Stock Market Returns – The GDP Growth Rate Myth

By Baijnath Ramraika, CFA®

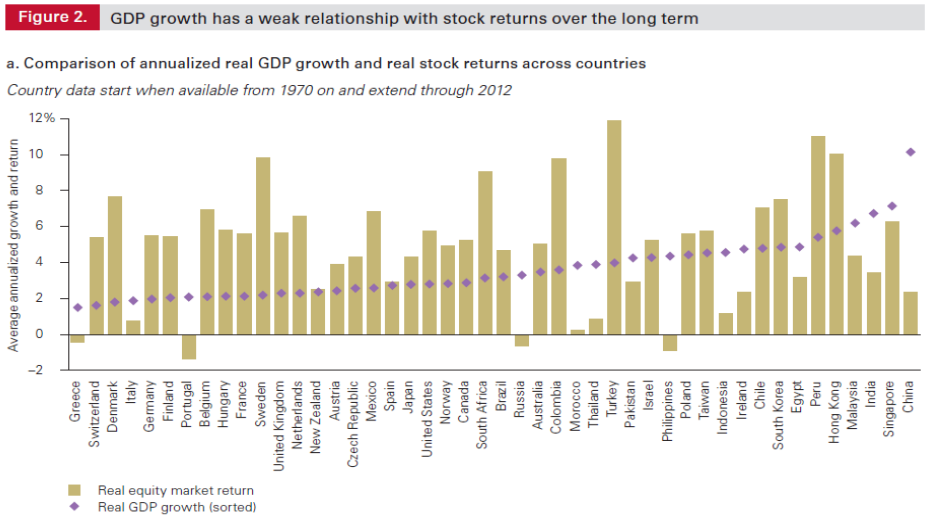
April 15, 2015

This article originally appeared on Advisor Perspectives.

The idea that nominal equity market returns approximate the country's GDP growth rate is historically uninformed and intellectually dishonest. If there were any merit to the idea that equity market returns should approximate GDP growth rate, we would see this in a tight relationship between the two variables across countries. But we don't.

In their research paper, The Outlook for Emerging Market Stocks in a Lower-growth World, Joseph Davis et al.[1] compared long-term real equity market returns and real GDP growth rates. Their finding, summarized by the chart below, clearly shows that high GDP growth rates do not result in high equity market returns and vice versa. In fact, the r-squared between the two variables is zero; statistically speaking, there is no relationship between GDP growth rates and equity market returns.

This issue came to light in an article in *The Times of India.* Prashant Jain, CIO of HDFC Mutual Fund (an Investment Management firm in India), suggested that equity market returns follow nominal GDP growth rates. Here is what he had to say, "The reason for this is simple. Equities over time grow in line with the growth of underlying businesses. As businesses comprise the economy, the nominal growth of the economy (real growth plus inflation) is a good proxy for the average growth in businesses. …. The Indian economy has grown at a remarkably constant nominal growth of 15% p.a. No wonder that the Sensex[2] CAGR of 17.1% is close to 15% nominal GDP growth."



The spurious nature of the relationship between GDP growth rates and equity market returns observed by Jain is also evident in these data points for the United States. Over the last 130 years, while the nominal GDP of the U.S. grew at 5.6%, the equity markets generated a nominal total return of 8.9%[3]; significantly outstripping GDP growth rate. If we followed the simple reasoning offered by Jain, equity markets in the U.S. should have returned not much more than 5.6%.

Source: The Outlook for Emerging Market Stocks in a Lower-growth World, Vanguard Research

[1] The Outlook for Emerging Market Stocks in a Lower-Growth World, Vanguard Research, Joseph Davis, Roger Aliaga-Diaz, Charles J. Thomas, and Ravi J. Tolani, September 2013.

[2] Sensex refers to the S&P BSE Sensex Index, a market-cap weighted index comprised of thirty stocks.

[3] Long-Term Sources of Investment Returns and a Simple Way to Enhance Equity Returns, Baijnath Ramraika CFA, November 2014.

Source of equity market returns

Interestingly, the misperception that higher GDP growth rates result in higher equity market returns is a rather common one. While growth is an important part of the investment return equation, the return on invested capital is conveniently forgotten. In fact, I assert that over the long term[4], investment returns earned by equity investors approximate the return on capital of all businesses in the market.

Let's say that an investor has come across a business that earns 12% returns on capital and will continue to do so for the next 10 years. The investor is able to acquire/start the business at book value. The business will have zero growth such that all earnings will be paid out as dividends. At the end of the period, the business will close and our investor will be repaid a sum equivalent to the net worth / book value. Table 1 shows a simplified calculation of the IRR (internal rate of return) for this business investment.

Table 1

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Net Income = Free Cash Flow	-100	12	12	12	12	12	12	12	12	12	112
IRR	**12%**										

The IRR of this investment opportunity is 12%. However, there is a significant assumption about the reinvestment rate implicit in this calculation of IRR. The reinvestment rate is the rate of return at which an investor is able to reinvest his/her cash flows received from the investment opportunity under consideration.

Let's now assume that our investor is only able to reinvest at an 8% rate of return. Table 2 shows the calculation of modified rate of return that the investor is expected to earn from this business opportunity.

Table 2

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Net Income = Free Cash Flow	-100	12	12	12	12	12	12	12	12	12	12
Reinvested Cash Flows	0	-12	-12	-12	-12	-12	-12	-12	-12	-12	162
Net Cash Flow	**-100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**274**
IRR	**10.6%**										

The IRR drops to 10.6%, a result of lower investment returns on reinvestment opportunities. Clearly, lack of growth opportunities at rates above the opportunity cost of capital[5] dampened the investor's returns.

Let's now assume that the business is able to grow at an annualized rate of 12%. Given that the return on capital earned by the business is also 12%, all cash flows will be reinvested in the business to fund the growth. Table 3 shows the calculation of IRR in such a case.

[4] The long-term that I refer to here is a very long time frame extending well beyond a few decades and is longer than the investment horizon of most investors.

[5] As the investor is able to earn 8% on his/her reinvestments, the opportunity cost in this case is 8%.

Table 3

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Net Income	-100	12	12	12	12	12	12	12	12	12	12
Capital Expenditures	0	-12	-12	-12	-12	-12	-12	-12	-12	-12	0
Free Cash Flow	**-100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**311**
Net Worth	**100**	**112**	**125**	**140**	**157**	**176**	**197**	**221**	**248**	**277**	**311**
IRR	**12.0%**										

As Table 3 shows, the investment return earned by the investor matches the underlying business's return on capital. This is a result of the fact that investor is not burdened by the responsibility to look for reinvestment opportunities. Interestingly, in this case, the rate of return earned by the investor equals the growth rate. Doesn't that mean that there is a one-to-one relationship between growth rate and investment return? If so, wasn't Jain's assertion correct?

To answer these questions, let's see what happens if this business was growing at a much higher rate, say 25%. If Jain is correct, our investor should earn an IRR of 25%, which is equal to the growth rate of the business. Table 4 presents the cash flows and IRR for such a case.

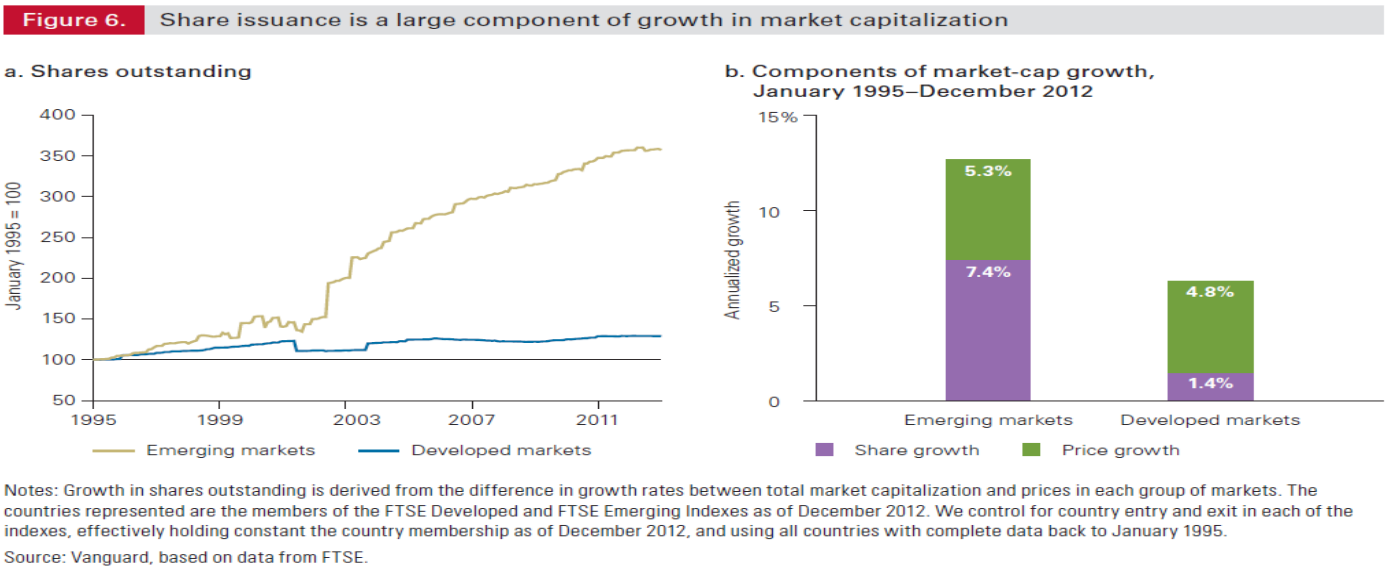
Table 4

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Net Income	-100	12	12	12	12	12	12	12	12	12	12
Capital Expenditures	0	-13	-19	-27	-37	-49	-64	-83	-107	-137	0
Free Cash Flow	**-100**	**-1**	**-7**	**-15**	**-25**	**-37**	**-52**	**-71**	**-95**	**-125**	**931**
Net Worth	**100**	**125**	**156**	**195**	**244**	**305**	**381**	**477**	**596**	**745**	**931**
IRR	**12%**										
Growth in Net Worth	**25%**										

Something curious happens. As the business was growing at a supernormal growth rate of 25%, the business's total net worth grew at 25% as well. However, the IRR lagged way behind and failed to follow the business's growth rate. The IRR is closer to the rate of return on capital earned by the business. The reason for this discrepancy is that the business is unable to finance its growth using internal cash generation and has to resort to external sources of financing, i.e., issue of shares.

In general, when growth rates experienced by businesses in an economy significantly exceed the underlying returns on capital of all businesses, businesses will need to find external sources of funding to support the capital requirements placed by higher growth rates. Not surprisingly, the data suggests as much. Between 1995 and 2012, emerging markets have seen significant increases in shares outstanding. As compared to developed markets, emerging markets derived a larger portion of their increase in market capitalizations from growth in shares[6].

[6] The Outlook for Emerging Market Stocks in a Lower-Growth World, Vanguard Research, Joseph Davis, Roger Aliaga-Diaz, Charles J. Thomas, and Ravi J. Tolani, September 2013.



Source: The Outlook for Emerging Market Stocks in a Lower-growth World, Vanguard Research

The discussion above makes it clear that investment returns earned by investors are largely driven by three factors: return on capital of the underlying businesses, reinvestment rate earned on distributed profits and the rate of return that businesses earn on their growth investments.

The analysis assumed that the investor is able to purchase and sell at the book value. However, when investing in equity markets, this assumption seldom holds. What this means is that there is an additional source of investment return from equities, namely valuation. Valuation affects returns in two ways. First, the price that is paid in relation to the economic book value of the business affects the underlying return component for investors. Second, difference between valuation multiples that the market ascribes to cash flows or book value at purchase and sale affects the returns earned by equity investors over their holding period.

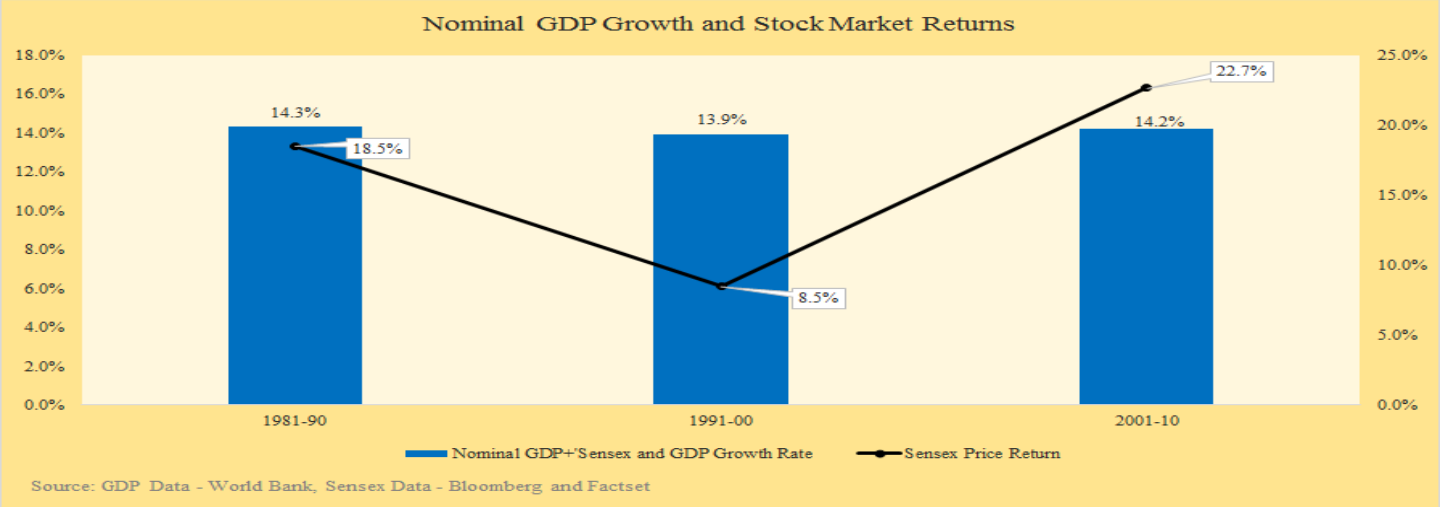
Over the very long term, the impact of valuation is small. But for investors with time horizons of a decade or less, it is a material component. In addition, there is an error term that is involved in the investment return equation that reflects corporate governance and managerial missteps. To the extent that managers of businesses err in their pursuit of high growth avenues and/or mistreat shareholders, there is a negative impact on investment returns.

Sensex and India's GDP growth rates

Between April 1979 and March 2015, BSE Sensex grew at a compounded rate of 16.4% p.a.[7], in line with what was pointed out by Jain. Figure 1 is an attempt to reproduce data similar to what was used by Jain to support his hypothesis. However, instead of showing only the GDP growth rates for each decade, I have included the stock market returns as well. While India's nominal GDP growth rate has been fairly constant at around 14% annually in each of the last three decades, stock market returns did not show any such tendency, i.e., they did not follow the GDP growth rates in any decade.

Figure 1

[7] Source: Bloomberg and Factset



Economic liberalization – Impact on equity returns

In 1991, India started with its economic liberalization policies that seemingly lifted it above its derogatorily termed "Hindu rates of growth[8]." With the hypothesis that equity market returns are largely driven by return on capital of all businesses, what should one have expected to see in terms of equity market returns, once the economy opened up? Most people are quick to say that equity market returns should have improved as economic performance improved. However, that's not supported by our hypothesis. Pre-liberalization, businesses that existed were likely earning returns well above cost of capital, as there were significant barriers to entry driven by government policies and the license-raj system[9]. However, as the economy started to open, it would have been logical to expect returns on capital to be driven lower since competition, both from local as well as international players, was about to increase.

So what happened? In the pre-liberalization period, the Sensex grew at a CAGR of 26.0% from 1979 to 1991. However, in the post-liberalization world, the Sensex grew at a compounded annual rate of return of 11.8% from 1991 to 2015. Clearly, competition did exactly what it was supposed to do: reduce the economic production that is shared by providers of capital.

Summary

Equity market returns are driven by the returns on capital of the businesses underlying the market. GDP growth rates, which are widely thought of as significant drivers of equity market returns, actually have no correlation with equity market returns. This is not to say that growth rate enjoyed by a business isn't important. The growth in business value per share is relevant. Growth in business value is a factor of the returns on capital of the business and the rate of return at which additional capital is deployed for growth. Any analysis that ignores returns on capital is likely to reach misplaced conclusions, which in turn will result in poor investment decision-making.

Baijnath Ramraika, CFA, is a partner at Multi-Act Equiglobe (MAEG). Contact him at Baijnath.Ramraika@Multi-Act.com.

[8] Hindu rates of growth refer to low growth rate of India's planned economy. See: http://en.wikipedia.org/wiki/Hindu_rate_of_growth

[9] The License Raj system refers to the system of licenses that were required to setup and run businesses in India in the pre-liberalization era. See: http://en.wikipedia.org/wiki/Licence_Raj