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Cum Dividend Irrationality in US REITs?

Having cut our teeth trading in an illiquid REIT market in South Africa, it became abundantly clear that during the final stages of the *cum* dividend period, there were large departures from a rational approach to investing.

The Efficient Market Hypothesis (EMH) pioneered in the 1960's by Eugene Fama; the bedrock of all modern day business school teachings proposed that the market was perfectly efficient (or very close to perfect) and contained all the available information in the current stock price. Therefore the idea of profiting from a mispricing of a stock in the build up to its last day to trade (LDT) for dividend qualification, seemed at odds with this theory.

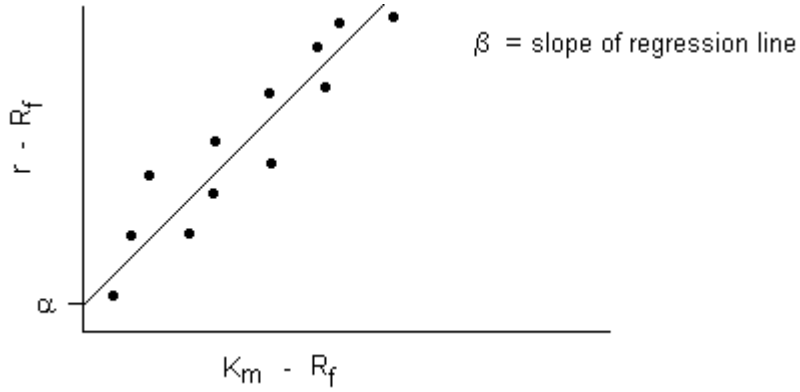
The purpose of this paper is not to serve as an academic refutation of the EMH, rather it is the practical look at the results of what we believe to be a behavioural finance heuristic of mental accounting, demonstrating irrational behaviour in the *cum* dividend period around the LDT. As the study was done for proprietary reasons full details of the process are lacking as are the final statistical results; however, the superficial results as presented in this paper are once again a clear sign that all is not well with established finance theory, and for those in search of that elusive *alpha* it remains in reach of those prepared to do the hard work.

In future papers we will take a more in-depth look at some of the Behavioural Finance (BF) academic literature in general and the subject of Mental Accounting more particularly; Mental Accounting a term coined by Professor Richard Thaler from the Chicago University one of the leading academics in the BF field, and one of the few who have been able to apply their academic knowledge into a successful hedge fund exploiting these behavioural biases.

The CAPM Model

The CAPM model founded (1964) by Nobel Laureate William Sharpe serves to measure the risk of an individual stock relative to the broader market index thus providing guidance to the design of an optimally diversified market portfolio.

One use of CAPM which is useful for our analysis is the technique to compare the historical risk-adjusted returns (that's the return minus the return of risk-free cash) of a stock (REIT) against those of an appropriate index (SNL– US REIT Index), and then use least-squares regression to fit a straight line through the data points:



Each data point in this graph shows the risk-adjusted return of the stock and that of the index over one time period in the past.

The general equation of this type of line is

$r - R_f = \text{beta} \times (K_m - R_f) + \text{alpha}$

where r is the stocks return rate, R_f is the risk-free return rate, and K_m is the return of the index. (In the case of our study we would expect *alpha* to intercept the zero line.)

Beta is the slope of this line, *alpha*, the vertical intercept.

The quality of the fit is given by the statistical number r-squared. An r-squared of 1 would mean that the model fit the data perfectly, with the line going right through every data point. More realistically, with real data you'd get an r-squared of around 0.50 from that you would conclude that 50% of the stocks performance is explained by its risk exposure, as measured by *beta*. If you are analyzing results of an experiment in the natural sciences a higher r-squared in the 0.90's would be expected.

The Thesis

Price behaviour of US REITs demonstrate a dividend clientele effect as the *cum* dividend cycle approaches its apex on the LDT. While this was clearly the case in an illiquid market we believe it is still evident in a highly liquid market.

Our hypothesis is this should not be the case if the EMH holds true; as just like with a bond the present value portion of the dividend should be accrued on a daily basis, save for systematic market movements, which our CAPM model has controlled for with its *beta* filter.

In the study the *null* hypothesis of the CAPM = 0 is proven statistically false with meaningful *alpha* generated thus implying a null hypothesis that CAPM ≠ 0.

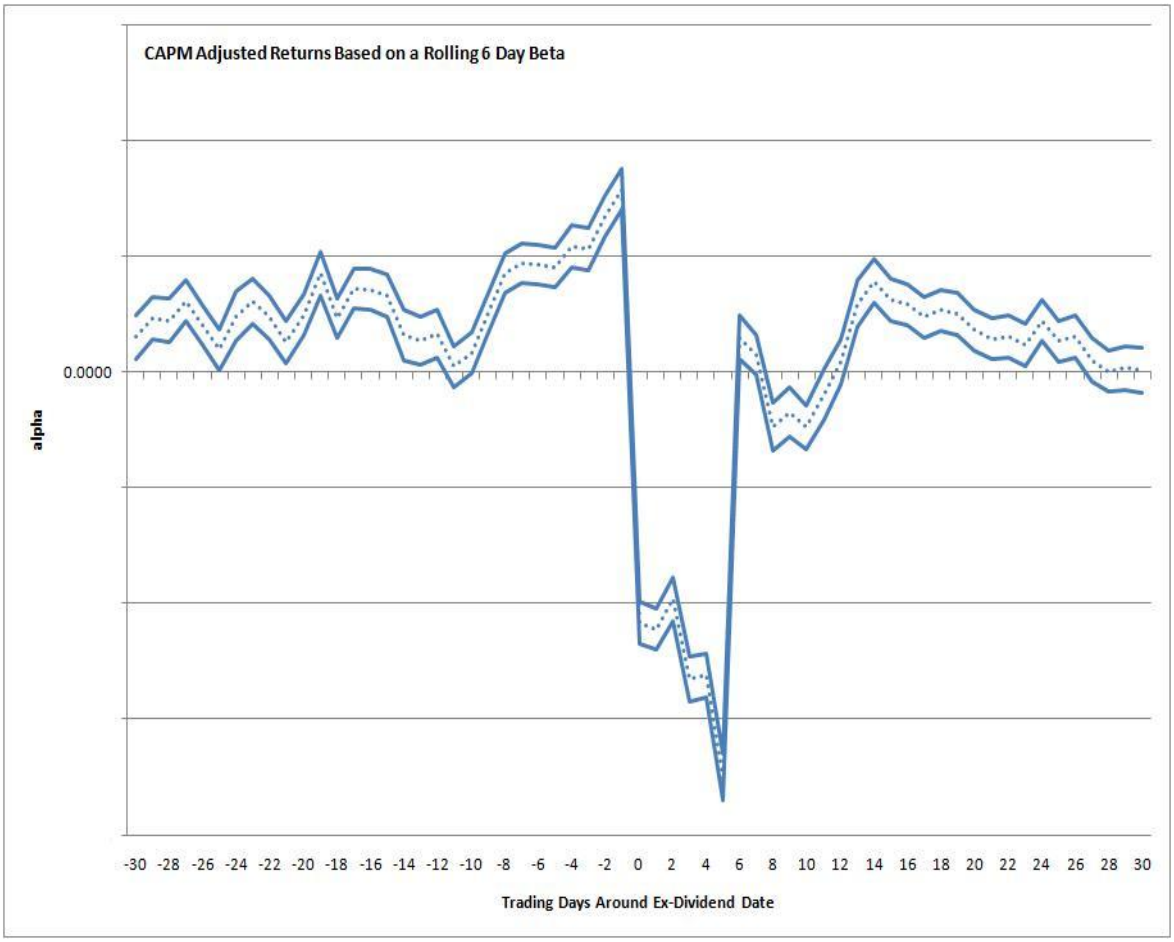
To bolster our thesis in the face of potential criticism of CAPMs single factor status we dissect the *cum* dividend cycle into two parts, one closest to the LDT and another more or less in the middle of the cycle (30 - 25 days prior). We then subtract the *alpha* results from our CAPM model in the middle of the cycle from the *alpha* results from our CAPM model with the last few days prior to and including the LDT. Once again in an efficient market we should not achieve any additional *alpha* in one period over the next. In the case of our study we achieved a positive *alpha.* By using this technique we are able to calibrate the CAPM model and check for weaknesses in its usefulness for this study. Our findings are that the CAPM model is a useful tool for the purposes of identifying irrational behaviour in our study.

Data

All the data was obtained from SNL, a major US based data provider and a REIT data specialist. The data used is from the beginning of 1990 to the end of April 2010, a significant chunk of data covering more than 100 REIT tickers. The risk free rate used was the 10yr US Treasury yield, and the broad market index used was the SNL US REIT Total Return index.

The Results

To keep things really simple we have displayed our results graphically and to keep our results proprietary we have erased the actual *alpha* numbers. Despite the lack of detail the visual picture clearly displays the irrationality we refer to in the *cum* dividend period as LDT approaches. We leave the fact that a certain amount of irrationality presents *ex* dividend for future analysis; however, we will need to factor tax consequences into this analysis. The dotted line in the chart below is the actual result, with the solid bracket lines representing std deviations from the mean. According to these results the optimum time to buy a REIT *cum* dividend is 4 days before its LDT.



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Appendix – A

The snapshot below incorporates the inputs used in the model.