

Why Managers and Investors Sometimes Get Taken by Surprise

Our last newsletter discussed a range of issues related to making good decisions in the face of uncertainty. This newsletter uses these concepts to show why managers and investors sometimes get taken by surprise.

Managerial Surprise

Two recent management books describe situations in which companies suffer substantial performance declines when their managers fail to anticipate changes in their respective environments. In Value Migration, management consultant Adrian Slywotzky begins by describing three different conditions that characterize the state of an industry, company, or business unit. During an initial period of “value inflow” the ratio of equity market value to revenues typically increases, as competition is limited and growth (of both sales and profits) is high. This is followed by a period of “value stability”, when market value/revenue ceases to increase, sales growth slows and competition is reasonably predictable, with stable market shares and margins. The last phase is “value outflow”, when market value/revenue declines, and competition intensifies. Slywotzky goes on to describe a number of “value migration patterns” that he claims occur repeatedly as part of the movement from value inflow to value outflow. For example, these include a movement from “conventional selling” to either “low cost distribution” or “high-end solutions”, and from a narrow range of offerings for a broadly defined customer base to a broad range of offerings for narrowly defined customer segments.

For our purposes here, what is particularly interesting is Slywotzky’s assertion that many managers either fail to identify these patterns or, if they do, fail to take action to reposition their firms to capture the next “cycle of value growth” in their industry. The weight of Slywotzky’s argument (judging from the relative number of pages devoted to it) seems to rest on the former as the more important explanation of corporate decline. By asking better questions, he seems to believe, a large part of the problem can be avoided. Broadly speaking these questions fall into two categories: (1) Customers: a company has to constantly ask who they are, and how their priorities are changing; and (2) Business Designs: a company has to constantly reassess its offerings to its target customers, and the way it organizes its resources to produce and deliver them. In particular, it has to keep a vigilant eye out for competitors whose business designs simultaneously offer superior customer and economic value.

A somewhat less popular, but equally interesting book is The Innovator's Dilemma by Clayton Christensen, a professor at Harvard Business School. Christensen starts off by noting that "the list of leading companies that failed when confronted with disruptive changes in technology and market structure is a long one." He goes on to note that "the decisions which led to these failures were made when these companies were regarded as among the best companies in the world...There is something in the way decisions get made in successful organizations that sows the seeds of eventual failure."

Christensen begins his exploration of this issue with a distinction between "sustaining" and "disruptive" technologies. The former "improve the performance of existing products along the dimensions of performance that mainstream customers in major markets have historically valued...Indeed, most technical advances in any industry are sustaining in character." More importantly, "in their efforts to provide better products than their competitors and earn higher prices and margins, companies [seeking to improve the performance of their products with respect to a specific customer need] often overshoot their market, and give buyers more than they need or are willing to pay for." When this happens, differentiation along the dimension in question loses its meaning; while the companies themselves see important differences between their products, customers see none because all products meet the need in question. The result is a shift in the criteria customers use to choose between products. Based on his analysis of a number of examples, Christensen concludes that these shifts follow a typical pattern: in the earliest stages of a product's lifecycle, the key differentiator is basic product functionality; when this need is satisfied by many competitors' offerings, the basis of competition shifts to vendor reliability, then to convenience [including variety, which seems to be a different concept], and finally to price.

Occasionally, however, in the middle of this process disruptive technologies emerge. These typically "result in worse product performance at least in the near term, but bring to market a very different value proposition than had been previously available...Generally, disruptive technologies underperform established products in mainstream markets, but have other features that a few fringe (and often new) customers value." Given a pace of technical improvement that is faster than the rate at which mainstream customers' needs are changing, disruptive technologies eventually become fully performance competitive in mainstream markets. As this point draws near, leading companies attempt to shift to the disruptive technology, but usually fail (often because they cannot overcome the preemptive investments and accumulated experience of emerging competitors).

Why, Christensen asks, have established industry leaders so often been fatally slow to respond to disruptive technologies? The paradox he identifies is that in many cases, it was "good management practices" that caused the company to lose its

leadership position. The repeated decisions by established companies not to invest aggressively in disruptive technologies seem to have been caused by three factors:

- “First, these companies’ listened to their largest and most important customers, who didn’t want, and couldn’t use, products that were based on the disruptive technology. As a result, resources were allocated to sustaining technologies, which seemed to promise the best returns;
- “Second, disruptive technologies often resulted in products that were simpler and cheaper, and seemed to promise lower margins, not greater profits;
- “Finally, because they were initially commercialized in emerging or insignificant markets [and because managers repeatedly failed to accurately forecast how large these markets would become], investing in disruptive technologies didn’t appear to solve the growth needs of the industry leader.”

Interesting as their respective books are, both Slywotzky and Christensen leave us with an unanswered, yet critical question: why did these companies, when they looked to the future, miss the big changes that were occurring in their industries? Assuming these decisions were made using a classical decision making approach, our guess is that the heuristics and biases we discussed in our last newsletter probably played an important role. Consider three important steps in a typical strategic planning process:

Estimating How the Future Will be Different from Today

A typical approach is to start with a base case (which generally assumes slow and predictable change), and then generate best and worst case scenarios by changing the numbers associated with some aggregate market variables (eg., rate of growth for product XX in Europe). This approach often creates problems. First, the best and worst case scenarios are unlikely to capture the full range of possible future outcomes because they represent insufficient adjustment away from the “anchor” created by the base case. For example, as Christensen notes, we may anchor on large customers and competitors and fail to pay adequate attention to emerging ones. A second danger is that the best and worst case scenarios will be formulated using available in-house information. Because of our confirmation bias (and the organizational tendency to reward good news), this information will usually tend to support our existing assumptions about our business and its likely future evolution. Because they are based on this information, the best and worst case scenarios will appear less likely than they really are. It is a rare company that explicitly tries to

identify and prove assumptions that contradict those that underlie its current plans.

A third problem is our natural tendency to attach the highest probability to the scenario that is most representative of the situation with which we are most familiar – once again, this leads to overweighting the likelihood of the base case occurring, and underweighting the worst and best case scenarios. Taken together, all these factors can lead to overconfidence about the way the industry is likely to evolve.

From a group perspective, two additional factors can come into play, and reinforce overconfidence about the base case. First, there may be significant pressures to avoid conflict within the top management team, due to either organizational norms (“contrarian” is not a synonym for “good team player”) or individual psychological needs for conformity. Second, members of the senior management team may be using very different mental models to think about the future. Not making these explicit, (eg., by asking what variables are important, how they are related, and how their possible future values are distributed) reinforces any pressure to avoid conflict. Equally as important, failing to make mental models explicit inhibits the organization’s ability to adapt quickly if the environment deviates from the base case. A management team that has a common mental model and sense of the key leading indicators that need to be monitored (data for which are often qualitative, but available in near “real time”) can quickly decide on a change in plans. On the other hand, a management team that lacks a common mental model will have a great deal of difficulty separating important signals from the “noise” inherent in the flood of information they regularly receive or could access. As a result, agreement on a new course of action often will not be reached until relatively complete and quantified aggregate market data is available, by which time more nimble competitors already will have acted.

Identifying and Evaluating Alternative Strategy Options

It naturally flows from the foregoing discussion that in this stage of the planning process we are likely to spend most of our time developing and evaluating options that are premised on our base case scenario for the future, rather than the best and worst case outcomes. As a result, we may later find ourselves scrambling to improvise a new course of action when the base case fails to materialize. Similarly, at this stage of the planning process we usually spend a fair amount of time estimating the likely actions of competitors (both independently and in response to our own actions). Due to both our fundamental attribution bias and/or wishful thinking, we will tend to underestimate the probability that these companies’ actions will blunt the effectiveness of our own efforts. In other words, rather than spending most of our time developing alternative options premised on the base case scenario and trend behavior by traditional competitors (for which continuation of

our current strategy is probably an adequate course of action), we should spend our time formulating strategy options for dealing with competitors who act in the most dangerous possible ways (from our perspective) under the best and worst case scenarios.

Deciding on a Course of Action to Implement

Most of the time, the consequences of alternative strategy options are framed in terms of expected value creation. Apart from the problems inherent in discounted cash flow methodology itself (eg., its inability to take option values into account), prospect theory suggests that positively framing the consequences of different alternatives will generate risk averse decision making behavior. On the other hand, framing the consequences of different alternatives in negative terms (eg., if we pursue option 1, our the gap in market value between our company and competitor XXX will be -\$750 million; for option 2 it will be -\$1billion) tends to generate risk seeking behavior. Given this, an interesting approach is to frame the payoffs of different strategy alternatives in both positive and negative terms and then see if the choice of which one to pursue is the same in both cases.

Investor Surprise

Far more visible than cases of managerial surprise are those involving investors in public equity markets. In theory, if markets are efficient, these surprises should follow no set pattern (ie., returns should follow a “random walk”). In such a market, investors with equal access to information would use accurate models to form valuation judgments, and then would use these results to rationally choose between investments. Disagreements about value would be minimal, and trading volume would reflect a rebalancing of supply and demand following the introduction of new information into the market or unforeseen external shocks. The efficiency of this market would make it very difficult for any investor to earn returns in excess of the market average (although sheer luck would enable some to do so for varying periods of time).

A great controversy rages today about the extent to which this “efficient markets theory” accurately portrays the true nature of major financial markets. On the one hand, we have seen tremendous growth in the amount of investment flowing into low cost index funds. Logically, investors in these funds believe the market is basically efficient. On the other hand, the majority of invested assets still are not indexed; investors owning these assets must believe that the market (or at least some sub-segment of it) is not efficient, and that it is possible to earn above market returns on their investments over the long term. As a starting point for understanding why investors get surprised, it is helpful to ask why “non-index”

investors believe they will be able to earn above market returns. Logically, these returns must come from some combination of three sources:

- Superior Information. Leaving aside the obvious case in which information is obtained illegally (ie., resulting in insider trading), superior information comes from doing better fundamental analysis of an investment than other investors. The heavy investment made by investment banks and asset managers in investment analysts and data collection is based on this approach.
- Superior Modeling. A second justification for above market long term returns is the possession of a quantitative model that uses publicly available information to generate superior insights into the relative values of different investments. The heavy spending by investment banks and asset management firms into computer models based on neural networks, genetic algorithms, and complexity theory all represent efforts to realize above market returns in this manner.
- Exploitation of Irrational Investors. A third approach to earning above market returns is based on the assumption that the majority of investors make predictable errors when making investment decisions, and that these can be systematically exploited. A small number of academics (whose area of study is known as “behavioral finance”) and investment management firms (eg., Numeric Investors, LSV Asset Management, and RJF Asset Management) have focused their attentions in recent years on this approach. They believe the first two sources of above market returns are at best transitory: in an era of declining cost for communications and computing power, information and modeling advantages are increasingly difficult to achieve, let alone sustain for long periods. On the other hand, investor irrationality appears very difficult to change, and is therefore the best source of long term above market returns. As evidence for their point of view, they cite a large number of “market anomalies” that seem to deviate from efficient markets theory, and persist over time. For example, these include phenomena such as the “January effect”, “dogs of the Dow”, and the long term excess returns earned by “value” strategies.

What types of irrationality give rise to both surprises (for individuals) and above market returns (for those who exploit them)? At this point, behavioral finance theorists are far from agreeing on a single answer. However, a number of themes are emerging from their studies.

Perhaps the most important finding is that, contrary to efficient markets theory, investors vary widely in how quickly they adjust their valuation of an investment

after new information about it becomes available. Why does this happen? It is widely suspected that a number of heuristics and biases are at work:

- Availability: people tend to estimate the probability of key value drivers (eg., earnings growth and interest rates) based on a relatively small amount of recently available information, rather than a larger longer term data set. As a result, they put too much emphasis on recent information in forming their conclusions about the value of an investment.
- Anchoring: logically, people expecting to earn an above market return buy a stock because they believe its current price is less than its true value. With this as their anchor, they insufficiently adjust their valuation of the investment to new information which may contradict this view (eg., analysts reducing their earnings forecast, or an unexpected new product introduction by a competitor). The same heuristic applies to the stocks they don't buy: because they have anchored on the conclusion that price is equal to or greater than true value for these stocks, they will underadjust to information that suggests this is not the case.
- Confirmation: People require much less information to form an initial impression than they do to change it later on. Moreover, once they have formed an initial impression, they will tend to collect information that supports it, and either not look for, discard, or undervalue information which contradicts it.
- Overconfidence: People tend to believe that the range of possible future outcomes for a given variable (eg., earnings growth or interest rates) is narrower than it really is.

In addition to these biases in their approach to estimating the value of investments, investors also tend to be less than rational in the way they make decisions about buying and selling them. Prospect theory suggests that when confronted with choices framed as gains, people will tend to be risk averse in their decisions, while framing the choices as losses leads to risk seeking behavior. A study by Terrance Odean (Haas School of Business, University of California at Berkeley, Working Paper RPF-269) found support for this. After analyzing trading records for 10,000 accounts at a discount brokerage, Odean found that the average investor sold his or her gains too soon, and held on to his or her losses too long.

Finally, one must also remember that the majority of funds invested in the equity market are managed not by individuals, but by various institutions (eg., mutual funds, pension funds, and insurance companies). At this level, another layer of behavioral factors come into play: groupthink and conformity, both of which tend to inhibit conflict and discussion of diverging points of view. As such, these group

factors probably work to reinforce the impact of the behavioral factors that affect the judgments and decisions of individual portfolio managers at these firms.

Taken together, the impact of all these behavioral factors suggests a market that is far more likely to be characterized by under and over reaction (and investor surprise) than it is by equilibrium and low volatility.

Conclusion

Given the intractability and widespread impact of the heuristics and biases that characterize human beings' thinking processes, one must conclude that regardless of the steps taken to avoid them, surprises are inevitable. Beyond some point, investing more resources to better anticipate the future makes less sense than spending them on the development of a superior capability to quickly adapt to the surprises that are bound to occur. This is the premise that underlies the business of the investment management firms that are attempting to turn the insights of behavioral finance into strategies for earning sustained above market returns. How corporate managers can do the same thing will be the subject of our next newsletter.

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