

# Web Appendix I

## Detailed Valuation Driver Example

The chapters in Part II of *The Intelligent Option Investor* provided a theoretical background about valuation and provided some insight into the kinds of errors we make as human decision-makers when investing. While this material, representing the intellectual framework for making investment decisions, is important, more important still is practice.

This appendix is meant to be a sort of guided practice. It spells out the financial statement line items we use to estimate the quantities Owners' Cash Profit and Free Cash Flow to Owners, and also takes the reader through an actual financial analysis made using the intelligent option investor framework.

The entire chapter is set up according to the valuation drivers introduced previously: Revenues, Profitability, Investment Level and Efficacy, and Balance Sheet Effects. For each of these drivers, our aim is to develop a rational, fact-based view as to what the best- and worst-case scenarios are. For most companies, we will wind up with six numbers corresponding to best- and worst-case estimates for each of the main three drivers; the combination of these numbers allows us to develop a valuation range for the company being analyzed.

Estimating the value of companies using ranges has many advantages, not the least of which are behavioral and were discussed in the chapter about behavioral biases. We will discuss more in greater detail as we work through the valuation in this chapter.

The company we are valuing here is the database and enterprise software provider Oracle (ORCL). Oracle may not be the typical sort of company in which the typical value investor may invest, but I hope that by using it as an example, you will be able to see how to apply the principals even more clearly.

Without further ado, let's take a look at what Oracle is worth.

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## Revenues

Humans are hard-wired to see patterns, even in cases where true patterns do not exist. When analyzing the revenues of a company, one must constantly call to mind that revenues represent actual transactions, not simply numbers or lines on a page. There may be some consistency or stability, but that is an outgrowth of the supply and demand environment for the company's products. Some of the most grievous and expensive investing mistakes are those made by investors who assume that because year-over-year revenue growth in the most recent fiscal year was around 30%, that next year, that growth rate must be in the neighborhood of 25%-35%. Never forget that every single basis point worth of growth at a company is caused by an economic transaction between a customer and the company. As an intelligent investor attempting to estimate the value of a company, our first job is to figure out why a customer chose that company's products over another, whether they will purchase something from the company again, and how many other customers demanding the company's products or services there may be.

Despite my admonition that one cannot simply extrapolate past performance into the future, an educated and thoughtful look at historical results can indeed provide some insight into what makes a given company tick. This means reading through financial statements and, plugging numbers into a spreadsheet to help keep everything in mind. I try to pull back as much data as I can and especially enough to see what happened to the company during mild and severe recessions. Knowing this gives good hints as to what kind of pricing power a company has and how it, as an organization, responds to demand or other economic shocks.

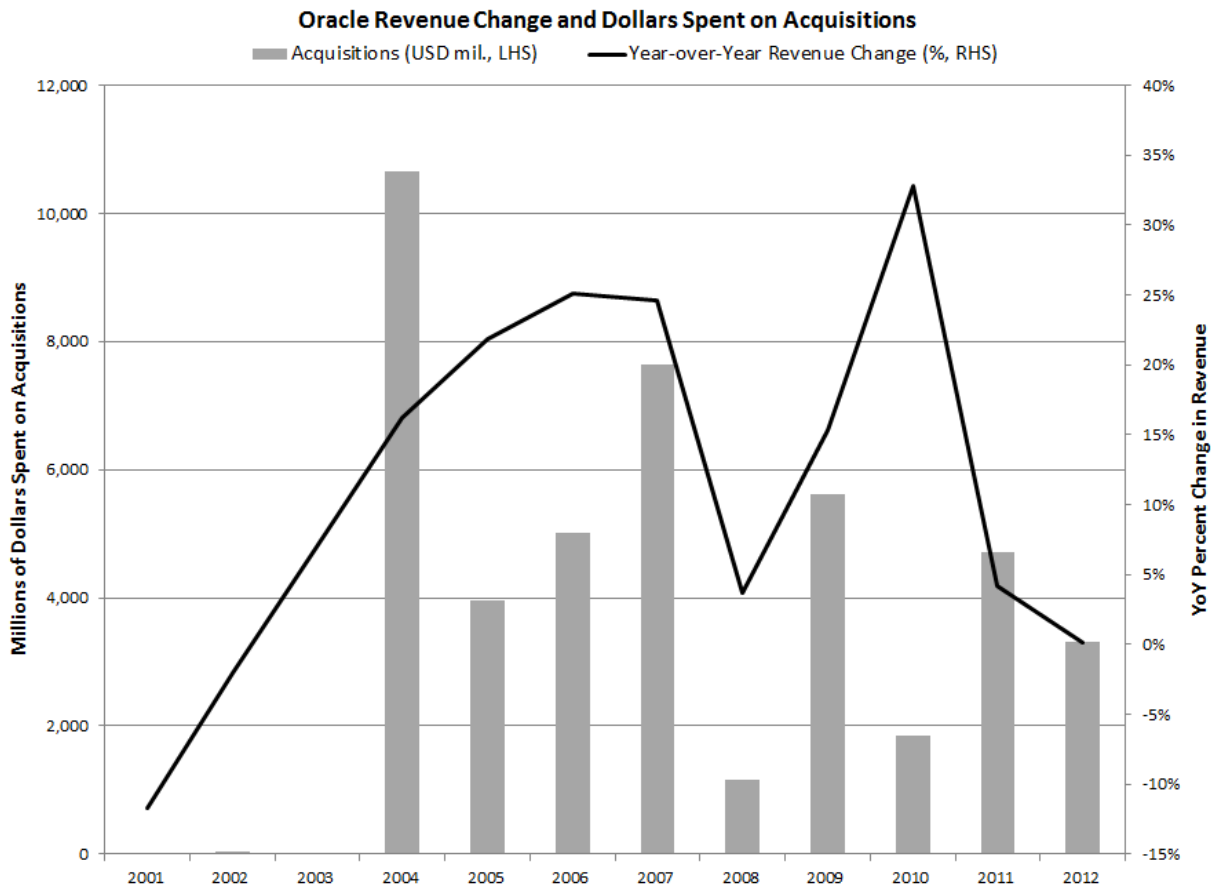
Let's take a look at Oracle's revenue numbers over the past decade or so:

End of FY	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Revenues	11.0	9.7	9.5	10.2	11.8	14.4	18.0	22.4	23.3	26.8	35.6	37.1	37.2
YoY Growth		-12%	-2%	7%	16%	22%	25%	25%	4%	15%	33%	4%	0%
3Y CAGR				-3%	7%	15%	21%	24%	17%	14%	17%	17%	12%
5Y CAGR						6%	13%	19%	18%	18%	20%	26%	11%

When looking at growth rates, I often use not only year-over-year (YoY) figures, but also compound annual growth rates (CAGR), which show the average amount of growth each year taking the effect of compounding into consideration. CAGR calculations are sensitive to the starting and ending point selected, so one has to be careful when drawing conclusions. In other words, if the starting period coincides with the depths of a downturn, three years later, the 3Y CAGR will probably look very high simply because the rate is based on a low starting number. Picking CAGRs of several periods and even making a CAGR calculation from the earliest point in the series, then blending those along together in one's mind can help get an idea of how fast revenues have been growing. This is one the ways that our X-System process can be handy—recognizing historical patterns. The C-System just needs to remember not to extrapolate those patterns into the future to come up with a projection!

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Looking at the above data, one of the things that surprises me is the long succession of pretty high year-over-year growth rates between about 2005 and 2011. Thinking back to our discussion about the life cycle of a company, a sensible question to ask might be how much was the company's revenue growth associated with making acquisitions. Rather than looking at a string of numbers, let's look at a graph overlaying revenue growth with percentage of revenues spent on acquisitions.

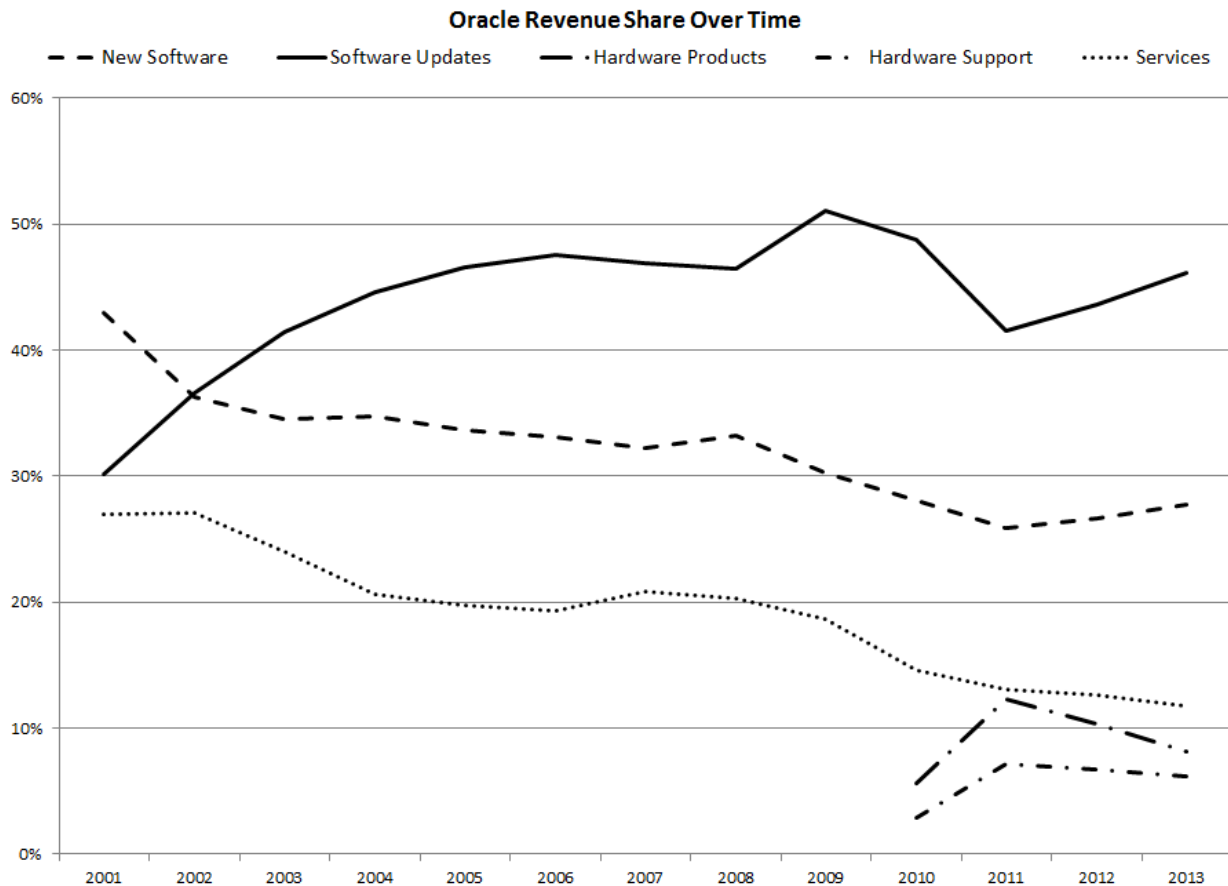


Seeing this graph, it is obvious that Oracle is in its Investment stage and that acquired revenues are counting toward revenue increases. Making pretty graphs in Excel and coming to hasty, X-System conclusions based upon artistic sensibilities is a dangerous thing to do, but X-System processes can be helpful in identifying areas for further investigation on which we can put our C-System processes to work. For right now, let's just file the data point regarding acquired revenue away in the back of our minds—we will return to Oracle's investment strategy and efficacy later in the chapter.

To understand what other factors may be driving revenues at the firm, there are a few sections of a 10-K that are useful; the one on which I tend to rely the most is entitled "Segment Results."

This section splits out revenues for each of the company’s segments, however they may define those themselves (the most usual cases are geographical and functional splits—some companies give both). This is a good place to start, but you may have to do some independent research as well. For instance, some time ago, I spent some time looking for Apple’s product timeline to see when certain products were introduced, then compared that timeline to the segment revenue growth listed in their financial statements. Again, it is not rocket science, but this step may require some footwork and independent research.<sup>1</sup>

Let’s take a look at Oracle’s segment results. Oracle has five segments: New Software Licenses, Software License Updates and Support, Services, Hardware Products, Hardware Support. Here is a graph of the proportion of revenues generated from each of these segments over time:

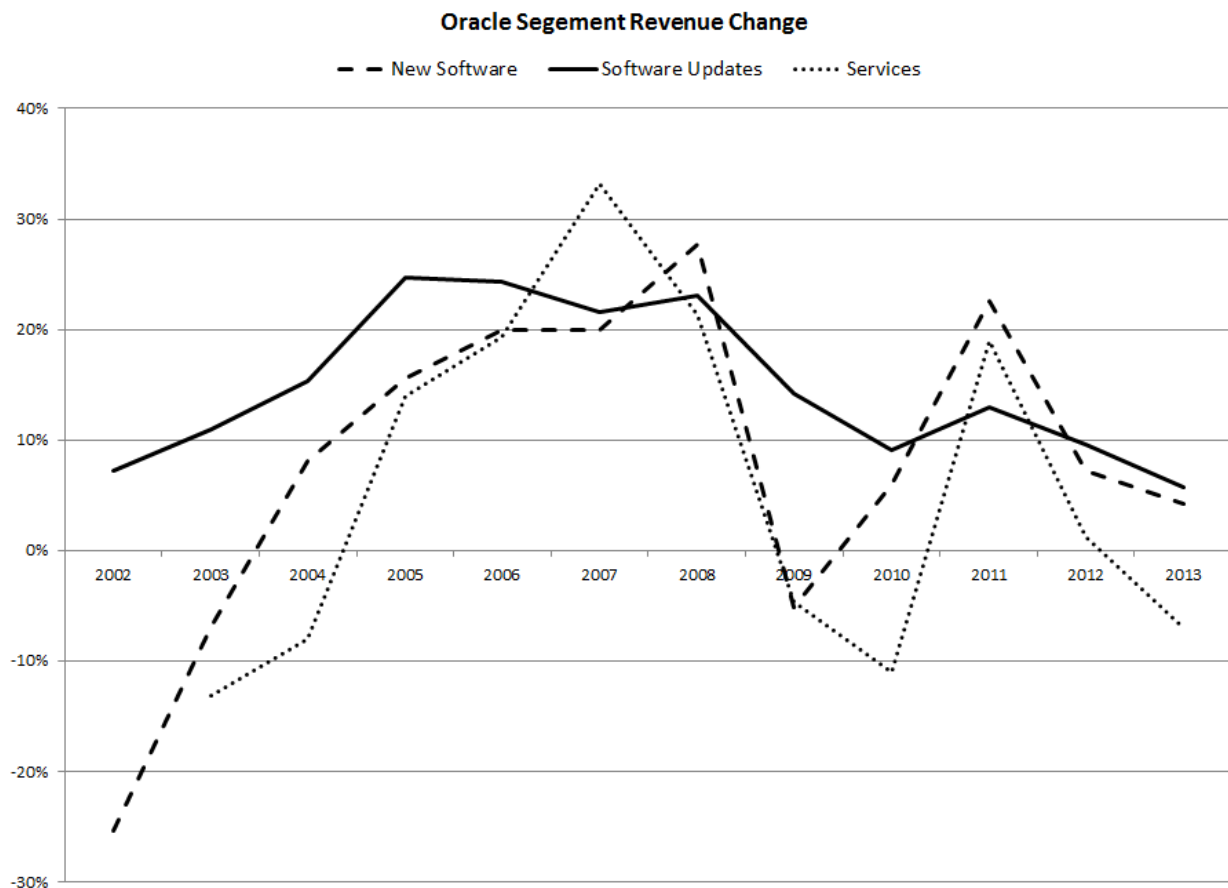


<sup>1</sup> If you have gathered a lot of historical financial data, you may find that segment descriptions change over time. If it is mainly a matter of changing the names of segments, then I treat that as one historical series. However, if there is a good deal of shuffling around and it is hard to tell what from previous Segment A is now in Segment A', I usually try to be content with analyzing both periods separately. Some companies change segment reporting very often in an attempt, I believe, to hide some deeper problems within the firm. If you find a company reorganizing every couple of years, you have either found a great diamond in the rough or a great pain in the neck. I usually skip those companies and let someone else get the glory if their investments work out...

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You can see that the hardware segments are new—just appearing in 2010. With a bit of investigation, one can easily find that this hardware business reflects the business that Oracle acquired when it bought Sun Microsystems. Use your X-System processes and take a look at this graph again. What other patterns do you see? The first thing I notice is that two of the three segments in existence in 2001 have been shrinking as a proportion of revenues while one (Software Updates) has been growing. Let's keep that information in mind and keep moving on.

Let's now see how fast each of the revenue segments has grown over time. I will remove the numbers associated with the hardware business in 2010 to make the graph clearer—obviously if revenues increase from nothing to something, the percentage increase will be infinite, but seeing that on a graph is not terribly helpful.



Now, our X-System has a bit more to work with. Notice that of the three original segments, two of them (Software Licenses and Services) have dipped into year-over-year declines twice over this period, both times during a broader economic recession (Oracle closes its books in May, so the 2001 date on the graph means May 2001), while one of them (Software Updates) have remained positive. This is another data point that should be added to our list of things to keep in mind as we are considering what projections

may be reasonable for Oracle's future economic results. Interesting that the only segment that has not been as sensitive to cyclical pressures is the one that has historically made up the largest part of revenues.

Notice also that hardware business growth—Hardware Products in particular—has never been positive and its revenue declines are actually becoming more severe over time. This fact, indeed, is one about which the broader market is concerned at present. Oracle bought Sun—a struggling niche producer of high-end servers—and rather than trying to rescue all of the product lines, instead, started killing off several of them. An Internet search of “Oracle Sun acquisition” tells me that Oracle has been creating “engineered systems” that replace these discontinued product lines. These engineered systems are specially designed to be optimized to work with Oracle's databases. Looking through Oracle's 10-K and through some of the presentations on Oracle's Investor Relations (IR) website, we can find more about this strategy and start to think about what that might imply for revenues in the future.

Another area that is sometimes useful is the section of the 10-K<sup>2</sup> known as the Management Discussion and Analysis (MD&A).<sup>3</sup> In this section, the management provides an explanation of the business (that is usually just a repeat of that given earlier in the 10-K), some information about accounting policies, then a textual explanation of why revenues and profits did what they did from year to year. Financial statements are written in such a way to provide the legally required information without giving any really valuable information away to competitors or suppliers (who can and do read their competitors' financial statements). Some companies are more forthcoming than others, and sometimes, the MD&A and segment reporting numbers are completely useless they are so opaque. In this case, one has the choice of spending more time gathering information to understand historical revenue growth patterns or simply setting that company aside and looking at another.

Oracle's MD&A gives some good information about the way the management splits up its business and strategy. The accounting information won't mean very much unless you have a good understanding of that field; while there can sometimes be snakes hidden in accounting convention baskets, usually they are more difficult to find than simply reading through the MD&A, so I believe it is fine to skim this part and go on to the next section that discusses year-over-year performance, as well as some tables that can be converted into graphical format so that your X-System processes can do their thing.

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<sup>2</sup> I am most used to analyzing U.S. firms, so will refer to the U.S. Securities and Exchange Commission's (SEC) names of financial statements in this book. Other countries' accounting standards will be subtly or grossly different, depending on what country you are looking for investments. The main international accounting standard, IFRS, is close to U.S. accounting standards on many points and in general, those statements will have the same sort of information found in the statements I describe here.

<sup>3</sup> The part of a financial statement I make a point of skimming through first actually contains no financial information—this is the auditor's letter to the Board and Shareholders. Here, I just want to make sure that the auditors say something like “In our opinion, the financial statements referred to in this document represent fairly, in all material respects, the consolidated financial position of ABC Corp.” For big, important companies, a finding of material weakness by auditors will be reported widely in the press, but it is sometimes not for smaller companies. I try to reserve bias when reading these, but if the company is using an audit firm out of the Big Four (PwC, Deloitte, Ernst & Young, and KPMG), I wonder if management is trying to hide something by hiring an accountancy firm that is not experienced or that is not powerful enough to push back when the firm tries to take accounting liberties.

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One other thing that is good to do when researching a 10-K for revenue information is to search the document for the phrases “Customer” and “single customer”. According to accounting rules, companies must disclose if sales to a single customer make up a material portion of revenues. Obviously, a retailer like Wal-Mart would not be reliant on a single customer for a material part of revenues, but a semiconductor company like Advanced Micro Devices likely would. If a company does rely on a small handful of customers, depending on the availability of competitive products, a sudden change in revenues is certainly possible. For example if one client makes up 20% of a firm’s revenues, it is not hard to imagine that client pulling its orders in favor of a competitor in a worst-case scenario or that a new client comes along, sales to which equal those to the original big client in a best-case scenario. Obviously, if sales growth might vary by such a material amount if a single client is lost or gained, the effect on this first, most crucial valuation driver will be large and when we come to finding a valuation range, that range will be quite wide.

In addition to 10-K statements, the occasional 10-Q (quarterly reports) statement, and investor day presentations on the IR website, I spend a good bit of time speaking to people who have worked in the industry and also in reading news stories on the Internet about the company and its customers. One has to take any single source as an isolated anecdotal bit of evidence, and it is foolish to base one’s investment analysis on the hearsay of one person; however, if one can pick up some information from one source and either confirm or deny it by looking back at the financial statements or by speaking with others, that hearsay evidence might be taken more seriously.

Overall, I usually spend the majority of my analytical time on understanding the dynamics behind companies’ revenues. Keeping in mind the behavioral bias that drives humans to try to make peace with their C-System processes by gather far too much information, I try in my own work to spend as little time as possible on a revenue stream that is not a very large and material part of the company’s overall revenues. Especially in the technology space, ignoring the trivial can be difficult—company managements want to highlight their new projects and product lines to excite the imagination of investors and boards. However, more often than not, even if the exciting new product winds up to be a smashing success, it is such a tiny part of the overall revenue stream, spending time thinking about it is a complete waste of time. When analyzing the revenue stream of a company, always make sure that you are clearing the bar of materiality in your research and analysis.

In the case of Oracle, I am tempted to completely ignore the revenues derived from the hardware business, for instance because together, the two hardware segments make up only 14% of 2013 revenues and the business is highly competitive, with several truly formidable companies also offering strong product lines. It is hard to imagine this kind of highly-competitive business generating huge year-over-year revenue increases. However, while it is hard to imagine there is a huge amount of upside potential for this business, recently, year-over-year revenue declines in the business have been on the order of 20%. And a 20% decline on 14% of the business means almost a 3% drag on revenues for the entire business ( $20\% \times -14\%$

= -2.8%). Certainly a 3 percentage point headwind on revenues should be considered material, so even with my emphasis on not sweating the small stuff, this is too large of an effect to ignore.

Once you understand what has driven revenue growth in the past, it is time to start applying C-System processes to make a forecast for best- and worst-case revenue growth rates for the company over the next five years or so—the short-term.

Making these forecasts, think about plausible best- and worst-case scenarios, so don't try to forecast revenue growth if an asteroid were to strike the Earth or were North Korea to launch nuclear missiles at Seoul and Tokyo for a worst case scenario, or imagine that the consumer product company you are analyzing will discover that their property sits on an enormous reserve of Palladium.

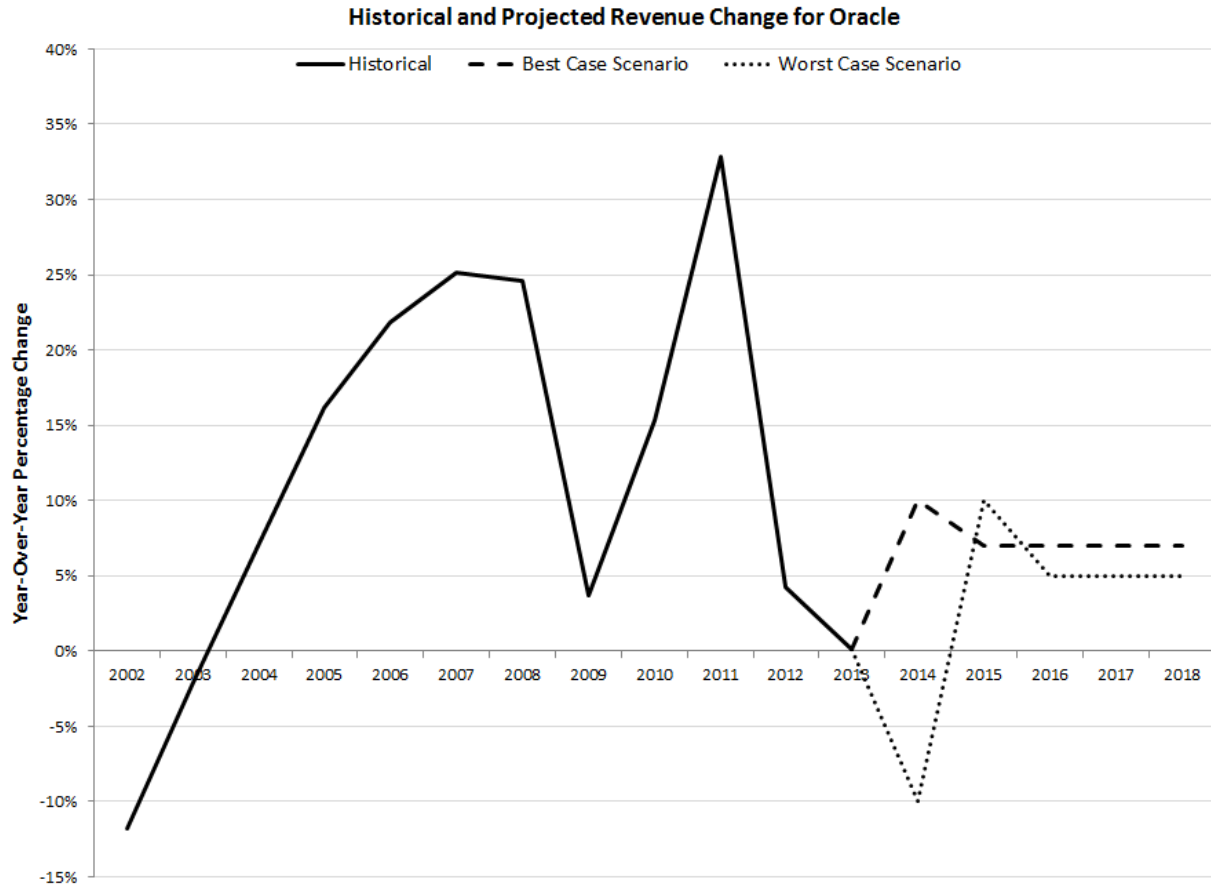
What we will eventually do is produce two valuation scenarios—best case and worst case—and compare those scenarios to what the BSM is saying. The BSM gives us a 1-standard deviation band, so these are the terms in which we should be thinking. “Most likely” in this case means a range of scenarios we would expect to see in two out of three scenarios or so.

In fact, I often cheat a little bit with revenue projections. Sell-side research analysts have enormous resources at their disposal; they can spend an enormous amount of money conducting client surveys, doing “channel checks”, and buying market research reports from third-party sources. The game of sell-side analysis is largely one of attempting to predict the next couple quarters' earnings per share. In order to do this well, obviously, the analyst must make fairly good predictions about what revenues are likely to be. Unless there is some reason to assume that you have special insight into revenues at a certain company, the projections made by sell-side analysts for the near-term year (i.e., the current fiscal year if you are analyzing the company mid-year, or the next fiscal year if you are analyzing the company just after yearly numbers are posted) can usually be relied upon as one year's worth of projections.

In the case of Oracle, I used high and low sell-side revenue estimates for the first year, and made projections over five years that, graphed along with historical returns, looks like this:



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Once we have revenue growth projections, we must see how efficiently these revenues are likely to be converted to owners' profits.

## Profitability

The first thing we must do before delving into an analysis of Oracle's profitability is to formally define our primary measure of that valuation driver—Owners' Cash Profit.

Given the emphasis we have placed on the importance of cash and the flow of cash, it makes sense that we will find most of the information essential to valuing a company by analyzing the Statement of Cash Flows (SCF)—one of the three main financial statements mandated to be published on a quarterly basis for public companies in the U.S.

In fact, for our calculations of OCP, we need not look much further than the very first section of the SCF—the section entitled Cash Flow from Operations (CFO). The precise definition of Owners' Cash Profit is:

$$OCP = CFO - Maintenance\ Capex$$

$$Maintenance\ Capex = [(1 + inflation\ rate\ assumption) \times Depreciation\ Expense]$$

Even though these are pretty simple equations, there are a few things to be said about each of the terms that make up "Maintenance Capex". However, before delving into that, please realize that whenever we are calculating ranges, we are dealing less with hard numbers and more with estimates and educated guesses. It is vital not to get hung up on the exact numerical value being calculated and to conceive of the calculations as an estimate and a starting place to understand true profitability.

There are two facts to economic life that the OCP calculation attempt to quantify:

1. Equipment, buildings, and other physical assets essential for generating revenues break or wear out.
2. Generally, prices for things increase over time.

The OCP equation uses the accounting line item "Depreciation" to represent the first fact. Depreciation is meant to formalize the assumption we made about our taxi driver's business—that he would need to set some money aside each year to buy a new car when the first one had come to the end of its economic life.

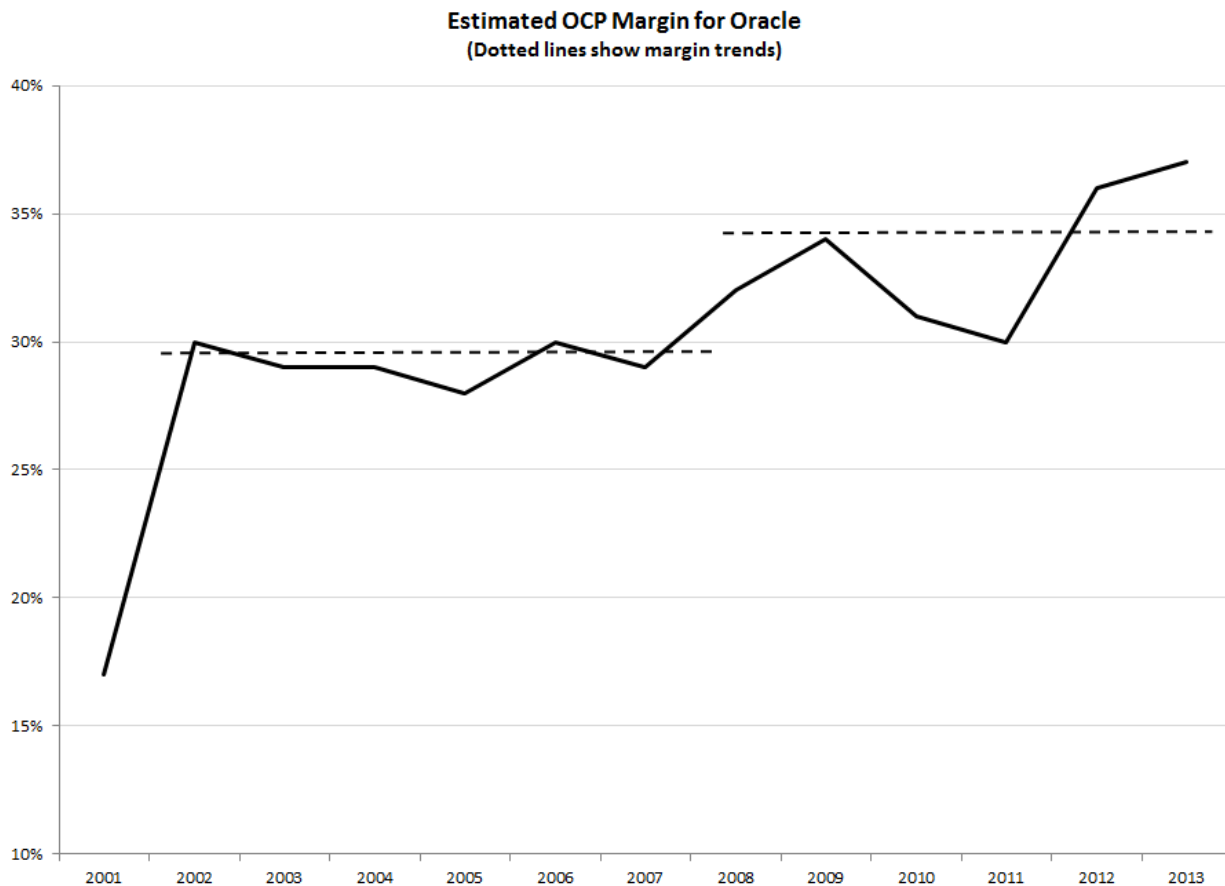
Depreciation expense is a fiction codified by accounting convention. I will not go into all of the different ways depreciation might be calculated—I can think of three right offhand and there are probably more—since those details would only add confusion. You will notice that the OCP equation takes that accounting fiction and multiplies it by a fiction of economics—the inflation rate (which I usually simply take as the rate for Consumer Price Inflation published by the U.S. government). I have read fascinating articles about how the present method for calculating inflation probably ignores things that it shouldn't and why these omissions have taken place over time. I know that inflation is a fiction and it is not representative of

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the actual rise in cost that the company will need to pay to repair its machinery or spruce up its offices, but still I add inflation to keep in mind that prices usually increase over time.

The main point is that depreciation is about the best estimate we can get for the amount of capital expenses needed to maintain the business as a going concern. Keeping in mind that all of what we are dealing with when analyzing companies are estimates and that no one will ever know exactly how much money is needed for maintenance capex at a given company ahead of time, the estimate we are using seems plausible and directionally right. That's good enough.

In the case of Oracle, we can graph the ratio of OCP to revenues each year to derive an OCP margin. A graph of that OCP margin looks like this:



Looking at this graph, we see something interesting: the profitability of the company has seemingly “stepped up” several times in the past. The first step up was in the early 2000s, the second step up looks like it has occurred since the 2008-2009 financial crisis, but this second step is a little less clear.

Whether the second step up in profitability is permanent or not, the fact that the company has seen a long stretch of high and consistent profitability, despite the occurrence of several downturns is pretty

encouraging. Recall that in the past, the firm has seen several revenue slow-downs, one as the Tech Bubble burst and another as the Mortgage Bubble did the same thing. Notice that during both of those occurrences, the profitability of the firm actually increased. This is probably not great news for Oracle's employees, some of whom end up getting laid off during these episodes, but for owners, the fact that management is taking downturns as an opportunity to take a hard look at what is working and what is not in their company and making adjustments at that point is promising.

In general, understanding the competitive dynamics of the industry in which a company is operating will give an idea of what is possible for the company in terms of OCP margin. Different types of businesses have different base levels of profitability. For instance, a broad market retailer will likely have an OCP margin in the mid-single digits, whereas a company with strong intellectual property and a differentiated, valuable product offering like Oracle can produce OCP margins like those we see in the above graph.

As such, it is useful to look at the profitability of other firms in a given industry to see what the range is for that type of business. Doing so can also help you understand the chance that the profitability of the company you're analyzing increasing or decreasing over time.

Similarly, companies in different stages of their economic lives will also display different characteristics in terms of profitability dynamics. Early stage firms will often show extremely volatile OCP, due to the necessity of the firm to build its inventory levels to attempt to meet swelling demand. For many more mature and stable businesses, you will likely see either a stable profitability profile over time over time (for "defensive" companies)—with OCP margins fluctuating in a fairly tight band—or a profitability profile that tends to vary with the business cycle (for "cyclical" companies). Because CFO reflects money spent to build working capital accounts, one should look carefully at years when economic profitability suddenly dips or rises over what seems to be the firm's "normal" range and see whether these sudden changes can be attributed to changes in working capital.

In addition to the line items we have discussed, there are many other line items that are usually listed as inputs to the Cash Flow from Operations figure that forms the base of OCP. Some people have very strong feelings about what is a "real" cash flow and want to exclude some of these items from their calculations of cash flow. In general, I don't think it is a good idea to remove items in most circumstances. We will talk about one of the most contentious of these items—cash inflows associated with stock compensation—in the next section.

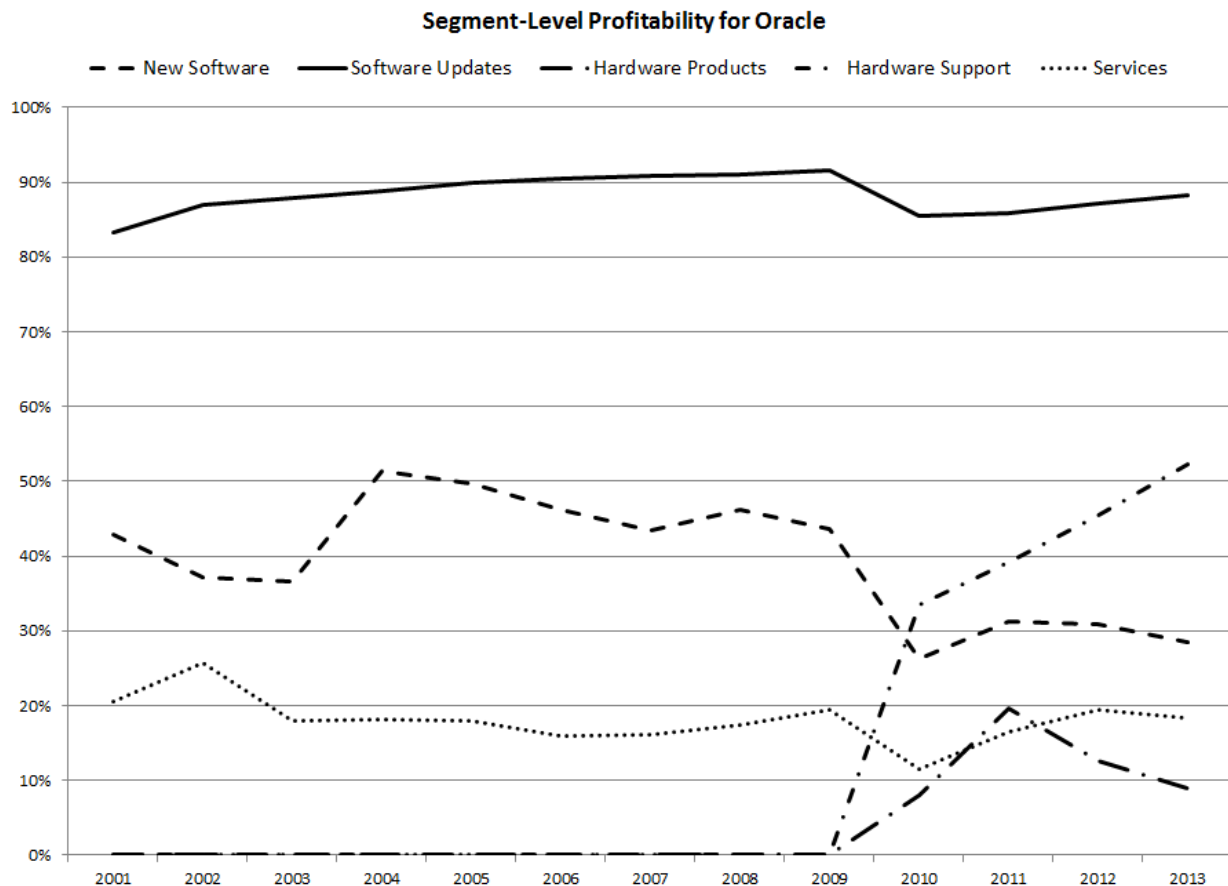
In my own analyses, if there is some account that is consistently adding a large cash inflow or outflow to OCP, I spend some time to figure out the economics of that flow. This is especially true when the company's OCP shows a fair amount of variance or instability. Our second job as intelligent investors is to figure out how the company is generating profits and how it is investing the profits that are generated, so sometimes, it takes a bit of patience and reading to understand what the source of some cash flow is.

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Unlike revenues, I usually do not spend nearly as much time looking at profitability as I do at analyzing revenues unless I see a company whose profitability shows a large variability from year to year. Most companies are pretty simple—they receive a certain amount of revenue and transform those revenues into profits at a fairly predictable rate. However, when one looks at a company whose profits are bouncing up and down from year to year or appear to be “resetting” either upward or especially downward, it is a good idea to take a closer look. Since Oracle has seen some of these OCP resets, let’s take a closer look at its profitability.

Unfortunately, since public companies are not required to include segment-level cash flow information, it is impossible to delve further into an analysis of profitability using OCP. About the best we can hope for is to triangulate what we are seeing with OCP to the information that the company provides about its segment-level profits. This triangulation will not be perfect, but just keep in mind my earlier admonition about being directionally right without getting too hung up in the details.

Again, the Segment reporting section of a financial statement and the MD&A can sometimes yield insights if management allows any useful information to filter through the legalese. Looking at a graph of Oracle’s segment-level operating profits margins, we see this:



Notice that the Software Updates segment—the one we had identified earlier as being particularly resistant to cyclical pressures—generates profits at a much higher rate than any other segment by far. Obviously, this is good news for owners, and suggests the reason for the enormous stability of OCP that we saw in the earlier graph.

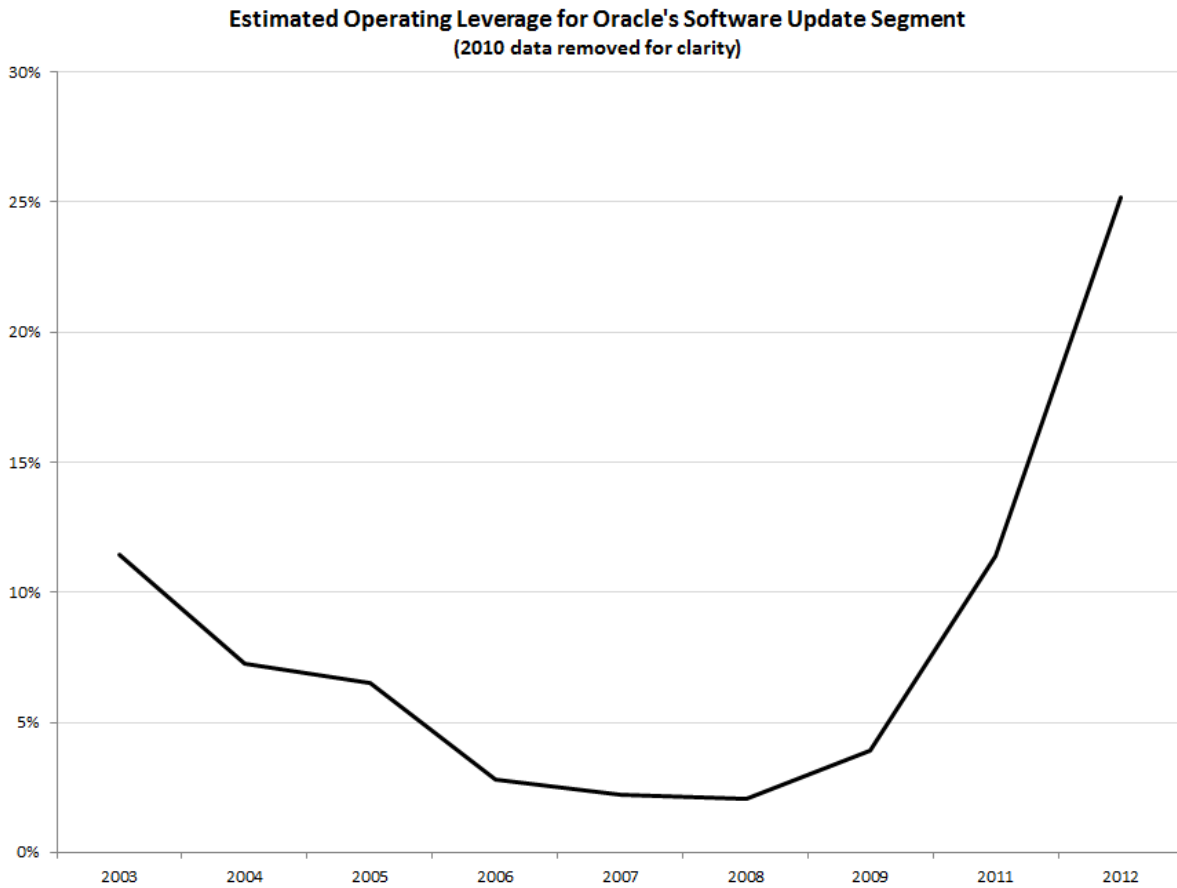
Notice also that the New Software segment's operating margin dropped suddenly from let's call it the 45% level to the 30% level—a drop of about a third. This drop likely has several root causes: First, Oracle has been under competitive pressure from companies like Salesforce.com. Second, since the drop corresponds with the Great Recession, it is likely that Oracle's salespeople have been relying on discounting to sell new software contracts. Margins are sticking pretty close to the 30% level rather than continuing to decrease, so this might actually be a positive data point in the future; as economic conditions improve, Oracle may start to have more pricing power and its salespeople will have to discount less to finalize the sale. It is worth keeping an eye on to see how that segment's margins change in the future. One possibility is that, considering the profitability and stability of the software update business, Oracle managers have made the decision to leave up-front prices fairly low in order to simply make sure that clients make their way onto the update treadmill. This is a model similar to that of PC printer manufacturers choose to price the printers so low as to be loss-making in return for a future, dependable, and high-margin stream of cash inflow from ink purchases.

In profitability analyses, it is useful to understand a concept called “operating leverage.” That is the degree to which profits tend to change for a change in revenues. A company that builds its own factory has a great deal of operating leverage. After the fixed factory costs (depreciation, heating, etc.), every additional unit of revenue should provide a big boost to profitability. A company that outsources its production usually does not see a big jump in profitability for each extra unit sold because it has many fewer fixed operating costs—most of its costs vary in direct proportion to the number of items they sell. A formula for estimating operating leverage is as follows:

$$\text{Operating Leverage} = (\text{Percent Change in Operating Profit}) / (\text{Percent Change in Revenues}) - 1$$

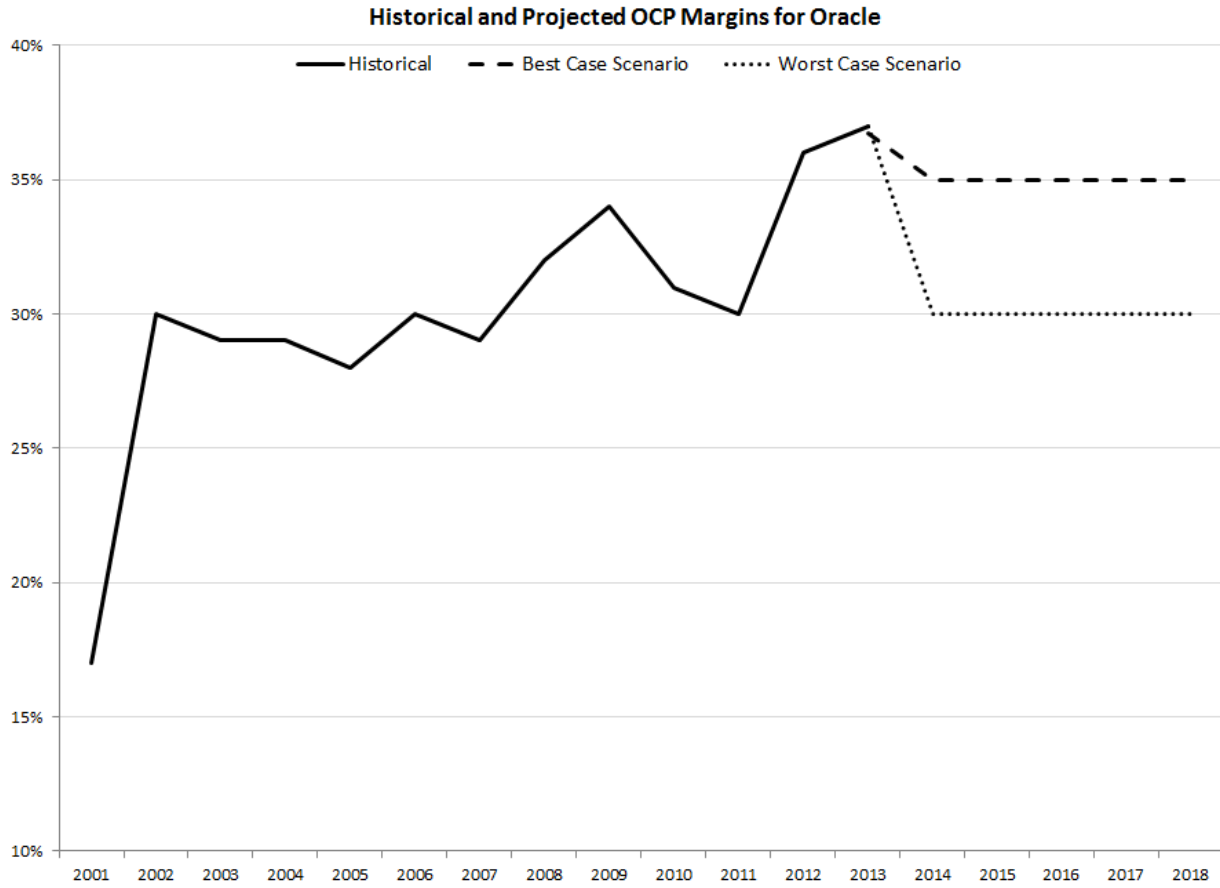
This equation will give you the answer to the question, for each additional unit of revenues generated, how much additional profit is generated. For example, in the case of Oracle, over the time studied, the software updates segment saw revenues grow by about 15 percentage points, but segment profits have grown by about 20 percentage points. This implies an estimate leverage of 33% for this segment. This rate is not constant, and can (and does) change over time. If we look at operating leverage of the Software Updates segment as a time series, this is what we see.

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Fiscal year 2010 is removed for clarity since that was the year that Oracle acquired Sun Microsystems, and the acquisition created a non-representative data artifact. Excluding that year, though, you can clearly see that the Software Update segment has materially improved its ability to generate profits from an additional dollar of revenue. Again, this is a good sign for owners.

Once we have analyzed the profitability of the company, it is time to consider what the best and worst possible average profitability the firm is likely to experience over our explicit, short-term horizon. After analyzing Oracle, my best- and worst-case profitability assumptions, graphed out with the historical levels, look like this:



With this step accomplished and a range for this valuation driver forecast, we turn to investment levels and efficacy.



## Investing Level and Efficacy

Before we talk about how to judge the effectiveness of Oracle’s growth investments, we need to define exactly what counts as a company’s investments. Because the purpose of these investments is to expand either the revenues or profits of at a faster rate than the economy in which it operates, we call these investments “Expansionary Cash Flows.” We start with OCP and define Expansionary Cash Flows like this:

Deduct	Expenditures for Property Plant & Equipment over and above maintenance capex as defined in OCP (“Growth Capex”)
Deduct	Cash spent on acquisitions
Deduct (Add Back)	Cash paid to (received from) JV partners (loans or investments)
Deduct	Cash spent anti-dilutionary stock repurchases
Add Back	Cash received from sale of assets / divisions
<b>Equals</b>	<b>Expansionary Cash Flows</b>

Let’s take a look at the actual numbers for each of these items for Oracle over the most recent five years and understand each component one by one.

<i>Fiscal Year Ending</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>
Estimated Growth Capex	(258)	77	(71)	(147)	(88)
(Acquisitions)	(1,159)	(5,606)	(1,847)	(4,702)	(3,305)
(Investments in) Payments from JVs, etc.	-	-	-	-	-
(Antidilutionary Share Buybacks)	(1,464)	(1,422)	(2,311)	(1,274)	(2,780)
Asset Sales & Disposals	-	-	105	-	-
Net Expansionary Cash In- (Out-) Flows	(2,881)	(6,951)	(4,124)	(6,123)	(6,172)

### Estimated Growth Capex

In our calculation of OCP, we already made an estimate of the amount of money that is needed to maintain the company as a going concern—maintenance capex. Keeping that number in mind, we can also look in the “Cash Flow from Investing” section of the Statement of Cash Flows and find a line item related to spending on “Property Plant & Equipment (PP&E)” This is what analysts usually look for as a measure of capital expenditures.

The first line in our calculation of Expansionary Cash Flows is simply the amount of money spent on PP&E less the amount of money we have already estimated as necessary for maintenance capex. Usually, PP&E will be greater than inflation-adjusted Depreciation, but in the case of Oracle, we can see that this is not always the case—note the cash inflow of \$77 in 2010 associated with expansionary capex. This simply

means that the company has temporarily “underinvested” in maintenance capex. For a company like Oracle, which mainly derives revenues from its intellectual property rather than from manufacturing and selling physical goods, this is not strange. For a manufacturing company, though, if one sees that one’s estimates for maintenance capex are consistently higher than the amount the company is actually spending on PP&E, one needs to do some further investigation to figure out why. The company might be outsourcing more of its manufacturing—which is not necessarily a bad thing—but the company might also simply be underspending on maintaining its productive assets—which is always a bad thing.

## **Acquisitions**

In a 1992 interview with the Harvard Business Review, Phil Knight, co-founder of the sporting goods company Nike, spoke about the decision that company managers face regarding buying or building new product lines. In this quote, Knight is talking about his decision to acquire casual shoe brand Cole-Haan.

“We bought [Cole-Haan] knowing its potential, and we’ve simply turned up the marketing volume. We could have created a brand and got it up to \$60 million in sales, which is where Cole-Haan was when we bought it, but it would have taken millions of dollars and a minimum of five years. We’re further ahead this way. In the four years we’ve owned Cole-Haan, it’s repaid the purchase price and is now at \$150 million in sales.”

From this quote, it is obvious that money spent to acquire a business—which subsequently becomes a division of the acquirer—should be considered as substantively the same as money spent to buy equipment and buildings in order to build up a new division. It is amazing to me that so many analysts and strategists ignore spending on acquisitions as a deduction from free cash flows. Certainly, whether one spends money to buy a business or to build one, that money has been invested and thus cannot be distributed to equity owners.

This reasoning suggests we must include cash spent on acquisitions into the calculation of expansionary cash flows.

## **Antidilutionary Share Buybacks**

Cash outflows associated with anti-dilutionary stock repurchases arise from two situations:

1. Management issues shares to acquire another company
2. Management issues shares to employees and executives

In most cases, company managers issue shares as a form of currency to pay for some strategic project (an acquisition in the first case, encouraging development of greater intellectual property assets in the second). However, company managers are evaluated—both by boards and the equity market—by trends in earnings per share (EPS). Because of this, issuing shares can become dangerous from a career security perspective to CEOs and CFOs—issue too much equity too often, and one’s EPS will be negatively affected.

## Detailed Value Driver Example

Enter the corporate hobby of stock repurchases.

Academics have encouraged a belief amongst investing professionals and the public at large that stock buyback programs “create value” for shareholders. Of course, the company’s purchase of shares does make one’s own stake more valuable, so to the extent that buyback programs do increase the concentration of one’s position, they are helpful to long-term shareholders. The problem is that some proportion of these programs do not increase the concentration of ownership interests, but merely limit the dilution of them.

Management teams proudly announce their enormous buyback plans knowing that these massive purchases will swamp the millions of dollars here and there spent to 1) obfuscate the mediocre results of a prior acquisition and / or 2) hide the true extent of stock issuance as a form of employee compensation.

Stock buybacks use owners’ cash in order to boost EPS. It is for this reason that, in most cases, we consider all the stock issued by a company for acquisitions or compensation schemes in a given year as having to be bought back at the average price of shares that year. For instance, the \$1,464 spent by Oracle in 2009 is a result of its purchasing 81 shares at an average price of just over \$18 per share.

<i>Fiscal Year Ending</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>
(Antidilutionary Share Buybacks)	(1,464)	(1,422)	(2,311)	(1,274)	(2,780)

Of course, this is only an estimate of the true value of the cash expended on antidilutionary stock buybacks, but even though it is a fiction, it is a useful one and likely directionally right in terms of the absolute amount spent.

### **Cash Received From (Paid To) JVs, Internal Software Development, etc.**

Just like our taxi cab owner who enters a new market by funding a JV, large companies do exactly the same thing all the time. This is not a huge part of Oracle’s business strategy (the numbers spent on JVs are not even split out in the financial statements), but it can be for some firms. For instance, NAND Flash memory producer SanDisk (SNDK) forms JVs with Japanese chipmaker Toshiba and both firms contribute capital to these JVs. The JVs purpose is to build (enormously expensive) chip fabrication facilities, produce chips, and sell them to the owners of the JVs (i.e., SanDisk and Toshiba) at the cost of production. The JVs pay interest to the parent companies, and if there are any excess profits, those profits are divided proportionally between the parents as dividends.

Clearly, this example of a loan made to a JV is exactly the same as money spent to fund a capital project to build a fabrication plant. The cost of funding such a plant is so high that the two partners (who are also competitors) can spread risk and reduce their annual capex bill.

Clearly these expenditures should be treated as expansionary outflows and any interest or dividends received should be netted out against it.

### **Cash Inflow from Asset Sales**

Our taxi driver will sell an old taxi—perhaps just for the value of scrap metal and parts—and will be able to use whatever cash inflow to fund the purchase of another car—an expansionary investment. Clearly, any cash that flows in from a company’s sale of equipment, a division, or a property should be treated in a similar way. Oracle, being an asset-lite company, does not have much in the way of asset sales or disposal of divisions, but you can see that in 2011, it sold something worth \$105 that we have counted as a net inflow against growth capex that year.

### **Free Cash Flow to Owners (FCFO) and Assessing Investing Efficacy**

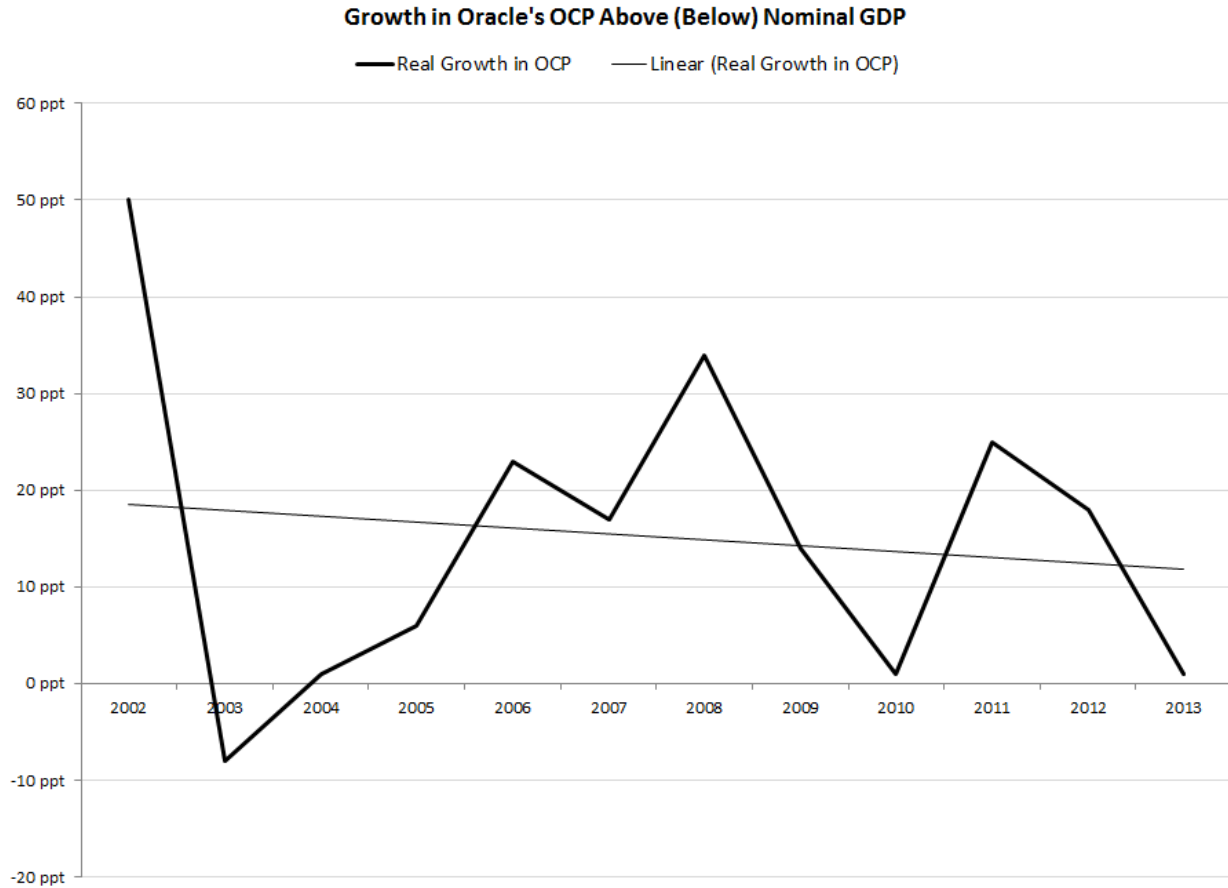
Once we have estimated OCP and understand how much of it the management is spending on expansionary projects, we finally come to the number by which we value the firm—Free Cash Flow to Owners. In equation form:

$$FCFO = OCP - \text{Expansionary Cash Flows}$$

It is this number that we will estimate for all future years, then discount using the standard formula given in Chapter 4, then sum up to find the value of the firm. For the explicit modeling period—our short-term projections—this is an easy task since we have all our projections readily available in our spreadsheet model or back-of-the-napkin calculation. Also, the Structural growth period is easy too. If we assume that the economy will grow at 5%-6% into perpetuity and that the company will grow with it, all we have to do is figure out what the last cash flows are before the Structural growth period starts, then increase that value at 5%-6% in perpetuity.

The difficulty comes in the Investment growth period—the medium-term—because we are not forecasting explicit cash flows and don’t have a “speed limit” that we know the company cannot exceed like in the Structural growth period. This is where we have to make as objective of an estimate as we can as to how effective the company’s investment program will be in generating growth in excess of the economy at large. Recall that we made a comparison of OCP growth to the nominal growth of GDP and that when we plotted Oracle’s rates of excess growth back in Chapter 5, it looked like this.

## Detailed Value Driver Example



The company has historically generated growth above or far above the growth in U.S. nominal GDP. This stands to reason due to the nature of the company as a pioneer in a new (30-year old) industry.

When valuing the cash flows during the investment stage, we must forecast best- and worst-case scenario for medium-term growth, but also a duration over which that growth is likely to persist. A new firm, one that is still constrained more by supply-side factors than demand-side ones—may be able to grow at a high rate for 10, 15, or even 20 years after the explicit forecast period. At the other extreme, a mature firm—one already facing structural constraints—by definition cannot grow faster than the economy at large, so the duration of its high-growth period will be zero years. For firms like Oracle, which still have attractive investment opportunities but are heading toward the structural growth phase, I usually assume a high growth period of five years.

Considering how fast the company has grown in the recent past (indicating high investment efficacy), the quality of its investment opportunities at present, and our assumptions about how those will change and mature over the next five years, my assumptions for best and worst-case medium term growth are 12% and 6%, respectively.

## **Balance Sheet Effects**

Oracle is a young company. This suggests there are probably not many big lottery tickets to be found in the form of property on its balance sheet valued at less than its actual market value, and the like.

There could be some snakes in the basket. Certainly, software companies' accounting for revenues when the software is bundled with a service agreement can get complex, and there might be something there. However, Oracle did run into these kinds of problems back in the early 1990s and it caused a big management shake-up as well as a huge amount of market volatility that founder and very large shareholder Larry Ellison probably did not appreciate. I would be willing to bet that considering this history, Oracle is not very aggressive with its accounting for ratable revenues, at least.

Perhaps Ellison—a charismatic and visionary entrepreneur—can be considered a balance sheet effect. If he were not there to lead the company, would it be as successful as it is today? How strong is the management bench to take over when Larry wants to increase the already substantial portion of time he spends on yacht racing and steps down as CEO? This is a potential balance sheet effect, but it is very hard to quantify.

Other than these things, I have not been able to identify an area where there may be some balance sheet effects, so I am counting this as zero.

The next Appendix, dealing with the specifics of how to forecast simple and detailed valuation ranges, builds on this analysis and creates a full valuation range for Oracle.