

Biology and Business – What the natural world can teach us about growth

Too often I see analysts or investors talk about growth – or worse, use growth assumptions to make investment decisions – that don't make sense. There appears to be a fundamental disconnect between models and reality, driven by a misunderstanding of just what it takes to grow a business. I believe the natural world holds clues to understanding growth. Today, our teacher is the garden bean.

The common garden bean typically yields 120 beans per plant. According to University of California Crop Extension research it takes 80 pounds of seed to plant an acre of beans, and 2,000 seeds are required per pound. That's 160,000 seeds required to plant an acre of beans. How long would it take for a farmer, starting with a single seed, to grow into a 1,000-acre green bean baron? This is not a high school word problem, I'll give you the answer: Starting with a single seed it would take four years to grow enough seed to plant 1,000 acres (this of course ignores the practical realities of farming such as pestilence and disease, which ultimately reduces yields).

"There appears to be a fundamental disconnect between models and reality, driven by a misunderstanding of just what it takes to grow a business."

One thing should immediately jump out. This hypothetical farmer worked for four years to grow a single seed into a 1,000 acre farm. Impressive, yes, but because growth was the goal 100% of seed "profits" were reinvested into the ground to produce yet more seeds the following year. The farmer did not consume any of his vegetable himself, nor was he able to sell even a single bean to gain a dollar of profit. The farmer is not disillusioned when it comes to growth. The farmer knows seed stock is required to plant the next year's harvest. Further, the farmer knows that to grow the farm, current consumption (or sales) must be foregone today to increase the size of next year's feed stock. This is almost painfully obvious.

Most businesses require additional seed stock (read: capital) to grow. The owner or manager can "pause" at any time and take 100% of economic profits out of the business, but he or she cannot expect, all things considered, to see that business grow all the same. Growth requires investment in fixed assets and working capital above what's already in the business. This is the crux of capital allocation. Is it better to forgo distribution of current profits and instead reinvest them back into the business to produce even more cash tomorrow? That typically depends on available investment opportunities and the opportunity costs of the business owners.

"Most businesses require additional seed stock (read: capital) to grow... Growth requires investment in fixed assets and working capital."

A real-world example will illustrate this tradeoff. The company JB Hunt is in the trucking business. In 2008 the company had revenues of \$3.7 billion and pre-tax operating income of \$480 million. To produce these results required an average capital investment in property and equipment of \$1,373 million (all those trucks, etc.), plus non-debt working capital of \$732 million, or a total of \$2,105 million to operate the business.

Fast forward to today. In 2016 the company had revenues of just over \$6.5 billion and operating profit was \$721 million. The business now has an average of \$2,760 million in net property and equipment and non-debt working capital of \$1,455 million, or a total of \$4,215 million.

Commentary

Mead Capital Management | Adam J. Mead
Derry, NH

*“I am a better investor because I am businessman,
and a better businessman because I am an investor.”
– Warren Buffett*

Volume: 4 Issue: 4

July 8, 2017

While there are many more factors at play a simple exercise will reveal the fact that this growth was not “free”. To increase operating profits by \$241 million an additional \$2,110 million was invested in the business. This is money that owners either had to put up themselves via additional equity contributions, forgone dividends, or additional borrowing. In short, JB Hunt increased the size of its farm. Owners could have, if they chose to, paid themselves a \$2.1 billion dividend over those 8 years. However, what they would have been left with is a company roughly the same size as existed in 2008. Absent borrowing the funds, which cannot go on forever, *someone* had to pay for those additional trucks, the investment in receivables, and other assets required to grow the business. As with our green bean farmer, this is almost painfully obvious. Yet, investors still chose formulaic approaches to valuing businesses that miss the underlying economic realities. Growth is not free!

A short aside is called for at this junction. At the 2017 Berkshire Hathaway shareholders meeting Warren Buffett noted that the five largest companies in the S&P 500 required no capital to operate (and therefore no capital to grow). It is true that many of today’s businesses require far less capital than those of yesteryear, and some no or even negative amounts of capital. However, these are still somewhat rare and not the norm for a great many businesses. Even those businesses which appear to require no capital may just look that way because their accounting skews reality. For example, intangible assets created via expensed labor costs outside of traditional capitalized R&D investments that don’t show up on the balance sheet.

Back to our JB Hunt example. What can we say about the growth JB Hunt saw between 2008 and 2016? The company grew revenues 76% or 7.3% per annum over the 8 years under examination. Profits, as measured by pre-tax operating income, grew 50%, or 5.2% per annum. Was bigger better, though? To answer that let’s look at the growth in capital over that time. Between 2008 and 2016 capital invested in the business grew by 100%, or 9.1% per year. Returns on capital (pre-tax) in 2008 were 23%; in 2016 they were 17%. In short owners were earning more dollars but the *rate* at which they were earning them had declined. There are of course many things to consider, such as company-specific events, industry cyclicalities, etc. that could temporarily affect profitability. The JB Hunt example was chosen to illustrate the general thesis: growth requires investment.

That fact that growth in a business obeys the same principles as that of a vegetable is not surprising. In fact, it is to be expected. Both are obeying a fundamental reality. As Charlie Munger would say, “how could it be otherwise?”. While it may seem odd to think of a green bean farm when analyzing a business, it is the thought process and connection to underlying realities that are valuable. May your harvests (of either kind) be fruitful!

Rationally yours,



P.S. For a more comprehensive discussion on growth see the excellent work done by professor Aswath Damodaran of NYU. He has many resources available for free on his website: <http://pages.stern.nyu.edu/~adamodar/>