the weighted average time to receive cash flows, of equities is not as commonly discussed as the duration of bonds, and there is no clear agreement of exactly how to measure it. One common simplification is using the inverse of the dividend yield or a free cash flow to equity yield; a 5% yield thus yields a 20 year duration. Another common method applied by "practitioners" is to look at next 10 years cash flow as "coupon" and view year 10 as maturity, this would today suggest a duration in the low 20 years. We have settled with using an interpolated 10 year, effectively a duration of high teens. There are good theoretical arguments in favour of using a longer one, but practical arguments speak in favour of the interpolated 10 year, in our view; (1) we arrive at our interpolated 10 year using the very liquid and widely followed 5 and 10 year bonds; and (2) our analysis of the yield universe suggest that investors price them, if anything, with the straight 10 year risk free rate in mind.

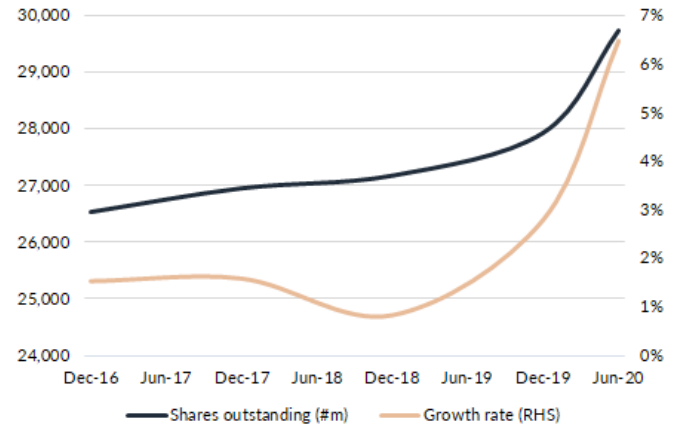
So, to answer the question in the title, how do we think about the risk free rate in the context of 100 year low interest rates? Firstly, we believe the argument is stronger in favour of using the current RF than some historical average or expected risk free rate in the

future. However, we believe the current 10 year risk free rate of 0.8% has too short duration to reflect equity risk, and go further out the curve to make it more comparable with duration of equities. We estimate the current interpolated 10 year to 1.3%. Call it a compromise.

How do we think about growth in the context of deriving cost of capital?

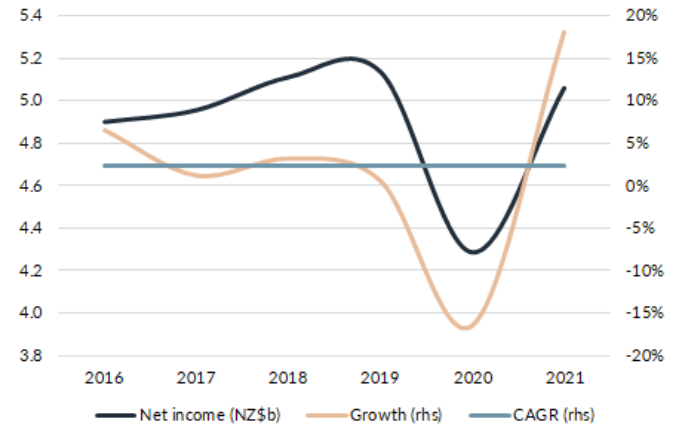
Assumed growth plays an integral part in all market based implied cost of capital estimates. It is generally tucked away in a footnote under headlines such as "Implied Market Risk Premium at all-time high/low". The general assumption is something akin to "in the long run" the earnings and thus dividends of the listed universe will follow nominal GDP less a certain term. Bernstein and Arnott (2003) estimates this term to be c. 2% for the US, but has been criticised by, amongst others, Dr Lally in NZ, to have overestimated the term. Dr Lally estimates the term to be c. 1%. The term is a consequence of two factors; (1) new, unlisted or yet to be founded companies will take a higher share of future earnings than they currently are; the earnings growth of the FANMAG stocks over the last 30 years is a clear example of this phenomena, and (2) share count creep.

Figure 15. NZ market share count creep



Source: Forsyth Barr analysis, S&P Note: Excludes banks

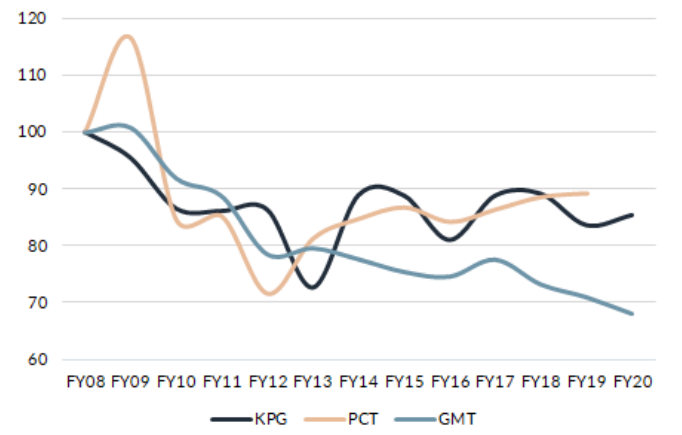
Figure 16. Net Income S&P/NZX 50 (adjusted)



Source: Forsyth Barr analysis Note: Adjusted for FSF, and banks excluded

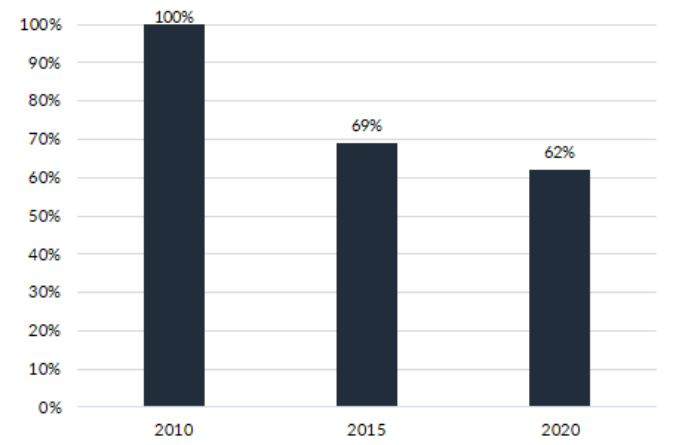
COVID-19 has introduced some further complications. Firstly, near term growth in earnings is likely to be very strong for some companies; we forecast the likes of KMD and SKC to experience 50%+ growth in earnings in CY21, and for instance AIR to eventually return to profitability. This is less of an issue for the S&P/NZX50 vs. the rest of the world due to its defensive nature in combination with some large, clear winners like FPH and to some degree ATM; by CY21 we forecast earnings to effectively be back to CY19 levels; and we base our forward looking MRPs off those estimates. Secondly and longer term, as with all global crises; has the world changed? Has the outlook for NZ's tourism and immigration fuelled economy been long term impaired? A deeper analysis of NZ macro in a post COVID-19 world is beyond the scope of this note, but we settle with an observation that the long run tends to change less than what first appears to be the case in the midst of a global crisis.

Figure 17. Indexed EPS, REITs, 20 years



Source: Forsyth Barr analysis, Company reports

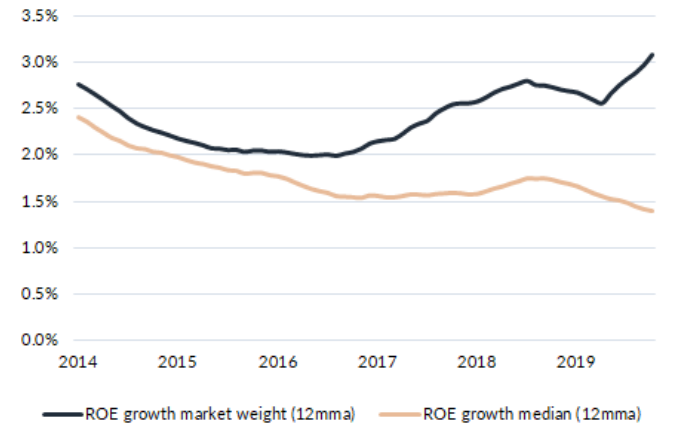
Figure 18. Market cap (%) of NZ companies still in the S&P/NZX 50 five and 10 years after 2010



Source: Forsyth Barr analysis, Datastream

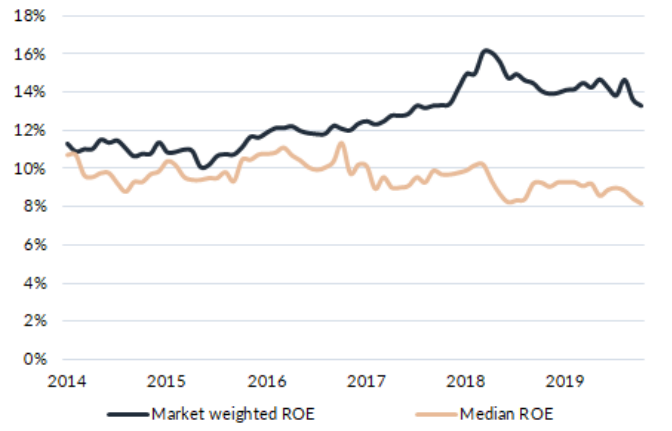
We would like to raise a further issue; the dominance of defensive yield in the NZ market also has implications for growth. REITs are a good case in point. They pay out near 100% of Adjusted Funds from Operations (AFFO) and rely on raising equity for growth. Similarly for the electric utilities — with an 80–90% pay-out ratio, and only 3–6% return on replacement cost of capital, it is difficult to envisage much real growth.

Figure 19. Implied sustainable growth



Source: Forsyth Barr analysis Note: Sustainable growth = (1 - payout ratio) x ROE

Figure 20. ROE Forsyth Barr coverage



Source: Forsyth Barr analysis

Accounting rarely features when discussing the in-precise art of estimating cost of capital, but "in theory" long term growth should loosely follow return on equity times retention ratio. Figures 19 and 20 above highlight that the bifurcation of the NZ stock market also has an impact on sustainable growth. The increased dominance of a few (two...) high ROE, low pay-out ratio companies has driven the market weighted sustainable growth up, while the median is driven down by the plentiful yield universe and the poor returns from the value/cyclical universe. So, while the dominance of yield stocks point to slower (market) growth, the increased share of growth stocks point in the opposite direction.

On balance we believe most evidence points in the direction of somewhat lower growth going forward, but only modestly so. We fix our current estimated implied growth at 3.5% (from 3.75%) off a CY21 base year, slightly higher than current estimates of implied fundamental long term growth, but slightly lower than what would be implied from looking at historical (nominal) GDP less 1%. This is higher than achieved over the last five years, but we believe that the increased market weight of structural growth suggest that the market, overall, is expecting a higher market weighted average growth.

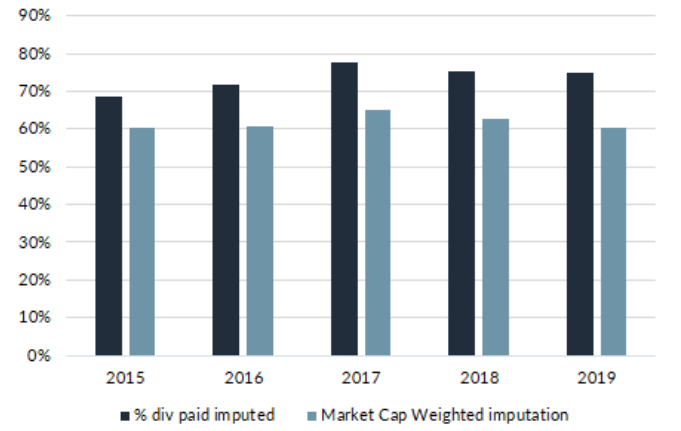
How do we think about imputation credits? A dirty compromise that's becoming increasingly irrelevant

In the NZ market the Tax Adjusted MRP has been established as the norm. It acknowledges the difference of un-taxed dividend streams relative to a taxed interest income stream. The TAMRP applied by Dr Martin Lally when estimating, for instance, regulated returns takes this effect fully into account. We apply an amended version of the TAMRP to account for the presence of international investors into the NZ market.

Ke = Rf * (1-Ti) + Be * MRP + DivYld* Ti *(1-Imp%*imputation value))

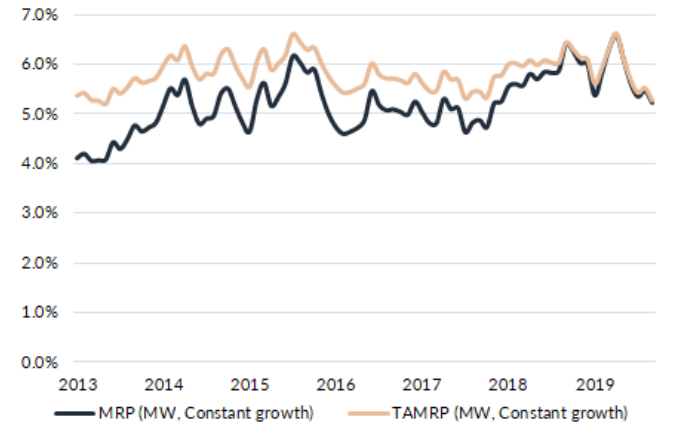
The difference between TAMRP and traditional CAPM MRP for NZ used to be quite material, c. 1–2%, when the risk free rate was 5–6%. However, today the difference is less pronounced; using our input variables above we arrive at a TAMRP only marginally ahead of MRP.

Figure 21. % div imputed and market cap weighted imputation



Source: Forsyth Barr analysis

Figure 22. Implied MRP and TAMRP using MW median P/E and constant growth



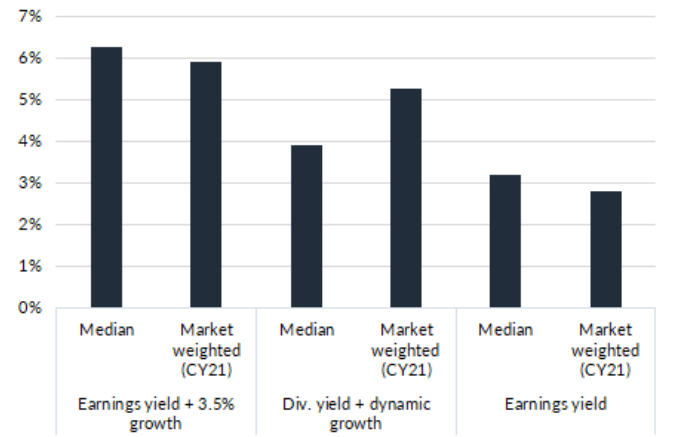
Source: Forsyth Barr analysis

Implied MRP; let's agree to disagree

Disagreements about the value of shares is what makes a market. MRP is no exception. The recent influx of international investors into the NZ market could have been driven by disagreements about fundamentals, reduced correlation with international indices (reduced beta) or different views about MRP. With regards to MRP there are also three entirely different methodologies to estimate MRP, all with their different sub categories; Observed historical, market implied and survey.

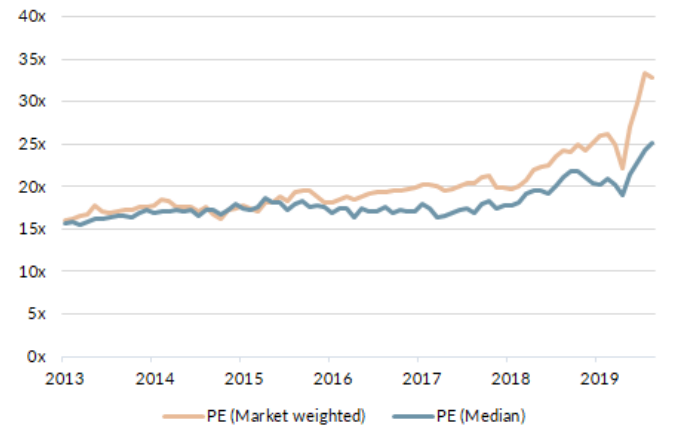
- **Observed historical** may sound like a simple calculation, but in the published literature anything from 3–11% feature depending on which time period is used, what index you are basing it off, what tax adjustments are made, as well as methodological considerations. It also behaves somewhat counter intuitive; at the depths of the deepest sell offs (such as the GFC and COVID-19) the historical observed MRP will decline while most practitioners would argue that the compensation for owning equity at peak uncertainty should be higher, which indeed also is how the survey data behaves.
- **Survey data** comes maybe closest to the spirit of what we are trying to measure; what the marginal (or aggregate, there is disagreements about that as well) investors needs as compensation for owning equity. But in practise you run into difficulties quickly. Who do you ask? Do you weight the answers by assets? Are investors acting in-line with how they answer? Do they consider all factors (probably not)? This is all aside from the practical difficulty in surveying the world's investors from an office in NZ.
- **Market implied Risk Premia**. The idea here is to estimate not what the MRP should be or has been on average to assess whether the market is over or under priced, but to assess what the current valuation of the market tells us about the current MRP. This is the method applied by Forsyth Barr for purposes of deriving WACC. However, much like for the other methodologies there are several methodological considerations.

Figure 23. Market implied TAMRP using different short cuts



Source: Forsyth Barr analysis

Figure 24. Median and market weighted P/E S&P/NZX 50



Source: Forsyth Barr analysis

The purist implied MRP starts with estimating the future dividends (cash flow) from all companies into perpetuity, discount them back and solve for COE. Even though some attempts of doing this has been done, and some averagely good estimates for the US market exists, most people apply short cuts using various simplified assumptions around growth and dividend potential.

In Figures 23 and 24 above we have estimated the MRP using three such (significant) simplifications:

- **ROE = COE.** The idea being that "in the long run" excess returns will be competed away. After some algebra applied to the traditional Dividend Discount Model this suggests that COE equals the earnings yield. This gives a very low MRP, far below survey and historically observed. We also find that it goes against the long tailed moats observed (and valued) by the market for many high quality companies.
- **COE = Dividend Yield + derived growth/assumed growth.** This assumes steady state on day one and yields a quite low COE (and MRP). It is theoretically attractive, but does not account for share buy backs and, amongst other things, inflationary growth for long life assets.
- **COE = earnings yield + assumed growth**; our ugly compromise. This is not theoretically beautiful, as it implicitly assumes that 100% of earnings can, in theory, be paid as dividends while still achieving growth. However, we believe it is a better reflection of how the market is looking at NZ equities today. The asset heavy REITs, Utilities, Aged Care sector and infrastructure are likely priced to achieve some (inflationary) growth in the medium term without having to replace their assets while index heavy FPH and ATM currently, and for some time, are priced for "super growth".

We have glossed over another, and for the New Zealand market, increasingly important issue; how do we measure the P/E of the market? Median is a commonly used approach that is becoming an increasingly poor proxy as the index heavy growth stocks are valued at a substantial premium while the numerous value/cyclical stocks are either loss making/barely profitable (excluded) or trade on low multiples. Another issue is COVID-19 related short term earnings headwinds for several companies. We have settled with a calendar year 21, market weighted P/E, which currently stands at 28x using consensus estimates. That is our best estimate of how the market prices NZ equities today.

WACC on average reduced by 1%; biggest impact for low risk or high growth

For WACC purposes **we arrive at a current implied MRP of c. 6% and a risk free rate of 1.3%**, which all else equal reduces our WACC by just over 1%. The direct impact, all else equal, would be material, on average around 25%, on our DCFs. However, we use multiple valuation approaches and the impact on price targets would be about 10–15%. Separately, we want to acknowledge that we have tried to estimate what the market is currently pricing in; the average perfect DCF, if we have got it right, should thus come out equal to the current market value. We will roll out our new cost of capital assumptions on a company by company basis as we update our estimates.

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