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# MARKET FORECASTING EXPLAINED

Knowing what you know has value. Not knowing what you don't know has no value. Predicting the future has significant value. We know many things; facts, figures, names, places, etc. We don't know many more things; quantum physics, what's inside a black hole, how the universe was created, our anniversary, how to get the best deal when buying a car. Lastly, we wish we knew certain things; the next lottery numbers, when that car was going to run the red light and crash into us, the future direction of the market. Knowing enriches our lives. Not knowing makes life more difficult. Forecasting the unknown (and unknowable) challenges us and gives many of our lives purpose. Most of us would pay hefty sums to know the unknown.

In life, as in the investment industry, accurate market forecasts are the most valuable of commodities. They are also the most elusive. We may not be able to predict the lottery or accidents, however, market prognosticators spend considerable time and effort trying to predict the future direction of markets. This secret world is part art, part science and part magic. To make forecasts, we use historic data for context, assumptions about how the world works, common sense and experience to guide our conclusions along with a legal team to write disclaimers when we're wrong. Despite the difficulties of the job (and legal's lack of faith), market forecasters are usually right. In fact, to hear them tell it, they're never wrong, just not right at the right time – a small but important difference - at least in our eyes.

The following will offer a small glimpse into how this dark art is performed. Perhaps more importantly, it will show us where we are, and what we should expect going forward.

## DECOMPOSING RETURNS

Despite what you may have heard in the past, investor returns are made up of three components:

1. Dividends
2. Earnings growth or decline
3. Valuation expansion or contraction

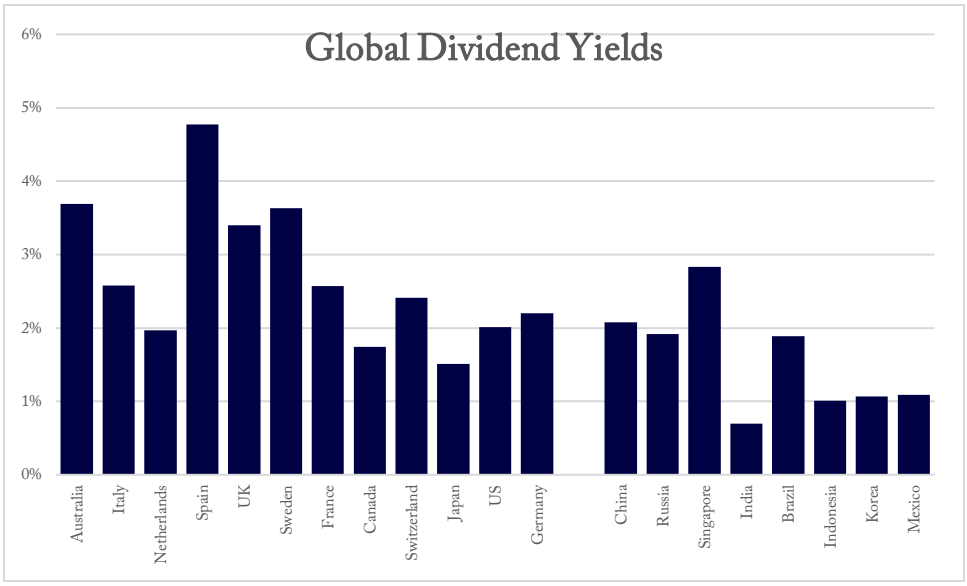
Once one calculates the expected returns for each component, it is a simple matter of adding them to come to a grand total. So simple, yet so complex.

## DIVIDENDS

Dividends are fairly straightforward and widely known. Companies "pay" owners for wholly or partially financing the business by returning some portion of earnings directly to them.

Individually, company executives decide dividend policies in sync with the goals of the business. For example, a company which needs capital to grow (typically small companies in the earlier stages of a business' development cycle) will often forego dividends so they can reinvest 100% of earnings back into the business. On the opposite end of the spectrum, late-stage firms with lower growth and steady and significant cash flows will often pay dividends as they have less need for the full earnings.

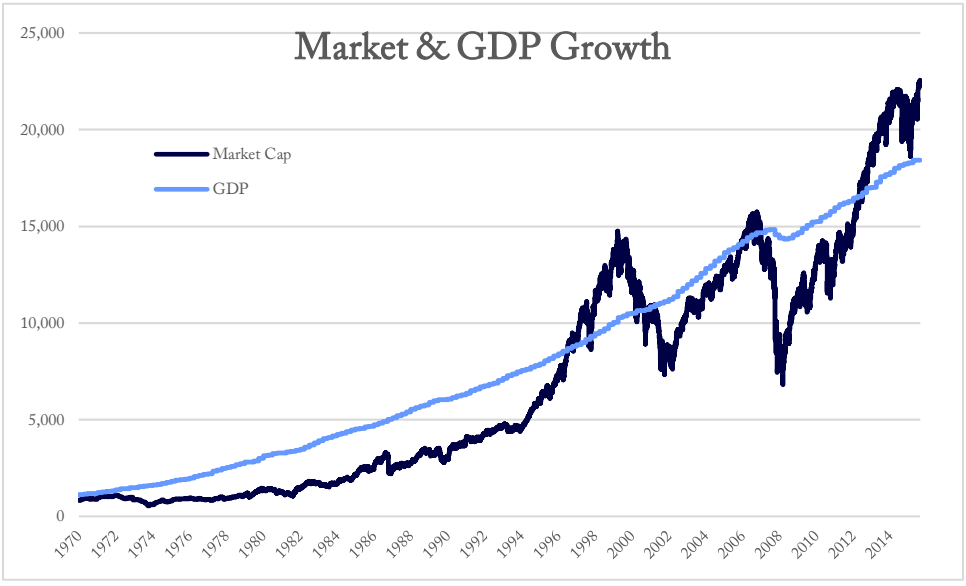
Collectively, earnings and dividend policy for public companies is widely known and changes slowly over time. Based on history, we have reasonable expectations for dividend payments for the market as a whole. Knowing what has been paid, and having reasonable expectations of what will be paid, we can quickly calculate the market's dividend yield. The chart to right shows the current dividend yields of select developed and emerging market countries. As we will see as we progress, developed economies have different characteristics to those of emerging economies and are therefore separated so as not to confuse topics. The US dividend yield is slightly below average but still a respectable 2%, particularly when considered in the context of current bond yields.




Assuming dividend policy does not dramatically change (a safe assumption), we can expect 2% return from dividends over the next year.

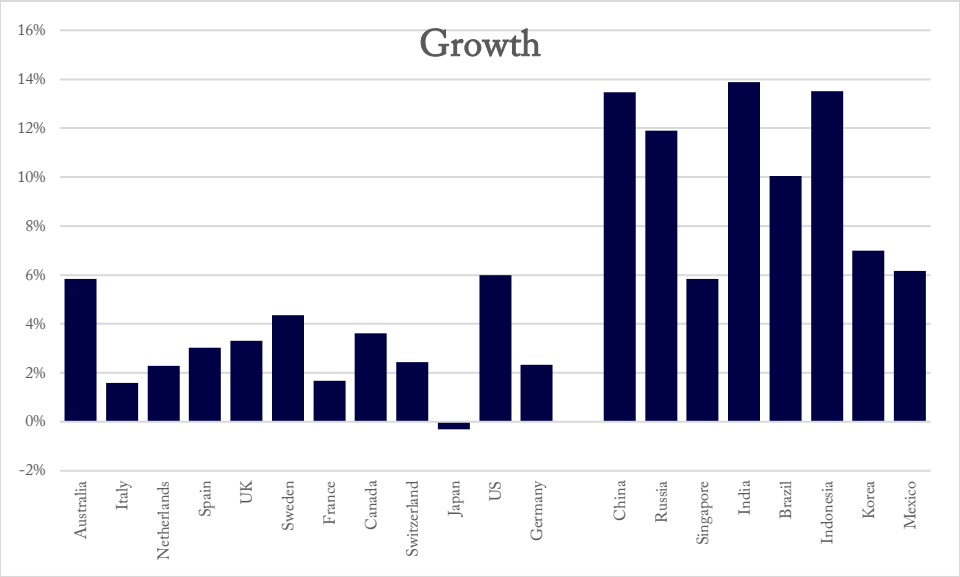
## EARNINGS GROWTH

All else being equal, long-term market returns should equal the growth of earnings. Why? The stock market represents all companies in the economy (it's actually a subset – think private companies, but the difference is immaterial). Therefore, the collective growth of all companies will neither exceed nor fall short of the growth of the economy. In fact, they are nearly one and the same. Consider the following chart showing nominal GDP overlapped with the market. While there are (sometimes large) deviations, the long-term trends are in sync. Historically, while not always the case, the US economy grows at about 6% annually. It has been slower (relative to history) recently, hence politician's and economist's machinations about growth, unemployment, interest rate and tax policy as of late.




Historic growth rates for the same developed and developing countries is shown below. As mentioned, it is getting easier to see the differences between developed and emerging economies. Like established vs. growth companies, emerging economies have higher historic, and expected, growth rates. Partly, this has to do with demographics, but there's an equal part of opportunity as well. Not only are there more people to sell to, the number of people is growing faster and the "stuff" they "need" to become a developed nation is greater. It is for these reasons,

companies want to be selling to China, India, Brazil and the like – there's higher growth and higher profits to be had.

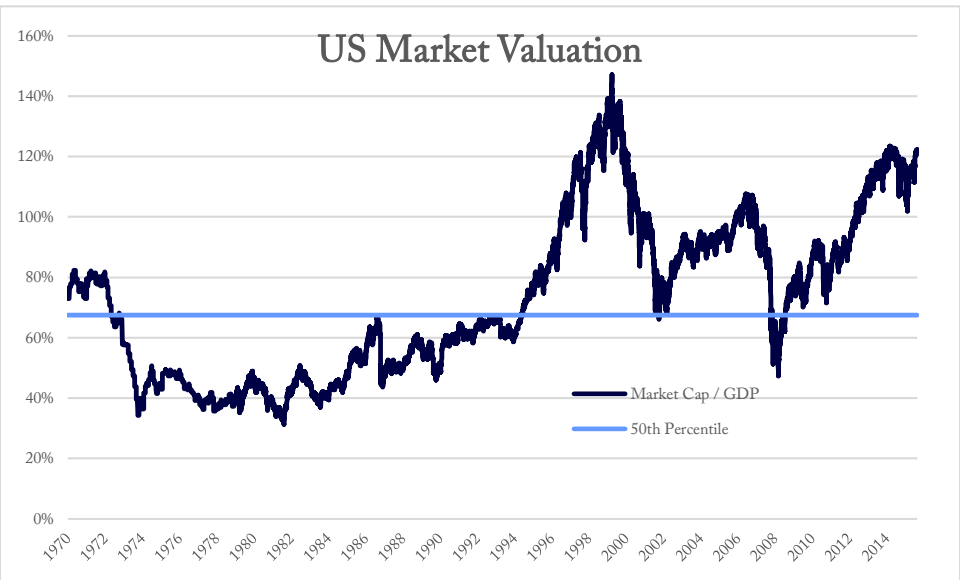



Adding 6% growth to our US forecast, we can quickly see why long-term market forecasts often use 8% (2% dividends + 6% growth). While these numbers ebb and flow over time based on any number of factors, we can have some confidence in their persistence.

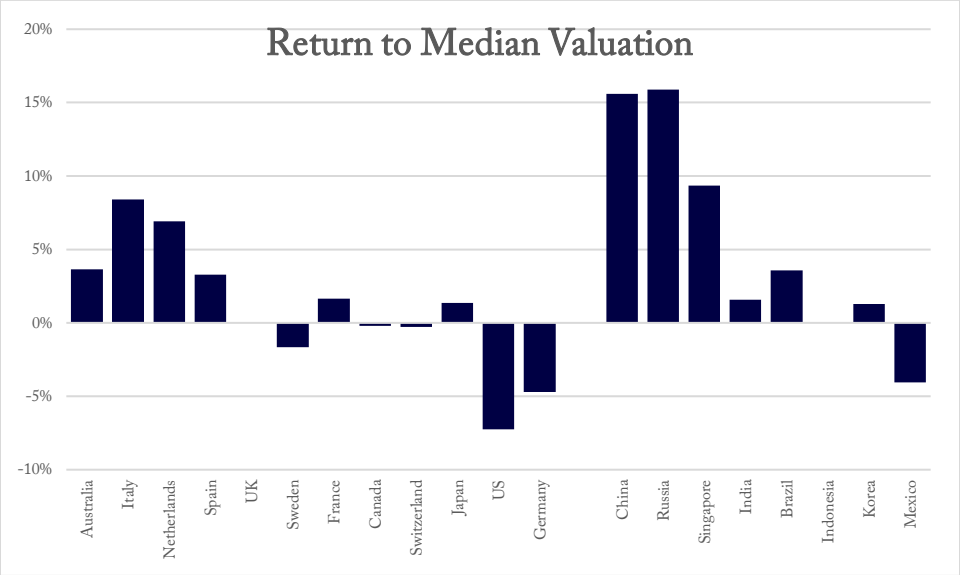
## VALUATION

Valuation is the trickiest component of the three. As it turns out, valuation only matters when the market's current value differs from that implied by the economy – which paradoxically, is most of the time. For example, if economic growth slows to 2% and the market over-reacts and falls 50%, it's likely there's a real investment opportunity as the market works its way back to fair value consistent with 2% growth. Similarly, if companies collectively raise dividend policy and the market interprets that as a positive signal and races ahead in response, it's likely the market will come back to reality or pause while the economy "catches up". As we saw from the Market & GDP Growth chart above, these two measures track each other, but fluctuate (sometimes wildly) in their trajectories.

Therefore, in order to track these fluctuations, we can use the Market Cap to GDP ratio (shown below) as a proxy for broad market valuation. Famed investor Warren Buffett calls this ratio, "probably the best single measure of where valuations stand at any given moment". Using Warren's advice, we can see the long-term average market cap to GDP ratio is about 67%. When the market's capitalization is higher, the market tends to be overvalued and visa-versa. Right now, the ratio stands at about 120%. Using this level, the annualized expected return to investors is -7.0% using an eight year holding period $(\frac{67}{120})^{(\frac{1}{8})}$-1. In other words, investors can expect to lose 7% per year for the next 8 years as the market's total market capitalization works its way back to the long-term average. Even if the market's market cap only worked its way back to the 75th percentile of history (92% market cap to GDP), the expected return is -3.5% per year for eight years. The better case scenario of the 75th percentile is still not a great scenario.



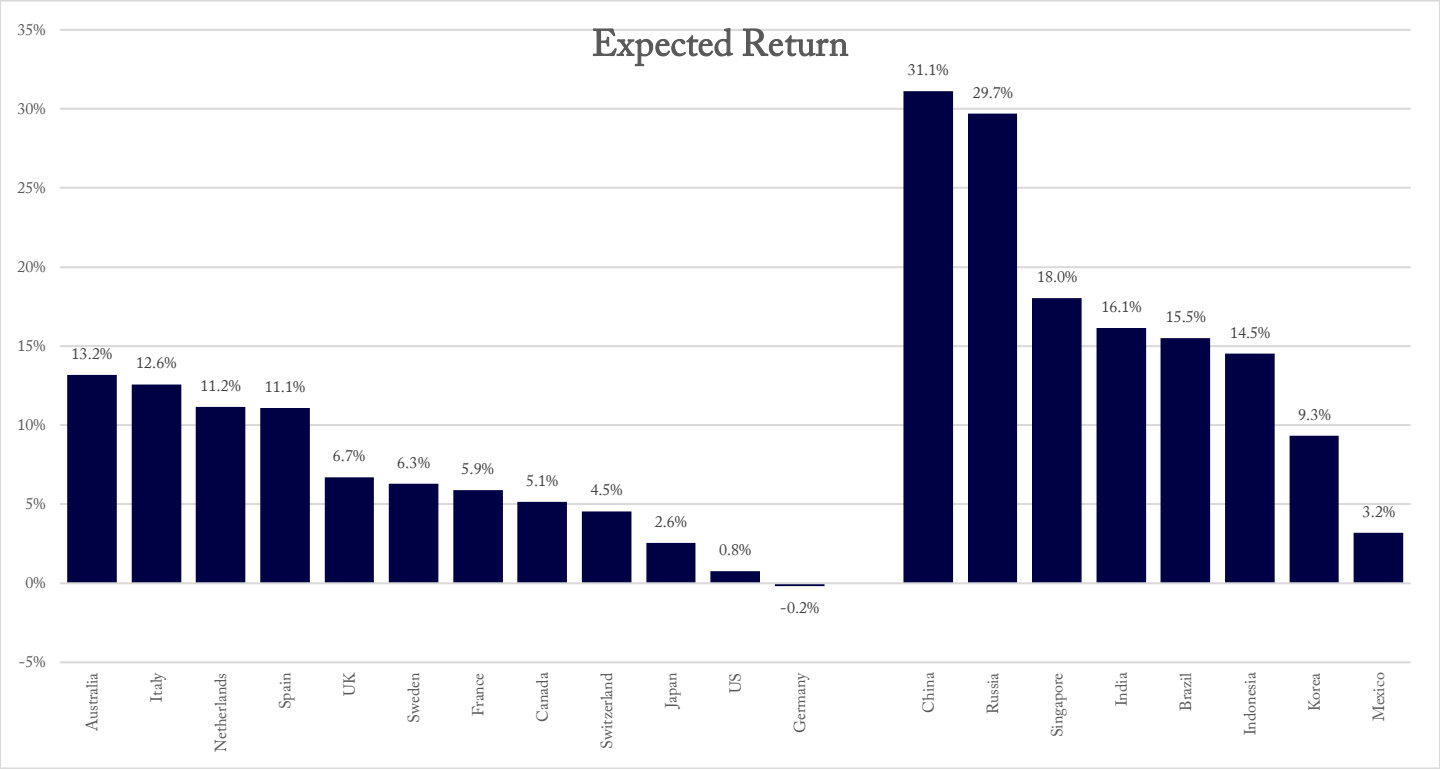
Using the same measure as above, we can compare current global market valuations to their longer-term medians. It is here that the US, Germany and Mexico look most unappealing.




## CONCLUSION

Tying it all together, we simply add the three components to come to a reasonable, if uncertain, expectation for market returns. In the US, this equates to 1% return expectations (2% dividends + 6% growth -7% valuation).

Applying the same methodology to the same group of countries as above, we see the US languishing in expectations, while Australia leads developed nations. Emerging countries are largely expected to outperform everywhere. We can therefore use the chart below to build portfolios and allocate resources.




If only it were so easy. The above is a reasonable expectation of equity market returns. The dark art is reading between the lines and assessing the risks and underlying reasons associated with these expectations. For example, the UK's total return expectations are comprised of 3.4% dividends + 3.3% growth + 0.0% valuation = 6.7%. However, given the recent vote to leave the European Union, is 3.3% growth still reasonable? Should the growth component be adjusted downward for higher trade barriers, higher input costs and other factors leading to lower earnings growth? If so, what should it be? Likewise, does Italy's and Spain's valuation

components reflect the debt concerns these countries face in the future? Should this component be adjusted accordingly? Continuing with the questions, are the return expectations to the emerging market countries realistic given the heavy reliance on growth and valuation components among the current climate of protectionism and isolationism being espoused by parts of the US, Britain, Holland and others? If anti-globalization gains a foothold, what happens to the growth rate of countries dependent upon exported manufacturing for internal growth?

The point of this post is not to answer these general or specific questions. Rather, I seek only to demonstrate the process by which one can build a reasonable top-down forecast. However, while the logic and math is fairly straight forward, it does not answer important questions. This is where art meets science and knowing meets its limits. This is where there is value in knowing what you know, no value in knowing nothing and significant value in predicting the unknowable. Market forecasts may be imprecise, mis-timed and unable to answer important questions. Nonetheless, using historic data, logic and a bit of magic, one can draw reasonable conclusions about the future. At the moment, with the exception of all but the rosiest scenarios, regardless of how one answers the unknown questions, a bleak US picture emerges.

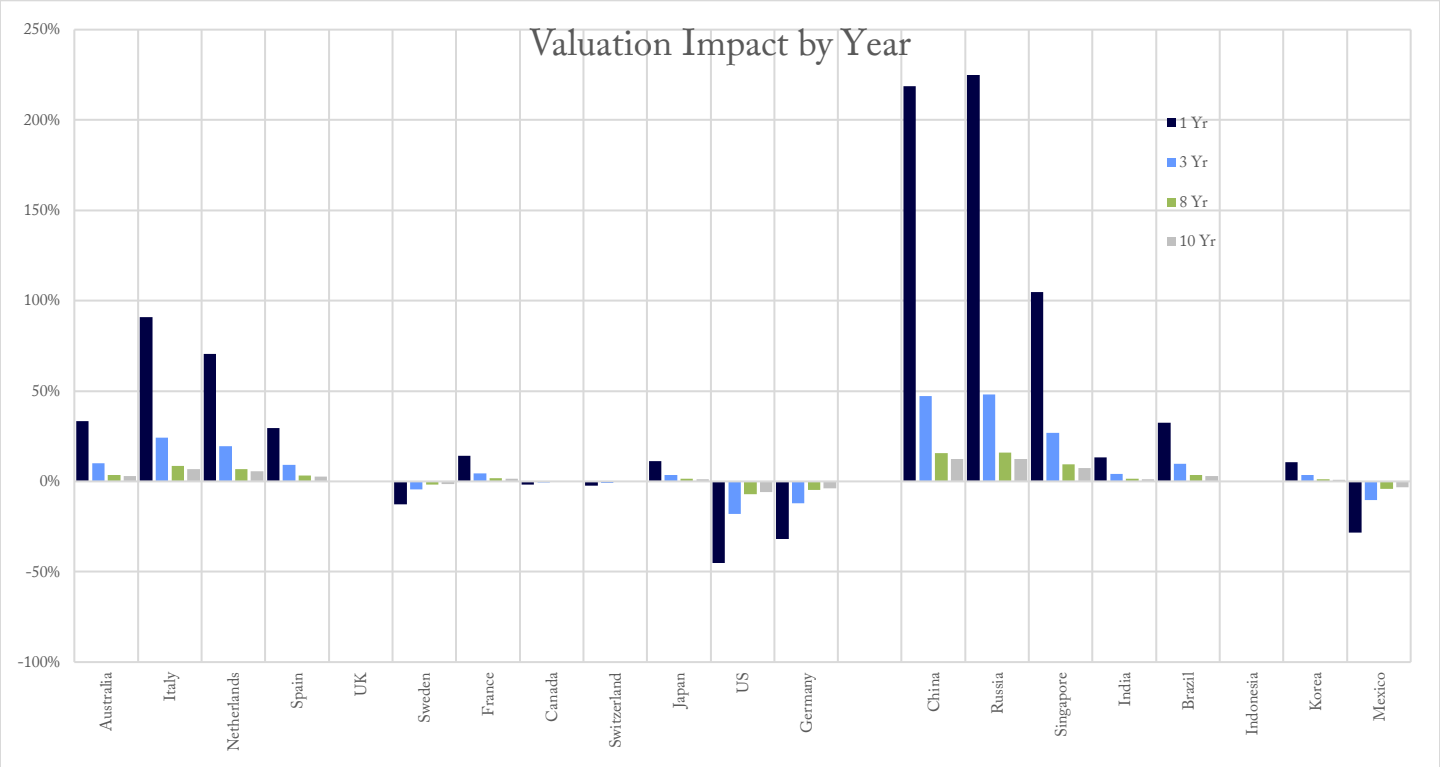
Full detail for each country is below.

| Country | Dividends | Growth | Valuation | Total |
|---|---|---|---|---|
| Developed Markets | | | | |
| Australia | 3.69% | 5.83% | 3.66% | 13.18% |
| Italy | 2.58% | 1.58% | 8.42% | 12.58% |
| Netherlands | 1.97% | 2.28% | 6.91% | 11.16% |
| Spain | 4.77% | 3.03% | 3.30% | 11.10% |
| UK | 3.40% | 3.31% | 0.00% | 6.71% |
| Sweden | 3.63% | 4.35% | -1.67% | 6.31% |
| France | 2.57% | 1.67% | 1.66% | 5.90% |
| Canada | 1.74% | 3.61% | -0.21% | 5.14% |
| Switzerland | 2.41% | 2.43% | -0.29% | 4.55% |
| Japan | 1.51% | -0.30% | 1.35% | 2.56% |
| US | 2.01% | 6.00% | -7.23% | 0.78% |
| Germany | 2.20% | 2.32% | -4.69% | -0.17% |
| Emerging Markets | | | | |
| China | 2.08% | 13.46% | 15.59% | 31.13% |
| Russia | 1.92% | 11.90% | 15.87% | 29.69% |
| Singapore | 2.83% | 5.84% | 9.37% | 18.04% |
| India | 0.70% | 13.88% | 1.57% | 16.15% |
| Brazil | 1.89% | 10.05% | 3.58% | 15.52% |
| Indonesia | 1.01% | 13.51% | 0.00% | 14.52% |
| Korea | 1.07% | 6.99% | 1.27% | 9.33% |
| Mexico | 1.09% | 6.16% | -4.06% | 3.19% |

# Update – August 26, 2016

It occurred to me after I posted this piece, that I left out an important component of the valuation discussion. That is, in the above I used eight years as the time-frame for valuation component to work its way back to "normal". Eight years is a bit arbitrary but has some significance in that it attempts to replicate the time of a "average" business cycle. That in itself is a misnomer because the length of every business cycle (expansion and contraction) is different and depends on an innumerable number of factors – far too many to estimate or forecast. Therefore, we're left making an assumption – which, in layman's terms, means we're guessing.

As a result of this, I wanted to include the expected returns based on different time horizons for the valuation component - 1, 3 and 10 years – so that we can see the impact on expected returns. I have not changed the dividend and growth components so that the numbers are comparable. The results are not surprising as the difference between years is simply a straight-line growth calculation. As you can see, using different assumptions (guesses) serves only to magnify or dampen the return expectations.




Looking specifically at the US, we can see the significant decline were valuations to return to normal quickly versus languid returns over 10.