The Role of Normalisation in Forecasting

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Sitting on a couch on a Sunday evening with friends and watching an India - Pakistan match is always fun. The entertainment quotient is even higher when Virat Kohli is at the striker's end and everyone is predicting the target India would set for Pakistan. However, such predictions are not limited to a cricket or a football match.

At some point of time, every one of us would have made predictions on the weather during the day, the winner of a sports tournament or the level of Nifty/Sensex a year down the line. These predictions come from extrapolation of the recent past or just a hunch. But unlike a prediction, forecasting is based on formulation derived from studies of measured results of similar incidences over time. For example, meteorological departments all over the globe use decades of time series data to come up with a forecast for a location which would give various parameters on real time basis like probability and quantum of rain, humidity, and temperature. Similar is the case when economists forecast GDP growth or economic cycles. Financial projections however, tend to remain off the mark more often than not, mainly due to the extension of recent trends into the future. Such acts ignore the tendency of chance-based events to mean revert, as we had highlighted in Mean Reversion and the Role of Normalisation in Investing (October 2017). We further advocated the importance of normalisation in dealing with such events to avoid the trap of 'extending the trend'. In this note, we elaborate on the process of normalisation in financial forecasting.

Financially, the value of an asset is equal to the present value of the future cash flows that the asset would generate over its lifetime. The cash flows in turn, are determined by the growth in sales and various cost heads, expansion or compression of margins, extent of operating leverage, the reinvestment needs of the business etc. Thus, there are multiple factors, quantitative as well as qualitative, which affect the value of any investment or asset. In the following sections, we provide a peek into our process of analysing such factors.

How does one start…

A good reference or starting point for estimating the future of a company is by understanding its historical growth rates and that of the industry that the company operates in. Indeed, as we had covered in the October 2017 note, past growth might not always hold true in the future because of mean reversion, but it undoubtedly communicates information that can be worthy for the forecaster.

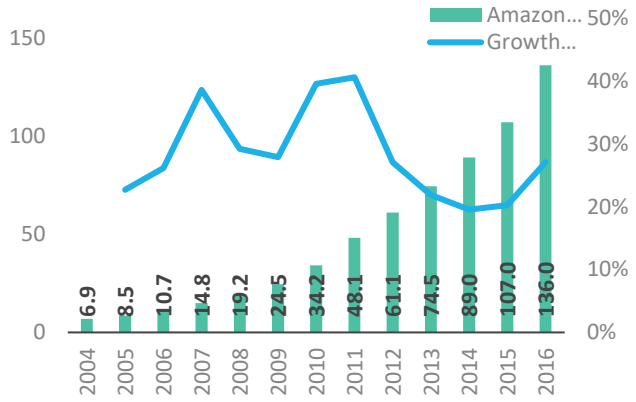
Two things need careful attention - first is the Growth in Opportunity Pie (nature of the industry – growing, saturated or declining) and second is the Size of the Company, as it is easier to grow from a small base. For example, it is easier for a firm with revenues of INR 500mn to grow at a high growth rate (maybe 30-40%) than a company with INR 5,000mn revenues. It becomes harder for firms to sustain high growth rates as they grow in size, unless the opportunity pie itself grows at a high rate. The longevity of high growth rates may depend on the nature and opportunity size of the industry which the firm operates in.

Companies like Amazon and Flipkart, where opportunity size is very large, can see sustainable high growth rates for a long period of time. Amazon has grown at 28% CAGR from 2004 to 2016. During the last 4-5 years, it has still managed to grow at 22%, albeit lower than what it did pre-2012. If we look at the total retail market size of the globe which is around USD 26tn, Amazon at USD 136bn of revenues in 2016 forms less than 1% of the global retail market – thus, it has a long growth runway. Even if we exclude the Chinese market from this opportunity pie, we are still talking of market size of USD 21tn which is growing at 3% annually.

Facebook is no different. It has grown its revenue at 78% CAGR since 2007. And during the last couple of years, it has managed to grow above 50% consistently. The opportunity size for Facebook too remains very

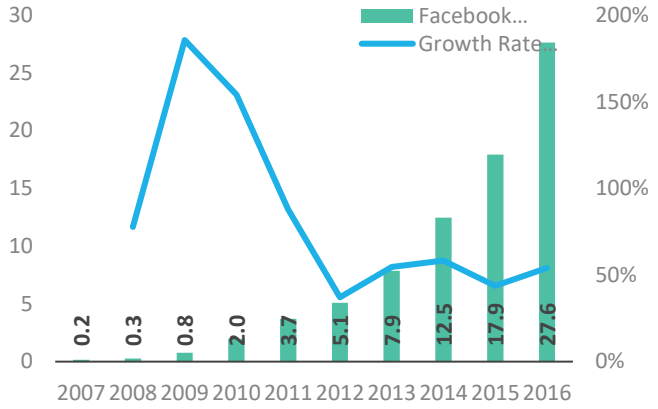
large with digital media taking off globally. The chart below depicts the historical growth rates for both the companies.

Figure 1: Global Revenues of Amazon



Source: Company,Tamohara

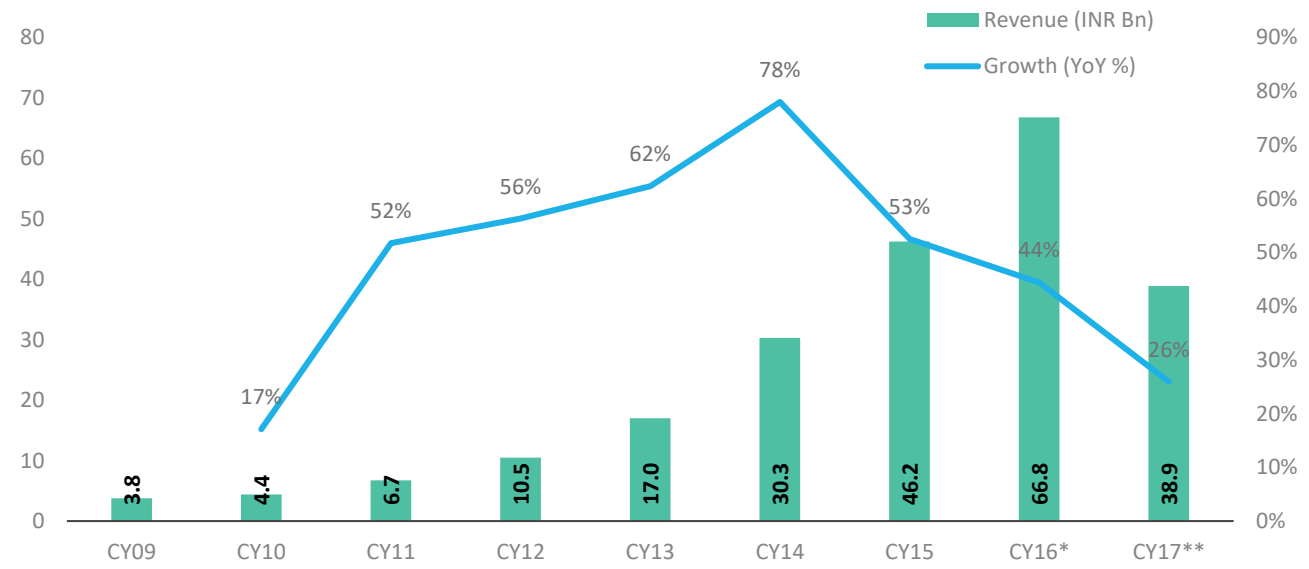
Figure 2: Global Revenues of Facebook



Source: Company,Tamohara

On the contrary, consider the two-wheeler industry in India, where growth rates have normalised to around 7-8% over the last couple of years. Eicher Motors, the manufacturer of the iconic Royal Enfield motorcycles (amongst other vehicles), has grown at an astonishing 50%+ CAGR over the last seven years. From a very small base of INR 3.8bn revenues in CY09, the company has grown to revenues of INR 66.8bn in CY16 (adjusted for change in the financial year). So in this case, one cannot assume or forecast the company to grow at the same rate as it did in the past due to the size effect.

Figure 3: Revenue Growth of Eicher Motors



Source: Company,Tamohara

**Numbers are adjusted for Calendar Year as company has moved to Financial Year.*

***Revenue for CY17 is for H1CY17 and growth for CY17 is for YoY from H1CY16 to H1CY17.*

In the above example, CY17 has seen slow growth due to macro-economic conditions like implementation of demonetisation last year and GST from July this year. But the days of 50%+ growth are gone. The new normal growth for the company might be 20%-25% or slightly higher than this as the company is aggressively targeting the exports market. There are however, a lot of grey areas in ascertaining the future growth rate as there are numerous factors that affect the business. The important point to note is that the company cannot

grow independent of the average industry growth rates over the long term. Its high growth rate will eventually mean that it will have to revert to the industry averages.

Looking beyond historical growth and opportunity size

Another way of determining sustainable growth is to look at it as a function of how much a firm reinvests and what returns it generates on such reinvestments. We can define this in an equation as below:

Expected Growth = Reinvestment Rate X Return on Capital

Reinvestment rate is the cash that the company retains with itself after meeting its liabilities and paying dividends to equity investors. Typically, the reinvestment rate depends on the kind of projects on hand and the management's capability to accomplish them. It is also determined by the dividend policy of the company, as most managements prefer paying steady or increasing dividends. The return ratios are a function of the profitability of such reinvestments. Thus, when companies retain excess cash but only invest such cash in treasuries (bonds, mutual funds etc), the overall RoCE faces a declining trend as the returns on incremental investments are inferior to the returns that the business generates. On the other hand, a company that is currently deploying large sums of cash flows back into the business at returns that are higher than the current returns on capital will see its overall RoCE improve over time.

But how does one determine if the returns on capital on incremental investments would be higher, lower, or same as that on the current investments? This is where understanding the business life cycle and industry positioning plays an important role. Typically, as firms mature, their investment needs tend to decrease (other than commoditised businesses). Further, with size, come advantages of economies of scale i.e. costs do not increase with size and operating leverage kicks in. Take for instance, Facebook. From the year 2013, profitability just multiplied and margins from incremental business directly started flowing to the bottom line.

Figure 4: Annual Revenues and Profits of Facebook

Year	Revenue (USD Bn)	Growth YoY (%)	PAT (USD Bn)	Growth YoY (%)
2007	0.2	NA	-0.1	NA
2008	0.3	78%	-0.1	-59%
2009	0.8	186%	0.2	NA
2010	2.0	154%	0.6	165%
2011	3.7	88%	1.0	65%
2012	5.1	37%	0.1	-95%
2013	7.9	55%	1.5	2730%
2014	12.5	58%	2.9	96%
2015	17.9	44%	3.7	25%
2016	27.6	54%	10.2	177%

Source: Company,Tamohara

Thus, in younger businesses, the growth rates of costs normalise over time as most costs are upfronted. On the other hand, stable/mature businesses see an eventual normalisation of revenue growth rates, as larger businesses/industries cannot sustain growth rates faster than the overall economy. Further, for many businesses, the benefits of operating leverage are negated by increased competitive forces. Thus, high return ratios are normalised over time, unless the business possesses a significant and growing competitive advantage.

The Qualitative Aspects of Growth

Competitive advantage is difficult to measure. While it is reflected in the asset turnover or operating margins of the business, its sustainability depends on a number of factors. These include quality of management, its strategic vision, strength of its marketing team or its capability to be associated with vendors and maybe even other companies for partnership, etc. Most of these factors cannot be quantified on their own, however, developing a deeper understanding of such factors would help us estimate if the high returns on capital will be present in the future or if they will slide and if so, at what pace. It is important to note that managements change over time and so do marketing teams as well as vendor relations. Thus, the impact of such qualitative factors should only be evaluated for medium term, as in the long term, such factors may change completely.

Normalisation of earnings plays a critical role

The large number of variables and their interdependence make forecasting a complex exercise, with higher chances of going wrong than right. Further, the role of mean reversion is also an important consideration for the long-term investor. Thus, when dealing with forecasting, we build a long-term earnings model with two-year implicit forecasts and normalisation of growth and profitability in the balance period.

By normalising, we mean that growth rates are adjusted towards industry/economy growth rates gradually over the forecasting period. This practice ensures two things: (a) we do not simply extend the recent trend indefinitely and (b) we avoid the "selling too early" syndrome as we focus on the long-term value rather than near term earnings.

To cite an example, let's go back to Eicher Motors. When we had evaluated the company over a year back, its long-term prospects were attractive despite assuming moderated growth rates. The process helped us not only invest in the business, but also to hold on to it when the street suddenly saw concerns of slowing growth rates. Belief in mean reversion kept us prepared that growth rates would eventually slow down, and that there would be no need to panic when the company printed a lower growth.

Forecasting helps in getting the direction right

It is important to understand that forecasting is an exercise in probabilities. The objective of the exercise is arriving at a range of values of a business based on multiple assumptions rather than deriving an absolute figure. Further, given the large number of interdependent variables, such an exercise unfortunately does not guarantee a superior investment result although it certainly helps in reducing the probability of errors. After all, investing is an art rather than a pure science.

"The goal of forecasting is not to predict the future but to tell you what you need to know to take meaningful action in the present."

- Paul Saffo in Six Rules for Effective Forecasting

Until next month,
On behalf of Team Tamohara,
Devang Mehta

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