INVESTMENT INSIGHTS:
US MARKET EXPECTED RETURNS

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The S&P500 price-to-earnings ratio stands just short of 20. By historical measures we can say that this is well above the mean of 15.5. What we'd really like to know is what kind of future returns can we expect and is the market over-valued. While answering these questions can be difficult, we believe disciplined investing demands that we take a position. In this paper, we'll use the Grinold-Kroner model and assess prospects for the US Market. We'll compare our expectations to those of Research Associates and finally we'll discuss whether the current price puts us in 'over-valued' territory.

Grinold-Kroner Model:

Let's start by looking at the Grinold-Kroner Model. This valuation model suggests that we can estimate future single period return for the market based on valuing the return on a share. (Grinold & Kroner, July 2002)

$$R = d - \Delta s + i + g + \Delta PE$$

Where:
d: dividend yield
Δs: change in shares outstanding
i: inflation
g: expected real growth in earnings
ΔPE: change in PE ratio

The model has a number of advantages over looking at a simple valuation metric such as PE alone. First, the return estimate is related to future earnings expected from a share, rather than using a simple relative value measure. Secondly, the model conveniently breaks down

the expected return into three components: income return, capital gains returns and re-pricing returns. Looking at expected returns to these components can provide additional insight.

The 'income return' component includes the current dividends and repurchase yield (for example if the company is buying back shares, the changes in shares is negative and the repurchase yield would be positive given the **- Δs** term). The 'expected earnings growth' component is estimated using the expected inflation rate and the expected real growth rate to EPS (earnings per share). Finally, the expected 'repricing return' is noted as *ΔPE*.

Next, I'll walk through each component and provide Brightwood Venture's view to each.

Expected Income Return

Based on current prices, the **dividend yield** for the S&P500 index stands at 1.87%. (Shiller) Dividend yield is below long term averages and

companies are using share buybacks at a greater rate than historical averages. Our expectation going forward is that this will not change materially. We'll set the expected dividend yield at 1.9%.

Estimating **the repurchase yield** is a complex topic. This figure varies over time. It is impacted by share repurchases and new options issued. Those options may or may not be exercised. In 2004 update, Grinold & Kroner estimated repurchase yield would be .5%. Research Asssociates estimates a dilutive repurchase yield, but do not quantify it (Research Associates). We expect with lower economic growth net issuance of shares should remain low and as a result we estimate repurchase yield at 0%.

As a result, we estimate the **total expected income return** to be 2.4%.

Earnings Growth Return

The earnings growth component includes inflation expectations and expected real total earnings growth rates. Using CPI data from the St. Louis Federal Reserve FRED system and using a 12 month smoothing for 2014, inflation is running about 1.7% (Federal Reserve Bank of St. Louis). There is quite a bit of discussion on forward prospects including arguments ranging from increases in inflation toward the historical mean of 2.3% to arguments that deflationary pressures may set in. In 2004, Grinold & Kroner estimated inflation at 2.5% for the coming ten years. The 2.5% was not realized. We hold the view that inflation will remain largely in check and will use 1.7% as our base expectation.

Earning growth is another hotly debated topic. We know that over the long run, the US market earnings have grown roughly in line with GDP. There have been periods where equities have returned substantially more / less but long term mean reversion also appears to be present. Today, some argue that earnings growth will subside pointing to the earnings as a % of total GDP in the US. Research Associates takes the position that long-term earnings-per-share

growth has lagged growth in top-line earnings. Further, they argue that index construction creates a drag on market returns.

For our model we will take smoothed GDP growth and reduce it by .5% to account for issues noted by Research Associates and possible impacts on reduced margins going forward. Looking at the real GDP growth, we simply estimate the average real GDP growth from the trailing 12 months of data from the US Bureau of Economic Analysis (Federal Reserve Bank of St. Louis). Based on 4 quarter smoothing, we estimate the real GDP growth to be 2.4%. Adjusted down by .5%, we arrive at a projected real earnings growth forecast of 1.9%.

Adding inflation and expected gdp growth we arrive at a total **expected earnings growth** (nominal) rate of 3.6%

Expected Repricing Return

Repricing Return is expressed as change in the PE ratio: ΔPE. How do we go about estimating this? Some argue that the PE will revert to historical means under the premise that inflation and interest rates will move closer to historical averages. We hold a view that PE ratios can remain elevated in a low-growth / low interest rate environment. Our views are closer to those expressed by Bill Gross as 'the new normal'… namely that economic growth and interest rates will remain low for some time and will not return to historical averages. Today, ten year treasury bonds yield roughly 2.3%. The long run historical average has been roughly 4.5%. We subscribe to the notion that the US economic growth will remain lower than historical averages as the growth in the population slows and productivity gains continue at a slower rate than we saw in the 90's.

How does this impact ΔPE? Well, if one expects interest rates to go up, then future earnings are more heavily discounted and you would expect the PE ratios to compress. Generally, those who believe economic activity will increase from today's pace with increased pressure on inflation and interest rates subscribe to this view.

Staying with an outlook for current mild growth and inflation rates (the 'new normal') we estimate ΔPE at somewhere in the range of -1% - 0% and will use -.5% midpoint for our expected return estimates.

Summing it All Up

Where does this leave us for total expected return? Our total return estimate for the next 7-10 years is 6.5%.

Figure 1: US Market Expected Return

Dividend Yield	1.9%
Repurchase Yield: Δs	0.0%
Expected Inflation	1.7%
Expected Real Earning growth	1.9%
Expected Repricing: ΔPE	-.5%
Total Expected Return	**5.0%**

Where does that leave us regarding the equity risk premium? Using the 10Y Treasury Rate as our proxy for the risk free rate, the equity risk premium is estimated to be 5% - 2.3% = 2.7%. For comparison, Moody's AAA seasoned investment grade yield (30Y corporates) (Federal Reserve Bank of St. Louis).

How Does This Compare To Other Views?

For comparison purposes we look at three sources. First, we review the assumptions from Grinold-Kroner. This is instructive given that the prediction can now be reviewed relative to what happened in the period 2004 – 2015. Next we review the assumptions made by Research Associates in their Q4 2014 Expected Returns. (Research Associates). Finally, we compare these estimates to those from JPMorgan in "Long-term capital market assumptions: 2015 estimates and the thinking behind the numbers" (JPMorgan Asset Management)

Figure 2: US Market Expected Return

	BWV	GK 2004	RA	JPM
Income Return	1.9%	2.25%	1.7	2.7%
Expected Real Earnings Growth	1.9%	3.5%	1.3	2.6%
Expected Inflation	1.7%	2.5%		2.5%
Expected Repricing: ΔPE	-0.5%	-.75%	-2.6%	-1.2
Total Expected Return	**5.0%**	**7.5%**		**6.5%**
Real Returns	**3.3%**	**5%**	**.4%**	**4.0%**

Let's look at Grinold-Kroner estimates from 2004. They estimated that over the next ten years the US equity markets would return 7.5%. During this period, the total return on the S&P 500 was approximately 8% on an annualized (CAGR) basis. The equity returns were highly volatile as a result of the 2008 financial crisis.

Next, let's look at the views of Research Associates. Compared to Brightwood, they see lower income return and earnings growth. They expect a negative repurchase yield which impacts the income return. Furthermore, they believe that real earnings per share will lag earnings growth citing historical data that shows suggesting that company management has been ineffective at investing capital in projects. They suggest that returns from reinvestment lag what an investor would earn had the company paid out earnings in the form of dividends. The RA analysis is cited in terms of real returns. They do not include specific details on inflation expectations.

 The RA analysis spends considerable time discussion Shiller PE and in discussing their repricing expectations they suggest that reversion to the mean PE will occur over a 20 year period, thus resulting in a -2.6% impact on total real return. The concern we have with this viewpoint is that it assumes that the US economy and the market as a whole will revert to long-term averages. They do not seem to consider

that fact that we may in fact be in an entirely new regime – one of low growth and low interest rates.

Finally, we look at JPM estimates. In terms of Income Return and Expected Earnings Growth, we are largely in line with their views. JPM sees slightly more positive impact from repurchase yields (.7% vs our .5%). They include a detailed breakdown of expectations in revenue growth and margin impact to generate an expected real earnings growth of 2.6%. The most significant difference is in inflation expectations. JPM sees inflation returning to (and actually exceeding) the long term mean inflation of 2.3%. So in aggregate the differences between Brightwood and JPM are internally consistent. By this we mean that JPM view of large income and earnings growth coupled with higher inflation expectations and negative price return relative to Brightwood model make sense from a discounted cash flow perspective. Higher inflation and interest rates consistent with higher growth would lead to deeper discounting and therefore a larger decrease in PE compression.

In summary, our view is that income and earnings will grow faster than RA view and slower than JPM view. We see inflation and interest rates maintaining below historical levels compared to JPM and RA views and as a result, we don't see as much negative repricing pressure. Alternatively stated, we think PE levels will remain elevated relative to historical levels for some time to come.

References

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